# MATERIALITIES OF AGE AND AGEING: CONCEPTS OF A MATERIAL GERONTOLOGY

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# MATERIALITIES OF AGE AND AGEING: CONCEPTS OF A MATERIAL GERONTOLOGY

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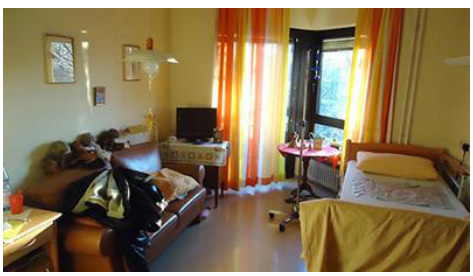
"Senior doing Digital Ageing" by Monika Urban.



"Institutional Care" by Lucia Artner.

"Nursing Bed" by Jenny Melind Bergschöld.

In gerontological research the understanding of age and ageing changed in the last decade. Biologic determined explanations no longer prevail in this research field. Instead, ideas of social constructivism are frequently used. These ideas define the state of age and the process of ageing as social constructions, steeping ageing in social and cultural assumptions, ascriptions, and expectations. From a social constructivist perspective, age and ageing are not (just) identified as dependency, deficit, and need for care – as it was foremost accelerated from a biological perspective – but with the life course and thus with individual lifestyles, experiences, attitudes and practices, as well as institutional and economic structures. A prominent social constructivist concept is "doing age." Similar to "doing gender" the concept of "doing age" assumes age as taking place in the form of a social praxis within everyday life interactions between people and thus in performances, embedded in discourses, through which social hierarchies and ideals proceed.

Despite the paradigm shift that social constructivist concepts enable in gerontological thinking, they reveal their blind spot when it comes to the materiality of ageing and thus to fleshy-sensual experiences, human and non-human ontologies and

agencies. Addressing these materialities of ageing brings up its own critique on definitions of ageing bodies and material environments. This framing does not presume that age and ageing are solely products of human-to-human interactions or those of formative environments or of discourses. Rather humans, non-humans, and discourses become essential parts of ageing processes. Such a material framing enables us new insights into forms of age and ageing and thus offers an opportunity for scholars to engage critically with materialities of age and ageing. This eBook explores theoretical, methodological, and empirical concepts of such a 'Material Gerontology'.

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EDITORIAL
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# Editorial: Materialities of Age and Ageing

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## Editorial on the Research Topic

## Materialities of Age and Ageing

Since the end of the 1990s the so-called material turn in the social sciences, cultural studies, and the humanities has made it clear that not only people create and reproduce the social world, but so-called "nonhuman" actors are also involved in these processes (e.g., Haraway, 1991; Barad, 2003; Latour, 2005). The fact that these various materiality-related theoretical and conceptual approaches have so far found their way into the gerontological debate only at isolated intervals (e.g., Twigg, 2013; Gilleard and Higgs, 2015) is astonishing. The aim of the research topic, "Materialities of Age and Ageing," is to explore what we learn if we look at age and ageing from the perspective of materiality-related theories and concepts, such as material sociology, material culture studies, science and technology studies, and new materialism. In our understanding, "Materialities of Age and Ageing" comprises both the fleshy-sensual experiences of human bodies and their interplay with and relation to non-humans, such as commodity items, things, technologies, architecture, and spaces. The authors of the research topic will not essentialize human and non-human kinds of materiality as natural facts.

The research topic contributes to a new material gerontology. In their introductory contribution the two guest editors, Grit Höppner and Monika Urban, propose the term material gerontology. This term was further developed by a network of scholars working in the fields of sociology, cultural gerontology, science and technology, and gender studies (https://materialgerontology.wordpress.com/veranstaltungen-des-netzwerks/). They foster a debate on roles, meanings, and functions of non-humans in the production of age and ageing—and some of these scholars have contributed to the research topic at hand. What the authors of the research topic and the scholars of the network have in common is both their skepticism toward the idea that age and ageing take place solely in humans and their openness to considering non-human kinds of materiality as being involved in ageing processes. As a starting point, all authors provide information on how the theoretical foundations of cultural gerontology and critical gerontology can be explored from a theoretical perspective on materiality. The aim is not only to enrich the understanding of material gerontology but also to relieve human subjects of some of the burden of an inexorable ageing process; thus, it relativizes the responsibility ascribed to seniors to perform a "successful" and therewith delayed ageing process.

"Materialities of Age and Ageing" includes four papers that theorize age and ageing from a materialist perspective, two papers that add empirical insides to a material gerontology, and one book review.

In an introductory contribution the two guest editors, Höppner and Urban, outline a material understanding of ageing processes. In "Where and How Do Ageing Processes take place in Everyday Life? Answers from a New Materialist Perspective," they review social constructivist ideas and cultural and critical gerontological assumptions on conceptualizations of bodies and agencies of ageing and rethink them using new materialist concepts, Höppner and Urban point

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out the importance of both the material-discursive co-production of ageing processes and the decentralization of the human actor.

Wanka and Gallistl turn to the influence of digital technology in postmodern societies and digital infrastructures, which are substantially integrated into the everyday lives of older people. In "Doing Age in a Digitized World—A Material Praxeology of Ageing with Technology" the authors attempt to both "praxeologize" and "materialize" current studies of ageing and technologies by introducing the theoretical model of "material praxeology of ageing with technology." Wanka and Gallistl give an example of the application of this model in a research project in the field of Active and Assistive Living that took place in Vienna, Austria.

Müller scrutinizes the status of care work in capitalist societies in "The careless society—dependency and care work in capitalist societies." The problematisation of actual lack of sensual and emotional relationships in the context of professional care work takes Müller to develop an care-ethical position. Making reference to feminist phenomenology, Müller presents her concept of "value abjection."

"Doing Age and Doing Desire in and Through Film. Queer Perspectives on Gender, Ageing, and Desire," addresses the intersections of "doing age" and "doing desire" in films. Analyzing five films, Eckert and Martin develop a taxonomy of the various forms of desire displayed in them. Their central hypothesis is that the films do not just represent desire in old age but—in and through the desire that they produce in the film—they also materialize desire in the spectators. They conclude that films allow for a specific corporeal-somatic experience beyond a simple and normalized heterosexuality in old age.

Bergschöld deals with training programs for nursing students learning how to care for elderly patients with dementia. "Configuring Dementia; How Nursing Students Are Taught to Shape the Sociopolitical Role of Gerontechnologies" draws on ethnographical fieldwork to investigate lectures in which nursing students learn about technologies in dementia care. Bergschöld concludes that the way the students are currently taught to deal with the selection and placement of the technologies necessarily contributes to a disempowerment of older adults with dementia who are ageing at home.

In "Materialities in and of Institutional Care for Elderly People" Artner explores a parallel between nursing homes and the "total institution" (Goffman). By drawing on Goffman's ideas on the creation and presentation of the self, she traces the effect produced by the placement and handling of material objects in the course of the performance of nursing work. By using empirical examples, she demonstrates how social interactions lead to the institutionalization of the residents.

A book review completes the research topic. Urban reviews the recently published anthology titled "Ageing as Social and Cultural Praxis. Orders—Relationships—Materiality" (Endter and Kienitz, 2017). This anthology, available only in German, considers ageing not as a biological process associated with deteriorating health, but rather as a social practice. It gives insights into how ageing is performed within a social and cultural order, as being interwoven within human and non-human relationships (e.g., things or architecture).

The research topic impressively shows that it is worth decentralizing the human actor that is usually focused on in research on age and ageing. This decentralization not only provides impulses for a new research on age and ageing but also enriches in general the social sciences that take human and non-human kinds of materiality into account.

## AUTHOR CONTRIBUTIONS

The ideas that are presented in this editorial are developed by GH and MU. GH and MU wrote the first draft of the manuscript together, contributed to manuscript revision, and read and approved the submitted version.

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# Where and How Do Aging Processes Take Place in Everyday Life? Answers From a New Materialist Perspective

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In the last decade, the focus of studies on age and aging has fundamentally changed from biological to symbolic, discursive, and cultural phenomena. Currently, the most studied topic in material gerontology is the materiality of age and aging in the context of everyday life. Scholars in this area have thus been making an important contribution to a material understanding of aging processes. As we understand them, however, both social constructivist and material gerontological concepts reach their limit when it comes to the questions of *where* and *how* aging processes actually take place in everyday life. In order to answer these two questions, we review social constructivist ideas with a particular focus on the "doing age" concept and material gerontological assumptions regarding human subjects, their material environments, and their relations. We then suggest rethinking bodily limitations and agencies addressed by scholars in the field of new materialism. The aim is to develop a new materialist-inspired understanding of aging processes that helps to reconstruct the material-discursive co-production of aging processes. These processes are deployed as mutual entanglements of materiality and meaning as well as of humans and non-human agency. This approach emphasizes the decentralization of the human actor and thus helps to map the material-discursive complexity of aging processes as relational co-products of humans and non-humans in everyday life.

**Keywords: aging processes, social constructivist gerontology, material gerontology, new materialism, bodily limitation, agency, non-human, doing age**

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## INTRODUCTION

In gerontological research the understanding of age and aging has fundamentally changed over the last decades. Biological explanations that reduce age to physical deterioration processes no longer predominate in studies on age and aging (Kruse, 2010; Schroeter and Künemund, 2010; Settersten and Angel, 2011). Rather, several gerontological scholars have questioned such a perspective by pushing social constructivist concepts of aging onto the agenda (cf. Gubrium and Holstein, 2008). That questioning started a dynamic process in which theoretical territory and empirical stances were made controversial. Inspired by such different thinkers as Levi Strauss, Michel Foucault, Gille Deleuze, and Peter Berger and Thomas Luckmann, scholars of aging studies began to envision aging as a non-representional phenomenon. Traditions and discourses were established as having

a strong influence on age and aging, as in the case of "active aging" (WHO, 2002) and "successful aging" (Rowe and Kahn, 1997). In this context, social constructivist concepts help to map the ascriptions, expectations, and bodily norms—such as being fit, healthy and independent—that are linked to age, and provide a basis for determining the social stereotypes and the hierarchies that are associated with aging (Schroeter, 2005; Backes, 2008).

One of these prominent social constructivist concepts is "doing age" (Laz, 1998; Schroeter, 2007, 2012) on which we will focus in this paper. Similar to the "doing gender" concept (West and Zimmerman, 1987) "doing age" acts on the assumption that age develops in the form of a social praxis, that is in everyday life interactions between people; that age is performed through social interactions and is thus displayed in performance. The meanings given to objects, bodies, problems, and situations can be contested within negotiated contexts. The struggle to redefine situations, identities, and problems can be embedded within and between contested social worlds and can cause a number of unintended consequences. Still, and this is why we refer to this example of a social constructivist theory, the "doing age" concept helps to map aging as contingent social interactions between humans.

In recent years, another wave of scholars has brought forward the idea of once again strengthening the role of the materiality of age and aging—that is, both aging bodies and their material environments (e.g., Calasanti, 2003; Gubrium and Holstein, 2008; Baars, 2010; Buse and Twigg, 2015; Artner et al., 2017).[1] These scholars of material gerontology highlight the function of things, technology and spaces within aging processes not with respect to their representative function but rather with respect to the interplay of human bodies and types of non-human materiality. Julia Twigg (2007, 2013), for example, analyzes the relationship between aging and clothes to show that clothing can be, among other things, a medium for remembering one's own experiences.

It is clear that studies on aging refer not just to these three theoretical episodes: biological gerontology, constructivist ideas, and now material gerontology. We certainly find a huge diversity of theoretical approaches under these three headings, which we won't be able to discuss in this paper. But in fact, by highlighting these rough subdivisions and taking a closer look at some examples we will point out the new theoretical assessments of discourse and their interplay with materiality. By introducing here the concept of "material-discursive practices" (Barad, 2003, p. 818), a core idea of new materialism, we want to re-emphasize if not re-discover how both materiality and discourses can be theorized and investigated in aging studies.

Therefore, in this paper, we want to focus closely on aging processes that proceed within material environments. In order to take such a micro-level perspective in the social sciences seriously, we ask *where* and *how* humans and non-humans actually refer to each other in specific situations and thus *make* a relation—that is, a mutual entanglement (Pickering, 1993; Barad, 2003, 2007) between humans and non-human elements (such as technologies, fabrics). Our aim is to theoretically map aging processes in order to understand *where* and *how* age and aging actually take place in everyday life.

By referring to scholars of new materialism, we will presume that aging processes do not proceed exclusively *in* the human body. Instead we want to convince our readers that age and aging are co-products of human interactions, discourses, things, technical artifacts, possessions, and mobilities, among other things. From such a perspective, aging becomes a complex process in which human bodies and all kinds of materiality can be involved.

To actually answer the question as to *how* and *where* aging processes take place in material environments we will present some examples of mutual entanglements of different materialities and non-material elements (such as e.g., the ideals of aging). But unlike the early theoretical episode of biological gerontology, we don't want to present aging as simply physiological processes. Neither do we propose to analyze aging as just discursive and symbolic performance. In contrast, we would like to show, how aging can be seen as a bodily process that is situated within material and non-material environments. In keeping with this intention we switch our focus to questions like: what function do walkers have within the process of aging, in the context of a society in which active aging has become the norm? How do clothes turn a person into an "old" person? Do "old" people live in technologically equipped homes (with e.g., AAL technologies) or do they age because they move into such homes and subsequently perform certain sociotechnical practices?

By choosing one example of the constructivist theories—the "doing age" concept—we highlight the potential of this approach, but also suggest the value of including the materiality of age and aging into gerontological analyses. Since we are promoting the debate on the importance of materiality in the aging process, we will introduce mostly Anglophone gerontologists (Calasanti, 2003; Twigg, 2007; Baars, 2010). In order to enrich the theoretical debate, we use ideas from new materialism. New materialism (Dolphijn and van der Tuin, 2012) is a recent term for a nexus of theories that are currently being discussed in gender studies as well as science and technology studies (STS), such as the "agential realism" of Karen Barad (2003, 2007), the "Deleuzian materialism" of Rosi Braidotti ([1994] 2011), and the "posthumanism" of Donna Haraway (2007). In this context we will propose that new materialist concepts enable a paradigm shift away from determinism and constructivism toward performativity and materialism (Barad, 2003; van der Tuin, 2008; Dolphijn and van der Tuin, 2012; Coole, 2013). By reflecting those preceding theoretical debates, those new materialists take language, discourse, and knowledge into account and also turn toward material processes, thus linking meanings with materiality (Barad, 2003).

In order to grasp the dialectic relationship between discourses, knowledge, meaning, and materiality, new materialist scholars refer to a particular understanding of materiality: materiality

[1]The discussion about the importance of reflecting materiality during the processes of the construction of knowledge and social environments started much earlier outside the studies on aging, e.g. in the sociology of science (cf. Pickering, 1993), in certain constructivist circles (cf. Foucault, 1978; Berger and Luckmann , 2009 [1969], p. 37; p. 125) as well as in the wider context of science and technology studies (e.g., Pinch and Bijker, 1984) and actor-network-theory (ANT) (e.g., Johnson, 1988).

is neither an invariant, essential and pre-existing element nor simply a discursive effect but an ongoing discursive construct *and* material formation that is co-constituted in reference to its material environment. For example, aging processes are discursively mediated through social and cultural assumptions and expectations, informed by ideals alike "active aging" and "successful aging" (Lassen and Moreira, 2014). At the same time, aging processes are shaping activities that express those ideals; e.g., through a specific posture and practice, through certain usages of artifacts, through the selection of spaces to live in, etc. The new materialist understanding of material environment highlights the idea that bodies, things, technical artifacts, possessions, mobilities, and knowledge, among other things, are mutually entangled with each other in specific situations. What and how they are entangled in each particular situation, however, depends on the research design in the broadest sense or—to use Karen Barad's term—the "apparatus" (Barad, 2007, pp. 218; more in section Some Methodological Consequences).

In this paper we will propose that a new materialist-inspired understanding of aging processes enables the analysis of age and aging as a co-product of material-discursive practices in everyday life, which are constituted in a specific sociocultural context and time. This understanding could help to map the complexity of bodily processes in order to offer a more nuanced understanding of the many facets of age and aging (Höppner, 2015a,b, 2017a).

In the following section we turn, for an example, toward the social constructivist concept of "doing age" and toward a section on material concepts of gerontology, both focusing on their potentials and limits (section The Social Constructivist Concept of "Doing Age" and Material Gerontological Concepts of Age and Aging). Then, from the perspective of new materialism, we address two current limits of the conceptualization of aging processes: first, the lack of explanations of *where* aging processes actually take place, which is the question of how bodies and their limitations are theorized; and second, the lack of explanations of *how* aging processes actually take place—which is the question as to how agency is constituted within aging processes (section A New Materialist-Inspired Understanding of Aging Processes). Using findings of our own research in section Some Methodological Consequences, we suggest some methodological ideas for analyzing aging processes through the lens of new materialism with a particular focus on bodily limitations and agency. Finally, we discuss our understanding of aging processes in order to enrich current gerontological research by emphasizing the decentralization of the human actor. This could help, as we wish to propose, to map the complexity of aging processes as relational co-products of humans and non-humans in everyday life (section A New Materialist-Inspired Understanding of Aging Processes: A Final Discussion).

# THE SOCIAL CONSTRUCTIVIST CONCEPT OF "DOING AGE" AND MATERIAL GERONTOLOGICAL CONCEPTS OF AGE AND AGING

As we sketched out in the introduction, the three episodes of gerontological theory that we chose (see above) grasp age and aging differently: While traditional gerontological research centers age and aging exclusively in the human body and envisions age and aging as a biologically determined process, social constructivist scholars rearrange this point of reference by highlighting the discursive production of aging bodies (in more detail cf. Saake, 2006). Generally, social constructivist concepts consider discourses as elements that frame, generate, and influence age and aging. Scholars not only map social assumptions and bodily norms that are currently linked to age and aging, they also reflect the hegemonic ascriptions of meanings and expectations. Such a perspective decodes age and aging as social constructs that are deeply woven into stereotypes, norms, and social hierarchies, such as those of gender and class (Backes, 2001; Schroeter, 2005). Furthermore, age and aging are not put on a level with dependencies, deficits, and care needs. Scholars instead define the later years as a period in the life course that comprises individual lifestyles as well as particular experiences, attitudes, and practices (Dannefer and Settersten, 2010; Denninger et al., 2014). These particularities again are entangled with institutional, economic, social, cultural, and political structures, such as the average social healthcare services, the organizational structure of retirement security, as well as the state of the labor market in general (van Dyk, 2015, pp. 6 et seq.; McMullin, 2000).

## Social Constructivism

Since the term social constructivism brings together quite different ideas under a single roof (see Gubrium and Holstein, 2008), we present only one example of a prominent social constructivist concept in some detail: the concept of "doing age" developed by Cheryl Laz (1998) and later broadened by Klaus Schroeter (2005, 2007, 2012). The "doing age" concept assumes that age and aging take place in the form of a *social praxis* within daily interactions between people. Thus, age is not a social role or an individual and physiological feature, but an interactive process of performance and social ascription. Age differences are presumed to be socially constructed, and thereby social hierarchies are promoted and (re)shaped (Schroeter, 2005, p. 250).

Klaus Schroeter (2012, p. 160) indeed questions the human body as one with clear and fixed boundaries by pointing to the interplay of verbalization and bodily appearance: Schroeter states that the meaning of age and aging is verbally transmitted during human interactions. Those meanings influence how people talk and even act toward each other. Under consideration, for instance, is gray hair and wrinkled skin; these physical traits indicate advanced age. This interplay in turn determines the normative conventions of communication, such as certain polite forms, customs, experiences etc.

However, if age is socially constructed and performed, the question arises as to what role the body and sensual experiences may play within these interactive processes. According to van Dyk (2015), aging has a dual character: on the one hand, age is a marker of difference as seen above. On the other hand, *old age* describes a physically experienceable and very individually distinct process of the transformation of an organism, such as changes in skin and tissue, as well as mental and physiological capacities. The body implements its own processes, from the

reduction of bone density to erectile dysfunction (Calasanti and Slevin, 2001, pp. 70 et seq.). The dual character of age unfolds itself in a dialectical manner: aging, as an eminent individual experience, can only be lived and interpreted in terms of cultural representations within the framework of institutional processing policy, such as pension payments and healthcare services. Thus, social interpellations and normalizations both enable and restrict the experiences and practices of aging (van Dyk, 2015, p. 117). This means that the physicality of the body and the impact of state regulations become two factors of the aging process, which play a significant role in its unfolding. Neither is the focus of the "doing age" concept.

Another blind patch concerns the material environment in the aging process. The example of clothes illustrates this argument: The "doing age" concept addresses the symbolic qualities of clothes. Here, clothes are analyzed for their gendered symbolism as being a typical feature of femininity or masculinity, of young or old age. Scholars analyze rollators as symbols in the performance of illness. That is, in the context of a study using the "doing age" concept, meanings ascribed to the material environment are more likely to be defined and thus reproduced than they are to be questioned. This focus misses the actual interplay of clothes and bodies: Don't high heels inhibit running? Don't heavy coats weigh us down and rollators set the pace?

The social constructivist idea, which considers the material environment—such as clothes—in its symbolic function, also specifies a certain understanding of agency: Social constructivist scholars conceptualize age and aging as a social practice of and between humans. In this understanding, humans are the only ones focused on, as active "producers" of age and aging (Schroeter, 2007). For example, humans display their age through their decision to wear or use particular material objects (e.g., heavy coats and rollators) which then become symbols of aging. In accordance with the concept of "doing age," (only) humans actively make or do not make decisions, and thus have or do not have agency. Agency, in the sense of the capacity of humans to act of their own free will, is assumed to be inseparable from the human body. But as we have seen, the interplay of human and non-human entities such as clothes and rollators influences how we as humans walk, how much weight we feel on our shoulders, and how quickly we can maneuver in supermarkets or on sidewalks.

Those examples show that the "doing age" concept reaches its limits when it comes to the materiality of age and aging. Despite the important enhancements of constructivist concepts, the "doing age" concept faces the risk of neglecting physical abilities and bodily changes as well as the material environment in its functions and limitations in theorizing aging processes (Twigg, 1997; Cruikshank, 2009; Abramson, 2015).

## Material Gerontology

In the last decade, scholars of the social and cultural sciences have developed a new interest in the material side of social interactions. The term *material turn* highlights this growing interest in the role played by things within individual and collective processes. In this context, material gerontological scholars developed different conceptions of age and aging that take into account things and their interplay with humans. Scholars from material culture studies and STS, for an example, analyze *things of care* regarding their materiality and functionality. Artner et al. (2017) carve out ideas of care inscribed into typical care artifacts in their anthology with the same title: For example, one sub-project of *things of care* focuses on the agency of things of care, using the example of the nursing bed, which produces both autonomy and dependency (Heitmann-Möller and Remmers, 2017; also Keil, 2017). Another sub-project outlines the significance of a handbag for older women with dementia: it is shown that using the "right" biographical object—like a handbag—can support care work, e.g. in view of reducing doses of medicine (Depner and Kollewe, 2017; Kollewe, 2017). A general popular topic in aging studies is the currently hegemonic ideal of *anti-aging*: e.g., Pfaller and Schweda (2017) demonstrate how sport programs, food supplements, hormone therapies, beauty and lifestyle products et al. provoke and at the same time enable new forms of aging. Further, Urban (2018) works out which ideas of health and illness are generated in home care settings with Ambient Assisted Living Technologies (AAL). Considering the same technologies, Kollewe (2017) takes a closer look at emerging daily routines. She points out that older people and assistive technologies are mutual entangled. Their interplay (re)produces a certain form of activity—which corresponds to the paradigm of *active aging* (Kollewe, 2017). Endter and Kienitz (2017) demonstrate in exemplary manner how, in the alliance of humans and things, things, too, can age, while the human is aging.

Despite the differences of these chosen examples, material gerontology scholars have in common that they show how humans and things connected with care interrelate during daily routines. The scholars present in detail how things structure, change, and stabilize care work and care settings and the aging process in general. In sum, these scholars show that humans are not singular actors in the field of care and aging; thus, care as well as aging processes cannot be exclusively centered in humans, but must take non-humans into account.

In taking this stance, the material gerontology scholars differ from those of the first theoretical episode, who ontologized the human aging process. Regarding the second theoretical episode, the material gerontologists are not trying to re-invent the wheel: They take into account a discursive dimension, e.g., the hegemonic ideals of *active aging* and *anti-aging* as influential factors for the aging process. Quoting for example the above-cited article of Pfaller and Schweda, they envision the discursive dimension as productive: discourses engage people in certain activities and thus become a source for different economies (e.g., regarding the second health market and the digital economy).

Taking such multiple dialectic processes into account can be fruitful for a better understanding of the complexity of aging processes. How this complexity could be dealt with in the manner of the new materialists will be described in the next part.

# A NEW MATERIALIST-INSPIRED UNDERSTANDING OF AGING PROCESSES

In the tradition of the *material turn,* scholars of gender and STS have started to consider the materiality of both the human

body and the environment as part of their analyses (e.g., Pinch and Bijker, 1984; Callon, 1986; Bijker, 1993, 2012; Butler, 1997). The contrast of their work in comparison with that of scholars who follow the "doing age" concept can be characterized by answering two analytical questions. First, as we have already seen, new materialist scholars do not exclusively favor symbolic qualities (e.g., clothes that are typically female or male, items such as rollators that are linked to illness), but also consider how materiality is interrelated with a certain age. *So where does the aging process actually take place: in the human body, in the material environment—or rather in both at the same time?* Second, we showed that the concept of "doing age" conceptualizes age and aging as a social practice of and between humans. In this understanding, exclusively humans are focused on as "active producers" or actors of age(ing) (Schroeter, 2007). For example, humans display their age through their decision to wear or use particular objects (e.g., clothes, rollators). In accordance with the concept of "doing age," (only) humans actively make or do not make decisions, and thus have or do not have agency. Agency in the sense of the capacity of humans to be active agents is assumed to be inseparable from the human body. By contrast, the cited work of material gerontologists stresses the productive involvement of material artifacts such as handbags, nursing beds or AAL technology. *Based on this, the question arises, how do age and aging actually take place?* In the following section(s), we want to answer these two questions from the perspective of new materialism.

## *Where* Do Age and Aging Actually Take Place? Rethinking Bodily Limitations

New materialist scholars state that age occurs neither solely through the agency of humans, their bodies, physical qualities, and experiences nor solely through the objects in their environment, such as clothes or nursing beds. In fact, new materialist scholars presume that bodies, things, technological artifacts, possessions, mobility, and knowledge are, among other things, essential parts of age and aging. This understanding contests traditional ways of thinking of bodies and agencies in gerontological research (see also Hinton and van der Tuin, 2014). In their analyses, new materialist scholars focus on the concrete performance of bodies and thus the processes through which bodies are linked to meanings, such as the classification of being "old." In a new materialist perspective it is not enough to ask "how discourse comes to matter": it is also relevant to ask "how matter comes to matter" (Barad, 2007, p. 210). To describe this paradigm shift, Karen Barad uses the idea of "material-discursive practices" (2003, p. 818) to emphasize that material and discursive practices are always linked to each other and that materiality and discourse are in fact in some sense constituted within these entanglements. This bears two consequences:

1) The idea of material-discursive practices can be used to conceptualize how meaning and materiality are linked to each other: Using the example of Pfaller and Schweda again, the body, for example, changes its tissue structure over the years. Especially against the background of the ideal of *anti-aging*, is this understood as a fearful event, which again motivates practices that include human and non-human kinds of materiality. Some of those practices (e.g., cosmetic corrections) are driven by artifacts (e.g., chemical products, dietary supplements, surgical tools), which again change the tissue structure.
2) The concept of "material-discursive practices" reflects the specific way that the interrelation between the material environment of bodies and its relation to human bodies can be understood: In this understanding, the human body cannot be conceptualized as an enclosed entity with a fixed material structure. Instead, scholars use the term "ontology" to point out that they assume that human bodies are temporary "matterings" (physical existences with specific importance) with altering boundaries. The same applies to non-human bodies (Haraway, 1989, 1991; Barad, 2007).

But how can we present such a dissolving of limitations in human ontology? A new materialist perspective opens the question of what *an* "old" body actually is. Does an old body either end at the artificial hip-joint or the rollator, even though both expand the abilities and sensations of the body? Does a recently implanted pacemaker rejuvenate a person's body, because the body now has a strong, regular, and "young" heart beat? Even though these technically induced changes could allow persons to perform activities they maybe have not practiced for years that, in turn, could have its physical and emotional effects. The sense experiences and physical appearance then could be those of a much younger self.

Taking up this perspective of altering boundaries, aging does not happen exclusively in and by human bodies, but also in and through material environments as well as due to social ascriptions of meanings: All dimensions together—the body, the material environments, and the social ascriptions of meanings—co-constitute a body as an "old" body. In this manner, new materialist scholars argue that "old" bodies are temporary "matterings" and thus have *flexible boundaries* in relation to their material environments (Haraway, 1989, 1991; Barad, 2007). *Flexible bodies* are not simply extended by things, e.g., a rollator, or changed by technological alteration, e.g., through the insertion of a cardiac pacemaker. Rather, bodies are flexible when new aging processes are co-produced through the use of things or the insertion of technologies within so-called "person-thing-technology-networks" (Haraway, 1989, 1991; Ihde, 1990; Höppner, 2017b; Urban, 2017a).

The implication for material gerontologists is that they should decentralize the human body—in which age and aging are traditionally centered—in their analyses. In fact, though, humans and non-humans, technologies, discourses, and spaces need to be understood as potential co-producers in the analyses of age and aging processes, as potential agents among other agents. For this reason, new materialist assumptions oblige researchers to turn away from stating causal processes, which are determined by biological features and/or social constructions. Instead, they prefer a relational co-production of age and aging as the starting point for analyses.

### *How* Do Age and Aging Actually Take Place? Rethinking Agencies

The understanding of agency as a human capacity is widespread in the social sciences. However, in recent decades, agency has been framed in a broader context, e.g., as being affected by and related to influential factors such as ability, class, gender, and ethnicity (Barker, 2005, p. 448). Socialization theories define agency as a result and feature of socialization processes. Biographical experiences are recognized as co-determining for future actions (Emirbayer and Mische, 1998; Grundmann, 2006).

Inspired by those ideas, new materialist scholars call the human-centered understanding of agency into question. They argue that agency is not an attribute that people and/or things "have" (Barad, 2007, p. 194). Instead, agency is considered to be an "ongoing reconfiguring of the world" (Barad, 2003, p. 818), which is realized in "material-discursive processes." We will illustrate this argument by giving some examples.

Most homes of elderly people in Western societies are single households. *Aging-in-place* has become an ideal of aging in autonomy and self-determination even for people with several handicaps (Schillmeier and Domenech, 2010, pp. 2, 6). Although new types of residential arrangements may exist, technical enhancements of the home like Ambient Assistive Technologies are becoming increasingly popular. While alarm buttons have been in use to help people when they fall since the 1970s, nowadays smart technologies can assist the elderly even in moments when they are unable to act. Through the use of sensors and cameras that produce new data which is transferred to professionals and others, for example family members, the elderly are enabled to live in their own living quarters even after developing handicaps. At the same time these technologies lead to new practices of aging, ranging from active engagement in behaviors to avoid (false) alarms (Kollewe, 2017) to the avoidance of fond habits such as sexual behaviors (Urban, 2017a): Of course, sensors do not directly induce an abstinent aging process. However, they are not programmed to differentiate clearly between practices: For example, bed sensors are not programmed to differentiate between an epileptic seizure and sexual behaviors. Due to the limited algorithms behind the sensors, users might avoid sexual behaviors in order to avoid publicizing them. This, in turn induces a sense of shame, which again could entail abstinence. Sexual behaviors in later years could be framed as a matter of shame since society connects them with ideals of beauty (see in more detail section Some Methodological Consequences), and those are thoroughly age-critical (cf. Mehlmann and Ruby, 2010).

Using the example of health technologies, Nelly Oudshoorn (2011) shows not only that high-tech home care delegates and redistributes care but also that patients need to take a different stance with regard to their own bodies; they have to become competent users of various technologies, through which they tame, discipline, observe, and diagnose themselves. Monika Urban (2017b) takes this further and points out the significance that social and cultural inequalities gain in the context of the demanding processes of becoming a competent user and manager of one's own health in relation to high-tech home care. In this process she reconstructs the entanglements of the ideals of aging, the formation of new knowledge, and new physical routines (see in more detail section Some Methodological Consequences). Using the example of personal items, Grit Höppner (2015a,b, 2017a) demonstrates that the reference to photographs and "things of memories" (e.g., a mountain that someone climbed in the past) is closely connected with verbal and nonverbal communication and thus with the production of aging processes as articulations of agency during interviews, such as temporarily interrupting, compensating for, confirming, or actualizing one's own age, or distinguishing oneself from peers by virtue of age differences (see in more detail section Some Methodological Consequences).

These examples demonstrate the sorts of complex ways in which discourses, emotions, bodies, practices, things, and technologies are entangled; each of them is agential within person-thing-technology networks. Within these entanglements aging processes are constituted or, in other words, these entanglements co-produce the "matterings" of age and aging (cf. Barad, 2003; van der Tuin, 2008; Schmitz and Degele, 2010; Höppner, 2017a). Following Braidotti (2014), this could be called a *posthuman* aging process in which agency is shared between humans and non-humans. Since new materialist scholars assume that processes of ascription take place in mutual entanglements of humans and non-humans (cf. also Kriebernegg et al., 2014), humans can be considered as being only one agential actor in producing age(ing) in the sense that they ascribe meanings to things, technologies, spaces, etc. and embody these ascriptions.

The new materialist assumption that agency is not centered in the individual human but is rather co-constituted within material-discursive processes that are linked to age, evokes new questions that in turn generate new insights for the understanding of age and aging processes. In a new materialist perspective scholars ask not only *who* actually ages *what*, but also, *what* ages *whom*: does the person age the rollator or does the rollator age the person? Don't heavy coats make it more difficult to move jauntily? Do poorly fitting dental prostheses ruin the pleasure of eating, and lead to poor nutrition, and awkward social interactions? (For more information on the dialectical dynamic cf. Endter and Kienitz, 2017).

## SOME METHODOLOGICAL CONSEQUENCES

Rethinking aging as a co-constitutive process—in which discourses as well as bodies, spaces, things, and technologies produce agency through mutual entanglements—has methodological consequences for social scientific research on aging; it calls for a specific way to generate, transcribe, and analyze the data.

According to Barad's theory of "agential realism," aging can be understood as a phenomenon she calls "the ontological inseparability of intra-acting agencies" (Barad, 2003, pp. 803 et seq.). "Intra-action" is a neologism introduced by Barad, which signals a special challenge to the social sciences: materiality and meaning are no longer fixed and antecedent entities. Materiality

and meaning, and thus their relation to each other, are instead constituted within the very process—in our example—of aging. For Barad, phenomena do not precede their interaction; rather aging *emerges* through particular intra-actions. In other words, agency develops in mutual references between ontologies, which are differentiated into humans and non-humans; persons and things, technologies, spaces, artifacts etc. The meaning of age and aging is (re-)negotiated within this interplay.

Two examples, given below, will provide a brief overview of varying methodological considerations.

I) Grit Höppner has shown how agency can be generated, transcribed, and analyzed in the context of becoming old. She suggests defining the verbal und nonverbal communication during interviews as kinds of agency that are negotiated between interviewee and interviewer. In accordance with Barad's concept of "material-discursive practices," she conceptualizes verbal statements and attached meanings as being inseparably entangled with nonverbal articulations of the body; thus, she does not separate verbally articulated opinions, experiences, and attitudes from nonverbally articulated gestures, facial expressions, or ways of speaking. The statement "I feel old" is probably articulated with a quiet voice and a ducked posture. At the same time, these nonverbal articulations condition the statement "I feel old," more than the statement "I feel young." In order to analyze material-discursive practices in a sociological interview analysis, the "language-analysis-based transcript system" (Selting et al., 1998, author's translation) helps to mark all the statements and simultaneously articulated nonverbal expressions, such as breaks [e.g., (.) (3 s)], sounds (e.g., <laughs>), changes in the voice (<faster> <slower> <louder> <quieter>), lengthening (: :: :::), accented words (ACCENT), and tone pitches at the end of a unit of a sentence (?,;-.). Additional observations complete the transcripts. A particular type of analysis—sequence analysis—helps to map the material-discursive practices that co-produce the phenomenon of "becoming old" through verbal and nonverbal articulations that develop within the mutual entanglements between humans and their material environments. In order to consider Barad's idea of "material-discursive" in its complexity, Höppner additionally suggests taking into account the way in which absent and present persons and things are referred to during the interviews and how they intra-act with interviewee and interviewer. The aim is to retrace continuities and discontinuities of communications processes caused by references to persons and things. For example, an 82-year old man, sitting in a ducked posture and speaking quietly in well-regulated sentences, suddenly changes his appearance. In this situation his posture becomes upright and his voice louder than before, he breathes deeply, uses more nested sentences and competes for speaking time. In this situation, the man is referring to a mountain that he once climbed. The reference to the remembered mountain helps the man to verbally and nonverbally embody his ideas of being healthy and active. This kind of interview analysis shows that age is a discursive and simultaneously a somatic praxis that is embodied. Consequently, these methodological ideas are neither limited to the content of interview transcripts nor to the question of how content is communicated; rather they show how features that interviewees link to (remembered) things materialize through a specific way of speaking, through posture, and through forms of breathing (for more detail see Höppner, 2015a,b, 2017a). The analysis also illustrates that not only ethnographic research but also interview research is able to reconstruct bodily processes (see also Atkinson et al., 2003, pp. 97–117).

II) Taking a different view, Monika Urban choses an ethnographic approach (e.g., *Focused Ethnography* by Knoblauch, 2001) to reconstruct how and what kind of agency evolves in households equipped with Ambient Assisted Living technologies and technologies for home-based monitoring of chronic conditions. With regard to the actual technological developments, she asks how digital health technologies and high-tech care spaces foster certain forms of agency within aging processes. As an analytical frame within which to examine the material-discursive practices, she uses Barad's (2007, pp. 218 et seq.) methodological idea of the apparatus. This idea distinguishes itself from the concept of the actor-network theory, which envisions assemblages of humans and non-humans producing phenomena such as automatic door closers and their influence on passers-by (e.g., Johnson, 1988). For Barad, envisioning an apparatus raises the question of what conditions of possibility for practices and agencies are created in a certain setting for humans as well as for e.g., technologies. Envisioning the apparatus makes it possible to map the agency taking place within technically equipped households. This doesn't mean merely mapping the daily routines of seniors dealing with sensors as well as with the consequences of the datafication of bodily functions. It can very well include comprehending the algorithms the technologies are based on—for example, as we have demonstrated earlier, certain bed sensors obviously don't allow for sex between seniors with handicaps. This again raises the question as to what ideals are inscribed in technologies and what motives and knowledge induce seniors to use these technologies in consequence. On the other hand, it is not only the emerging ideals that are in question (e.g., that specific sociotechnical practices stabilize the current ideal of "active aging"). But also the sheer production of material beings comes into focus (e.g., aging processes that provide the conditions for agency). That means an apparatus, in Barad's sense, produces a phenomenon and thus creates the conditions for material-discursive processes. Hence, such an apparatus neither determines meanings and material beings, nor ideational concepts. It nevertheless provides the conditions for differentiation processes, such as the opposition of human and non-human, young and old, and the inclusion and exclusion of matterings within the scope of a phenomenon (for more detail see Urban, 2017b, 2018).

To sum up those methodological considerations: In research projects following the ideas of new materialism, the apparatus is constituted by various decisions of the researcher, such as the

decision to use a particular theoretical framing, to reconstruct certain practices in specific settings, a transcript system, and a method for analyzing the data generated, among other things.[2] All these decisions influence how aging is perceived and how agencies are identified during a research process. As a general principle, from the perspective of new materialism, the aim is to reconstruct the material-discursive processes that condition the development of a phenomenon such as aging.

## A NEW MATERIALIST-INSPIRED UNDERSTANDING OF AGING PROCESSES: A FINAL DISCUSSION

In this paper, we have suggested rethinking social constructivist and material gerontological assumptions on ontologies and agencies for materialist-inspired gerontological research. We highlighted the necessity to rethink the limitations of human bodies by considering the material environment in aging processes. In this attempt, we displayed how the decentralization of the human actor helps to map the complexity of aging processes. We have pointed out that, from a new materialist perspective, aging is not exclusively limited to humans, their abilities and experiences, nor does it just depend on human social environments. We stated that aging instead comprises an ongoing process of boundary-drawings, through which ontologies and their relations to each other are formed and provided with meanings.

The new materialist episode stands out from the two other theoretical episodes cited, which analyze aging merely as a meaning, an ascription of meaning, a social construct, or a physical feature. In contrast, new materialist ideas highlight the idea that aging is a meaning, an ascription of meaning and thus a social construct; *and* that it is simultaneously a temporarily material co-formation, and thus a specific mattering, comprising numerous mediums that transport meanings and embody the materiality of age. This means that the focus on the conditions through which the material-discursive processes of age and aging take place, can take a step toward a specific kind of biological matter of aging—neither defining the biology as determinist nature nor displaying aging as simply a discursive effect. However, since we propose social scientific analyses of aging, the means to analyze the biological matter of aging are limited to bodily expressions and perceptions. An interdisciplinary cooperation, for example with medicine, would allow for the consideration of further bodily data (e.g., heartbeat) and the working out of how these data are linked to aging processes.

New materialist assumptions enable us researchers to define aging not as linear courses, but as co-formations taking place within relational processes that constantly re-shape the experience of age and aging. Accordingly, concepts of new materialism enrich the analysis of aging processes, for example regarding the relation between spaces, architectures, technologies, commodity items, and human bodies. Consequently, such an analysis not only emphasizes the function of human bodies and their material environments for aging processes, it also questions where and how age and aging are actually and precisely performed, against the background of ideals of aging and their material environments.

[2]It has been pointed out much earlier by constructivists (e.g. Schneider, 1985; Woolgar and Pawluch, 1985) that scholars construct social phenomena themselves by defining their object of research.

## AUTHOR CONTRIBUTIONS

The ideas and hypothesis tested in this paper are developed by GH and MU. GH and MU wrote the first draft of the manuscript together, contributed to manuscript revision, and read and approved the submitted version.

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# Doing Age in a Digitized World—A Material Praxeology of Aging With Technology

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Digital technologies have gained vast relevance in postmodern societies and digital infrastructures are substantially integrated into the everyday lives of older people. This digitization is reframing the norms and practices of later life as well as the social construct of age itself. Despite the increasing amount of studies in the field of aging and technologies, it still lacks theorizing. This paper addresses this deficit, suggesting that the study of aging and technologies could profit from a comprehensive integration of theories from the sociology of aging, critical gerontology, and science-and-technology studies. We aim to make a theoretical contribution to this issue, asking: how is age being done in a digitized world? Applying a praxeological approach to aging and technologies, we firstly examine how theoretical and empirical work has constructed aging with technologies so far and identify its shortcomings. Some of this work so far lacks a proper consideration of social inequalities within these processes, whereas other studies lack a thorough consideration of materialities. Secondly, in an attempt to equally "praxeologize" and "materialize" the study of aging and technologies we develop a theoretical model that aims to overcome these shortcomings. In what we frame as a material praxeology of aging with technology, we are concerned with how age is being done through discursive formations, set into practice through social and material practices and involved in the (re)production of social inequalities. Enriching a Bordieuan terminology of social fields with notions of non-human agency, this praxeology is founded on three assumptions: (1) Social fields constitute the contexts in which age as a social phenomenon is being done with and through technologies (2) Human and non-human agents are equally involved in this process (3) The actions of the involved agents emerge from an agency distributed among them, and are structured through the power relations between them. Thirdly, we exemplify the application of this model by reference to a research project in the field of Active and Assistive Living.

**Keywords: doing age, technologies, practice theories, materialism, aging**

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## INTRODUCTION

The societal and scientific understanding of age has changed. Once viewed as a biologically determined status, later life is increasingly understood as a stage of life that is open to change. In sociology, old age is seen as a social construct that has evolved historically and differs from society to society. Recent work in critical gerontology has consequently shown

how age is being done through various social practices, but also posed the question how age and aging are co-produced in and through materialities.

One contemporary area of research that is particularly fruitful in studying the materialities of aging is the field of aging and technologies. Digital technologies have gained vast relevance in postmodern societies and digital infrastructures (comprised of, for example, smartphones, tablets, PCs, apps, fitness trackers, and many other digital devices) are substantially integrated into the everyday lives of older people. Despite the fact that older adults are often framed as "laggards" in the innovation process (Beal and Bohlen, 1957), they have become one major target group for technology development and research, particularly in the field of medical and assistive technologies (Rosales and Fernández-Ardèvol, 2016). This digitization is currently reframing the norms and practices of later life (Marshall and Katz, 2016), and hence co-producing the social construct of age itself. Despite the increasing amount of studies in the field of aging and technologies, it still lacks theorizing (Sixsmith and Gutman, 2013).

This paper addresses this deficit, suggesting that the study of aging and technologies could profit from a comprehensive integration of theories from the sociology of aging and science-and-technology studies (STS). We aim to make a theoretical contribution to this issue, asking: how is age being done in a digitized world? Which elements constitute the doings of age with technologies?

To approach these questions, we will take three steps: in the first section, we examine how theoretical and empirical work in the field of technologies and aging has constructed age with technologies so far. In the second part, we present a theoretical model which aims to further theorize the doings of age with technologies. In an attempt to equally "praxeologize" and "materialize" the study of aging and technologies, we will bring together core concepts of Pierre Bourdieu's praxeology (1977) with concepts of STS. In the third section, we exemplify the application of the proposed model by reference to a research project in the field of Active and Assistive Living (AAL). Finally, we conclude by discussing the implications and limitations of this approach and provide an outlook for further research.

## CONSTRUCTING AGE IN SOCIOLOGY, GERONTOLOGY, AND STS

In this section, we discuss how empirical and theoretical work on the topic of aging and technologies has constructed aging so far. To do so, we regard approaches from three paradigms that have been most influential in studying aging and technologies in the past: rational choice theories, structural-institutional theories and post-structural theories. As most of the recent studies on aging and technologies fall under the latter, we focus on the different perspectives it comprises—cultural and practice theories as well as approaches from STS. In each section, we provide an overview about the most commonly used concepts in this field, explain how they have been used to conceptualize aging and discuss which elements of the doings of age they might emphasize.

### Rational Choice Theories: Technology Acceptance in Later Life

Theories within the rational choice paradigm are centered on the *explanans* of individual choice that can be framed as rational. Rationality—in this approach—presupposes an accurate cost-benefit-analysis, but also depends upon individual preferences, beliefs, and constraints (Wittek et al., 2013).

Rational choice theories have been widely used to explain the differences in uptake of technologies by different social groups. One of the most wide-spread models is the Technology Acceptance Model (TAM), originally developed by Davis (1989) and developed further by him and colleagues (Davis and Venkatesh, 1996; Venkatesh and Bala, 2008). The model portrays a modification of (Ajzen and Fishbein, 1980) theory of reasoned and aims to explain the intention to use a technology with rational reasoning. A vast body of empirical literature shows that TAM explains a substantial percentage of variance (around 40%) in the intention to use a technology. The model hypothesis claims that this intention is determined by (1) its subjectively perceived usefulness (evaluation of outcomes) and (2) its subjectively perceived level of difficulty (constraints; Davis and Venkatesh, 1996). Hence, the less useful a technology is to an individual and the more they would have to invest in learning to use it, the less likely they are to use this technology.

The model is also widely used in the sociology of aging to explain technology acceptance in older adults, and systematic reviews show that it explains a great amount of variance in technology use of older adults as well (Niehaves and Plattfaut, 2013). Peral-Peral et al. (2015) even go so far as to speak of a "psycho-digital divide" (p. 57), arguing that preferences, beliefs and perceived constraints explain more about technology acceptance than socio-structural variables like income or education (Seifert and Schelling, 2016).

Studies within this paradigm link the discussion on the technology uptake of older adults to questions around successful and active aging with new technologies. Numerous studies have shown positive correlations between internet use and subjective wellbeing (Choi et al., 2012; Forsman and Nordmyr, 2015; Damant et al., 2016), pointing to the fact that engagement in new technologies might be of importance for successful and active aging.

Rational choice theories have, however, become heavily criticized in sociology. Critics question their basic assumption about human behavior, which simplifies it to fit economic models and makes it too static (Kunemund and Tanschus, 2014). In their application of concepts like successful aging, this approach has also been criticized for its—more or less explicit—normative

standards of what constitutes a good way of aging (Amann and Kolland, 2014), underestimating the influences of social structure on active aging as well as technology use.

Even though heavily criticized, rational-choice theories are the most commonly used approach to study technologies and aging in sociology and gerontology. This emphasizes how the construction of age in research is centered on ideas of active, successful, and healthy aging, and while many scholars have come to criticize all of these normative approaches, they still heavily influence the field in which research and development of technologies for older adults takes place.

## Structural-Institutional Theories: Technologies and Social Inequalities in Later Life

Instead of ascribing differences in social phenomena to rational decisions, motivations and intentions of individuals, structural-institutional theories understand these differences as arising from social inequalities. Such inequalities are neither random nor individual, but based upon structural and/or institutional arrangements that induce unequal distributions of resources in a society (cf. Blau, 1977). Whereas structural sociology is often associated with researching income or educational inequalities, scholars have also been concerned with inequalities related to knowledge. Knowledge divide research argues that, despite seemingly increased overall access to information for the wider society, differences in (access to) knowledge increases social inequalities between status groups (Tichenor et al., 1970). While early research focused on media, it has, over time, incorporated digital technologies into its analyses and has framed the term "digital divide" (Zillien and Hargittai, 2009). The digital divide addresses the unequal distribution of opportunities to use technologies based on social traits—like age—which, in turn, leads to decreased chances in social participation (Selwyn, 2004).

This approach has contributed to the study of aging in that it has provided life-course perspectives on social inequalities and technology use. In his theory of "Cumulative Advantage/Disadvantage" (CAD), Dannefer (2003) argues that social inequalities cumulate over the life-course, leading to a polarization between social groups in old age. This hypothesis can also be applied to technology use: Silver (2013), for example, finds that it is not only socio-economic status in later life that affects Internet use in older adults, but also living conditions in childhood and early adulthood, and that these conditions accumulate and multiply in their effect on Internet usage.

From this perspective, inequalities in later life are the result of cumulative dis/advantage over the life-course, which is reinforced through institutions and legal arrangement of retirement (Walker, 1981), leaving older adults condemned to a life of passivity and socio-economic precarity (Riley et al., 1994). Estes (1979) concept of the "aging enterprise" is a tool for critically analyzing the organizations and careers created to serve—and hence define—aging and being old. It comprises

> *"[…] the programs, organizations, bureaucracies, interest groups, trade associations, providers, and professionals that serve elders in one capacity or another. Major components include physicians, hospitals, the Social Security Administration, the Administration on Aging, state and area agencies on aging, congressional committees on aging, and the nursing home and insurance industries"* (ibid: 2).

Whereas throughout modernity, the aging enterprise framed the elderly as frail and dependent non-actors, this framing has changed in neoliberal societies. Major developments that have led to a change in policies for later life include the bio-medicalization and commodification of aging, as well as the privatization and rationalization of old-age policy (Estes, 1991). This has led to a state where, today, the needs of older adults are processed as a commodity that is sold for a profit (Estes, 2014).

Although Estes focuses in her own research on the medical industrial complex as an increasingly privatized and funded actor, others have applied her concept to technological developments. Joyce and Loe (2010), for example, lay out how the bio-medicalization and commodification of aging is being conducted with and through technologies, pointing out how

> *"[…] individuals, academic centers, and businesses aim to create assisted living technologies and inclusive design projects so that older people can age at home. The focus in this market-based framework is on transforming technologies and architectural design to accommodate potential changes in hearing, memory, balance, sight, or other physical and cognitive abilities as well as creating technologies (e.g., robots, phones for the hearing impaired) to help meet emotional needs. The aging body is still enabled and constrained […]."* (ibid: 174)

From a political economy perspective, technologies for the old contribute to an ambivalent construction of age. The narrative used in the development of aging technologies is that later life is a potentially active and autonomous stage, but this potential can only be released by technological assistance. In the enterprise surrounding technological developments, older adults are, thus, equally addressed as rational consumers who are trusted to buy the best product, and beneficiaries that the technology will help and assist. This approach emphasizes age as constructed by political and economic actors and shows how the doings of age in neoliberal societies are be influenced through institutions, legal arrangements, businesses, and governments.

## Post-structural Theories: Knowledge, Practices, and Materialities of Aging

### The Cultural Turn: Discourses, Technologies, and Later Life

The cultural turn, which has become widespread in sociology since the 1980s, has brought with it a shift of focus to meanings, symbols, knowledge, discourses, values, and beliefs that circulate in a society. Instead of focusing on individual intentions or manifested social norms, these authors share the notion that human action can be explained by

> *"[…] reconstructing the symbolic structures of knowledge which enable and constrain the agents to interpret the world according to certain forms, and to behave in corresponding ways. Social order then does not appear as a product of compliance of mutual*

> *normative expectations, but embedded in collective cognitive and symbolic structures, in a shared knowledge' which enables a socially shared way of ascribing meaning to the world."* (Reckwitz, 2002: p. 245)

Critical cultural gerontology focuses on the modes of knowledge formation that serve to discipline and structure the experience of old age (Katz, 1996). Taking discourses and practices around successful aging as examples for their critical analysis, Katz and Marshall (2004) show how "functional" and "dysfunctional" has displaced the "normal" and "pathological" as the central biopolitical binarism of old age. The discursive formation of functionality and dysfunctionality in old age puts emphasis on the functional aging body and, subsequently, on the development of a functional aging self. From this perspective, old age appears as a discursive formation that is shaped by ideas surrounding health, functionality, and biologistic imperatives of aging well (Marshall and Katz, 2016).

The biosocial order organized around the functional/dysfunctional binary also provides a conceptual background for empirical studies on aging through and with technologies. Marshall and Katz, for example, explore how developments in self-tracking technologies create new modes of quantified aging (Marshall and Katz, 2016) and put emphasis on the ways in which age is quantified and standardized through technological devices. This approach also sheds light on technological mechanisms of self-enhancement, e.g., through brain training (Katz and Peters, 2008).

Empirical studies within this approach also draw attention to the policy discourses through which technology use in later life is regulated. Here, the "aging-and-innovation" discourse has been identified as a key rhetorical structure that legitimizes investments into technologies for older people. Within this discourse, population aging is conceptualized as a societal crisis, whereas the development of technologies appears to be the solution to the societal, economic, and individual problems that appear through aging (Neven and Peine, 2017).

## The Practice Turn: Doing Age With Technologies

The practice turn followed the cultural turn in the social sciences. Similarly to cultural paradigms, practice theories are primarily concerned with knowledge—however, not discursive or textual knowledge, but implicit and incorporated knowledge and competence (Reckwitz, 2002) through which age is constructed in everyday life. Practice theories treat social practices as "the site of the social" (Schatzki, 2002), a "nexus of doings and sayings" (Schatzki, 1996) that is "a routinized type of behavior which consists of several elements interconnected to one other" (Reckwitz, 2002: 249), including bodily and mental activities, artifacts and things, knowledge, attitudes, and emotions. Age, from this perspective, is an ongoing social practice of interactive representations - it is something that people do, not something they are (Schröter, 2012).

Pierre Bourdieu's praxeology (1977) is one of the most influential practice theories. Central to his theory are the notions of habitus, capital, and the social "field" in which social practices and social constructions take place. Social fields are historically grown social spaces with specific distinct positions (Bourdieu, 1989). A field is, consequently, an arena in which social conflicts and battles on power relations are carried out, or, as Bourdieu puts it, a "locus of struggles" (Bourdieu, 1975: 19). Each field has its own "rules of the game" through which it functions—it entails norms, standardized processes and specific forms of knowledge that Bourdieu subsumes under the Greek term "doxa" for "common belief." The agents in the field must follow this doxa, i.e., believe in the rules of the field, which he calls "illusio." According to the field's doxa, agents occupy different social positions, depending on the volume and overall structure of their economic, cultural, social, and symbolic capital (Bourdieu, 1989). The position an agent occupies in a field defines and delimits its ability to act. Therefore, agency is always bound and dependent upon one's position within a field. Bourdieu (1977) emphasizes the dialectic relationship between structure and agency, which he explains to be manifested in the habitus.

The habitus can be described as an *"ensemble of schemata of perception, thinking, feeling, evaluating, speaking and acting that structures all expressive, verbal, and practical manifestations and utterances of a person"* (Krais, 1985: 169). It enables agents *"to cope with unforeseen and ever-changing situations"* (Bourdieu, 1977: 72) in a way that is in conformity with the agents' position in the field and the field logics. The habitus as the universe of practices of a group is the result of both power relations in the field and the specific field logics combined, but it is also able to change those power relations and field logics (Bourdieu and Passeron, 1990). Agents act intentionally without intentions (Bourdieu, 1990: 12) in accordance with the rules of the game and their relative position in the field, or as Wacquant (1989) puts it: "individuals make choices, but do not choose the principles of these choices" (p. 45).

Practice theories as inspired by Pierre Bourdieu have been widely used to explain technology use in later life. Schäffer (2003) describes how "medial practice cultures" vary across milieus and genders within one and the same generation, but results also hint to generational commonalities in media use among a generation (Pietraß and Schäffer, 2011). These studies, however, lack a proper consideration of the material elements of media practices. Even though practice theories have considered artifacts as matters of distinction, and the "bodily hexis" (Bourdieu, 1984) as part of the habitus, they do not grant those materialities a status apart from human use and are therefore not the center of these studies' empirical and theoretical attention. Theoretically, these studies struggle to conceptualize technologies as autonomous actors, even though materials are understood as inevitable and inseparable parts of the (human) habitus.

One concept that has been used to account for material aspects of the habitus is Bourdieu's habitat (Schmidt, 2008). The habitat and the habitus have been described as two different aggregate states of the social, with the habitat as an objectivized and accumulated form of social practice. In that sense, artifacts can be understood as *"essential subsets of habitus"* and as *"organized forms of movements"* (Sterne, 2003, 370). They incorporate institutionalized norms of how to use them, and hence are part of social practices. These practices are neither accidental nor easily modifiable and therefore shape the medial habitus. Technologies

can then contribute to the agents' practices surrounding them—even more so, a technological artifact might call for a specific actor that is then created based on the habitat (Schmidt, 2006): using a tablet computer, e.g., might call for a human agent who possesses the relevant knowledge and skills to use it, but also for a specific self-image as a skilled and legitimate agent which might only be created through actually using the tablet computer. Based on these assumptions, technological artifacts are not granted autonomous agency. However, just like human actors, they are agential, as both are understood as participants of social practice.

More recent practice theories (Schatzki, 2002; Shove et al., 2012) have considered material elements in the doings of age more closely. They conceptualize social practices as "doings and sayings" (Schatzki, 1996), consisting of multiple elements which include bodily and mental activities, artifacts and things, knowledge, attitudes, and emotions. Neither persons nor technologies can initiate action on their own, but can become dynamic in social practices. From this perspective, people do not use technologies purposefully, but social practices follow teleoaffective structures (Schatzki, 2002). These structures are the "intentions" inherent to the different practices—for example, the practice of writing an e-mail aims to deliver a message in a specific interactional manner, and the involved persons and infrastructures (e.g., the mailing program) join in the "game."

More recently, authors have turned to using these practice theories to research technologies and aging. Kollewe et al. (2017), Endter (2016), and Depner (2015) for example all use ethnographic methods to describe how age is co-constructed with and through material practices and technologies in relation to the aging body. These studies, however, tend to lack a proper consideration of social stratification—differences between milieus, genders, or generations—and are therefore prone to ignore questions of power that are inherent in technology use.

## The Material Turn: The Materialities of Aging With Technologies

The "material turn" emerged as a response to the focus of many discourse analysts on mental knowledge, language, and text; and to their neglect of materialized forms of knowledge. The field of STS was leading in this development.

What many STS-inspired approaches share is their assumption that all forms of knowledge—may they be explicit or implicit, discursive, or embodied—and particularly what we perceive as "nature" or "fact," are actually socially constructed (Knorr-Cetina, 1981). Starting with Knorr-Cetina's laboratory (Knorr-Cetina, 1981), research soon expanded from the social construction of scientific knowledge to the social construction of technologies, analyzing technological innovation, engineering, and design processes (Henderson, 1998; Helmreich, 2000; Forsythe, 2001).

The social construction of knowledge in these approaches is located within networks—for example, Callon's "*assemblages*," Derrida's "*bricolage*," Deleuze's "*rhizome*" or, in parts, Foucault's "*dispositif*" (apparatus). It is, however, Bruno Latour's Actor-Network-Theory (ANT) that has gained particular prominence in the network-based study of knowledge production. In his "*symmetric anthropology*," he treats humans and non-humans equally as things that act. Objects, things, non-humans, technologies are capable of possessing agency, acting with humans in person-object networks. Agency, in terms of intentions, motivations or preferences, is from this perspective neither belonging to an individual, nor an attribute of a practice, but distributed across the network.

To better understand the pathways in which technology can act, STS has developed the concept of "*scripts*" (Akrich, 1992). Akrich describes how scripts, as possible scenarios of technology acting, are inscribed into technologies during the design and engineering process. In this process, projected users with specific abilities and preferences, as well as projected practices in which the technology shall be used, become part of a technology's material hexis (Bourdieu, 1984). For example, the washing machine was developed for a specific purpose—save time in doing the laundry—for technologically inexperienced housewives. The script, then, can be seen as similar to the motivation of a human or the teleo-affective structure of a practice. Similarly, a script only shapes the way a technology comes to participate in social practices and does not determine it. Particularly in regards to digital and smart technologies, the way the human-technology-interaction turns out is often not at all as imagined resp. scripted. De-scripting then addresses the scientific necessity to go back and forth between the projected and actual users and uses.

> *"In the context of AAL, this means to de-scribe how the subjectivity of aged users is inscribed into AAL and, at the same time, how AAL determines the subjectivity of aged users through the inscriptions."* (Endter, 2016, p. 137)

With this, STS has laid ground for what is today considered a post-humanist social theory:

> *"Three ideas are combined variously by different authors in post-humanist theory: the hybrid assemblage of social and material elements in our world; the agency* (Latour, 2005) *or "performativity and power"* (Pickering, 2005) *of the material world, and finally, the resistances enacted by social and material phenomena in their interplay with each other."* (Roosth and Silbe, 2009), pp. 14–15).

This post-humanist approach has been developed further by new materialism. New materialists criticize other approaches for not taking the notion of agential matter far enough. Humans, they claim, are still framed as more spontaneous and agential than socio-material artifacts, to which more inertia and stability is ascribed (Hirschauer, 2004). The "*power of wonder*" (Stengers, 2011) and idiosyncrasy that emerges from matter is usually overlooked. This asymmetry also becomes apparent in the different valuation between socially constructed artifacts, as "solidified social," and natural matter that might even elude practical accessibility (Folkers, 2013). In regards to technology use, this implies that one should not assume that technologies are—asymmetrically—"used" by humans, but rather that they interact with them.

Post-humanist theories and new materialism have developed closely alongside feminist STS. One of the early and more conspicuous essays was Donna Haraway's "A Cyborg Manifesto" Haraway's (2013)[1], in which boundaries between humans, animals and technologies are abolished. Gerontological theorists like Gilleard and Higgs (2015) draw on Harraway's distinction between the body as a social agent (as an element of the expression of personal identity through embodiment) and the body as a social actant (as the unmediated materiality of the body, where actions are realized without agency or intent in a sense of corporeality) to explain the embodied experience of later life. The experience of later life, they argue, is "*conceived within a matrix of corporeality and embodiment*" (ibid., 28) and out of this matrix arises a struggle between the embodiment of third age—e.g., through body work and anti-aging technologies—and the corporeal inevitability of the aging process.

This also draws attention to how differently subjective and bodily age is perceived and how temporality is materialized through bodies at different stages of the life-course. Third age, as a distinct stage of life is framed as a somatic culture (Williams et al., 2012) in which at least one purpose is to pursue intensive anti-aging strategies through the formation of the body. Age—as an embodied practice—is imagined as treatable or even avoidable through anti-aging technologies—opening up a gap between how old one person feels and how old their body actually is with regard to its function. In a new biologism of aging (Marshall and Katz, 2012), bodily aging appears more fluid and performative and hence opens up possibilities of new enhancement technologies.

Regarding aging and technologies, new materialism is taken up particularly in the field of health technologies, in which aging bodies and digital technologies are understood as co-producers of continuous materialization and hence the construction of age itself: doing age, here, is understood as an "*interrelationship of societies and technologies*" (Urban, 2017, p. 3).

For our theoretical reflections, post-structural theories emphasize the role of discursive formations in the construction of old age that are centered on ideas of functionality and dysfunctionality. Also, they show how these discourses are set into practice through socio-material arrangements and scripts.

## CONCLUSION

This (admittedly summarized and thus most likely insufficient) overview of approaches that have been used to study aging and technologies emphasizes some common traits of current literature, as well as differences and topics for future theoretical development.

What all these approaches have in common is that they characterize certain aspects that are relevant in the doings of age with technologies. Rational-choice theories show how aging today is still focused on ideas of active and successful aging and how science and research draw on these ideas when studying aging with technologies. Structural-institutional theories bring the political and economic institutional arrangements through which old age is constructed today into discussion. Post-structural theories emphasize the role of norms and discourses around age and aging and show how they are set into practice through materialities in everyday life. Drawing on all of these theoretical approaches, we want to sketch out the field of doing age with technologies, which comprises the following elements (see **Figure 1**).

What differentiates these approaches from one another is, however, how all of these elements are conceptualized. First, they differ in their understanding of the individual; second, their understanding of the social; and third, their understanding of the material.

To put it simply: in rational choice theories, the individual is defined as a fully agentic human subject whose actions are rational and intentional. The social and the material are only relevant for those actions in as far as they are positive or negative outcomes or resources. In structural-institutional theories, the individual is subject to powerful structures and institutions. Materialities are manifestations of those power relations. Poststructural theories, finally, want to get rid of the micro-macro divide by placing emphasis on knowledge. Social phenomena on both levels are constructed in a process involving various actors, and some of them grant the human individual equal agency as the material.

From a rational choice perspective, technology is mainly perceived as a means to support active and successful aging. The chances of reaching these outcomes are, however, not equally distributed across the population, as a structural-institutional perspective might add. Post-structural theories, finally, go a lot further in claiming that age itself is constructed through, inter alia, the (use of) technology, and focus on how this is being done—through discursive formations, social practices and materialities. Practice theories incorporate the core elements of both rational and structural-institutional theories, but claim that they are qualities of a practice, not and individual or a society. The individual is, from this perspective, a "bodily and mental agent" (Reckwitz, 2002, 250) that can be understood as a carrier or host of practices. It is therefore neither a rational actor nor a structurally determined "dope," but a skilled agent.

In the following section, we want to carefully discuss how a praxeological terminology based on Bourdieu can be enriched with notions of STS to research the doings of age in a digitized world in what we call a "material praxeology of aging with technology."

## A MATERIAL PRAXEOLOGY OF AGING WITH TECHNOLOGY

There are three core assumptions we can draw from the theoretical discussion: first, age is not a biological attribute, but rather a practical process that is being *done.* Age is constituted of and constructed through social practices, of doings and sayings. Second, both human and non-human agents are involved in

[1]Intended more as a metaphor to criticize mainstream feminism at the time it had a major impact on feminist STS studies and scholars who have since sought to "bring the material back into feminist theory and practice" (Alaimo and Hekman, 2008: 4) by defining a new relationship between discourse and matter.


**FIGURE 1 |** Elements of the field of technologies and aging.

this process. Age is being *done* by policies, knowledge, bodies, scientists, technologies, designers, spaces, and much more. In Bourdieu's terms, we understand these agents and doings as embedded in power structures within a social field. Third, we take up the notion of distributed agency within a field, which we will conceptualize further through a Bourdieuan idea of structured—and therefore unequally distributed—agency.

In the following section, we want to lay out a material praxeology of aging with technology as a theoretical proposition that is based upon these assumptions. This calls for the consideration of (1) the doings of age, (2) human and non-human agents, and (3) varying degrees of power in the analysis of aging and technologies. We call this approach a material praxeology of aging with technology. By this, we aim to equally "praxeologize" and "materialize" the study of aging and technologies. This implies the introduction of Bourdieu's terms "field" and "habitus" to the study of aging and technologies, as well as the introduction of emphasis on non-humans to a Bourdieuan concept of agents and agency. Such an approach can guide us in approaching the main question of this paper: how is age being done in a digitized world? Which elements constitute the doings of age with technologies?

Taking our theoretical considerations into account, we want to further ask: what is the field of technology for older adults and how is it constituted? What are the field logics and the resulting ways of acting within it? Which agents are involved and how are they positioned? How does power come into play in the constructing of age with and through technologies?

## The Field of Technologies and Aging

Looking at the field of technology, we can extract the doxa of the field or "rules of the game" as driven by innovation. Technology developers have to continuously develop new things, and users are nudged to continuously adopt new technologies, hence acquire new forms of knowledge and enroll in new practices. If researchers in the field of technologies submit a project proposal for funding, the innovation of the new product or research must be laid out; and if it lacks innovation, it will not be funded. Devices themselves, once developed, play their part in the innovation doxa through obsolescence - may it be planned by the developers and scripted (cf. Akrich, 1992), or due to a lack of updates or lack of compatibility with other devices. Depending on their position in the field, agents re-act to this doxa: if they are young and rich in cultural capital, they might frantically adopt new technologies before anyone else does (cf. Beal and Bohlen's "early adopters," 1957); if they are old and less educated, they might lag behind the technological innovation process ("laggards"; ibid.) or even resist it.

The development of technologies specifically developed for older adults might be seen as a hybrid between the field of technology and the field of old age. This enables us to reflect on how diverse social fields overlap in the constitution of the field doxa. Social fields are relatively autonomous, but interconnected in the way that agents and forms of capital move between them. Emerging fields in particular can be understood as arenas in which the field doxa and capital structure are yet contested (Swartz, 2013). A field emerging in between the fields of technologies and the field of aging then becomes

an arena in which power relations between different agents (e.g., businesses, seniors' organizations and technicians) are continuously negotiated, social positions are distributed and fought out. The innovation logics of the technology field merge with the logics produced within the "aging enterprise," namely that of active aging vs. deficiency and dependency. This merging results in a doxa of creating innovation with "positive outcomes" for a user group otherwise framed as unable to live healthy and active lives. Technologies for the aged must not only be innovative; they should also increase life expectancy and improve health, mobility and autonomy. With these principles, agents act depending on their relative position in the field, i.e., depending on whether or not they are rich in economic capital, like funding bodies or wealthy consumers; whether or not they are rich in cultural capital, like technology companies; and whether or not they are rich in social capital, like marketing firms. Understanding aging and technologies as an arena therefore enables us not only to look at the dominant forms of capital that are relevant in the field, but also to reflect upon which agents are competing for a legitimate and powerful position with their capital.

## The Agents

Understanding aging and technologies as a field then calls for a careful consideration of what constitutes an agent within a field. Traditionally, Bourdieu's praxeology conceptualizes humans as the main actors within a field, even though artifacts might hold an agential position as part of the habitat. In contrast, STS—and most prominently Latour's ANT—have granted artifacts the status of fully agential actors within a network. Social phenomena, in this sense, are understood as a convergence of multiple interacting influences, which can include human and non-human elements (Elder-Vass, 2014). To conceptualize human and non-human actors within a field as part of our material praxeology, we therefore want to lay out some basic assumptions of STS approaches in their definition of an actor within a network.

From an STS perspective, actors are no fixed or defined entities, but gain their status as actors only within the network to which they belong. The social world is, then, not an assemblage of different actors, but an assemblage of relationships and interactions between them. In this continuous flow of interaction, it is a challenge to define which elements or characteristics constitute an actor. For Latour, actors are only vaguely defined as elements that modify the network. Actors are everyone and everything that modifies an action by making a difference (Latour, 2005). Actors within a network are therefore not defined by their characteristics but by their capability of modifying a network as "*a series of transformations—translations, transductions*" (Latour, 1999). It is therefore not the actors themselves, but the transformative affects they cause in a network that makes them relevant as actors.

Even though diverse approaches within STS differ in in their definition of what constitutes an actor, it is their understanding of the human and non-human as equally agentic that distinguishes them most clearly from Bourdieu's praxeology. Latour criticizes structural sociology (which he calls "classic socology") for knowing *"more than the 'actors'; it sees right through them to the social structure or the destiny of which they are the patients"* (Latour and Porter, 1996, 199). It is, however, exactly this emphasis on social structures that defines what Pierre Bourdieu conceptualizes as an agent. Even though both authors share their perception of the actor/agent as a relational category (Schinkel, 2007), Bourdieu sees agents in their relative position to other agents in a social field—including differences in the agents' levels of power. Agents in a field are therefore not equal—they possess varying amounts and structures of capital, have different chances to act and to have an effect within a social field (Bourdieu, 1989). For Bourdieu, agents have the ability to possess capital and take up a position within a social field. Therefore, technologies would not be agents, and in his work, Bourdieu doesn't treat them as such.

This does, however, not mean that material aspects are negligible parts of social practice. In "On Television" (1996), Bourdieu emphasizes how technologies are socially shaped through their meanings for the different social groups that use them (Bourdieu, 1996). Analyzing technologies—in a Bourdieuan sense—means understanding technologies as "crystallized parts of habitus, (…) a particular form of practical reason" (Sterne, 2003, 376), or—as Schmidt (2008) has suggested—understanding them as part of the habitat, an objectivized form of social practice. Technologies are, for Bourdieu, not agents on their own, but gain agentic relevance through their use by human agents. The habitus, in that sense, is not entirely bound to human agency, but only set into practice through interaction with an agents' habitat and the artifacts that constitute it. This conceptualization puts emphasis not so much on different human and non-human actors, but the relations between humans and the habitat through the habitus (Schmidt, 2008). The habitus is then a relational category, emergent from the field's agents, power structures and habitat.

Even though we agree with Bourdieu on the importance of power relations between agents, we want to emphasize that non-humans, as part of the habitat, can act as part of the habitus within a field. This presupposes that non-humans, like technologies, can have capital. Technologies might not own money, but they can "possess" economic capital in the sense that they (and their patents) are *worth* money. They might not have educational certificates, but they can be certified if they meet certain technological standards. Their cultural capital might otherwise not be embodied, but can be incorporated[2], as they can also be more or less skilled in functioning with other technologies, artifacts, or humans. They can have social capital in communicating with other technologies and/or acting with other humans. They can call for a certain way of acting with them and, more importantly, they might require their users to possess specific forms of capital to be able to use them.

Hence, we propose viewing technologies and other non-humans agents from a Bourdieuan perspective, which means

[2]Following Gilleard and Higgs' distinction between embodiment as expression of personal Gilleard and Higgs (2015) identity (2015) and corporeality, it might be misleading to talk about a technology's embodied capital; hence, the term "incorporated" will be used in this regard.

understanding them as part of the habitat. This implies that they occupy different social positions and are, hence, powerful to different degrees. Consequently, it implies that their agency is just as structured and bound as that of Bourdieu's human agents.

## Social Practices and Power

The relative social position a—human or non-human—agent occupies within a field delimits its ability to act. In such an understanding, "doing something" is always bound and dependent upon one's position within a field. The habitus, as a complex of social practices, is not individual, but collective; not rational, but structured; and not flexible, but inert—taking the concept of agency far away from individuality, rationality and intentionality that it is otherwise often associated with. An STS understanding of agency would dismiss individuality, rationality, and intentionality in a similar way. However, it would imply a much stronger emphasis on variability, fluidity, and precarity of social practices that, at first sight, seems to be diametrically opposed to Bourdieu's emphasis on reproduction. For Latour, for example, agency is not just an outflow of pre-existing structures; it is something that is being produced over and over again within actor-networks. Agency is not bound to certain actors, but is distributed within the network—as Kipnis (2015) puts it: "No agency exists as an isolate" (p. 50). This distribution comprises both human and non-human parts of the network. In this, STS agency is much more "random" or "surprising" than Bourdieu's habitus, which is prone to reproduce social practices.

More recent practice theories draw upon both Bourdieu and STS to conceptualize social practices (as opposed to habitus and agency). They are the "sites" from which action emerges, and hence incorporate both the actors and the networks. But neither people nor technologies participate in practices by chance. Both are bound by their socialization (humans) resp. scripts (technologies), and their relative position within a field. Just as people tend to follow a routine, and hence reproduce practice, a washing machine tends to act according to its script and wash. Yet, neither human nor non-human agents are completely determined by this. Social practices exist as both entities—similar to scripts or, from an expanded view, the field doxa—and performances, carried out *in situ* (Shove et al., 2012). They thus emerge from a situation, but also always follow predefined rules, norms and scripts of how they are conducted properly (Reckwitz, 2002). These norms are implicit, incorporated, and consist of a variety of micro-practices.

As the competence to become part of practices varies between them, and hence the duration of training (or socialization) varies, some practices are less prone to change than others. Additionally, power mechanisms contribute to maintaining the reproduction of some practices and the change of others. Performing or "doing gender" (Butler, 1991), for example, is trained and inscribed from birth onwards, and power relations tend to maintain it, while other practices—like acting with technologies—are easier to learn and "un-learn," and power relations tend to change them more rapidly.

Summarizing, a "material praxeology" that considers both the field logics and power relations conceptualized by Bourdieu and, at the same time, grants more relevance to materiality, needs to make the following assumptions:

1. Social fields, as relations of power structures, constitute the contexts in which age as a social phenomenon is being done with and through technologies. These power relations can play out differently in different situations, depending on the forms of capital relevant in these situations.
2. Human and non-human agents—individuals, institutions, bodies, discourses, and technological devices—are equally involved in this process. Technologies, in particular, can be both targets and initiators of action, as well as partners in interactions with humans.
3. The social practices that emerge within these fields are structured through power relations. These practices may change or reproduce themselves, depending on the level of competence and capital necessary to participate in them and the power relations that either hold them in place or make them change.

# EXERCISE GAMES FOR OLDER ADULTS—AN EMPIRICAL EXAMPLE

A theory can only be evaluated by its resonance to empirical appliance. We want to do this here with the example of a so-called "exergame," which is being developed in the course of a scientific project. Exergames are a hybrid between videogames and exercise programs that aim at providing an unobtrusive and "fun" way to physically exercise (Kharrazi et al., 2012). As they are being played via bodily movement, they require certain sensors to track the user's movements. Exergames are being developed for different target groups, may it be completely healthy children and (young) adults (like Nintendo's Wii), or convalescents, persons with chronic illnesses, disabilities or dementia.

To exemplify our approach, we will use one specific project as an illustration. The project with the abbreviated title "ExerFun[3]" has been funded by the AAL Joint Program (AAL-JP) of the European Commission. It was a three-year international and inter-disciplinary project in which engineers and technicians, designers, advertisers, care service providers, and sociologists at universities, private corporations and NGOs worked together. As required by the AAL-JP, the project involved methods of end-user involvement. Older adults were asked about their needs and wishes before the system development started and they were involved as test users in field pilots during which the system was developed further.

## The Field of Active and Assisted Living Technologies and its Antagonisms

The ExerFun project can be located within the field of "Active and Assisted Living (AAL)" technologies. The concept of AAL developed out of the term "Ambient Assisted Living," which was abandoned in 2013 for its focus on care technologies, and received a new coat of whitewash to also attract healthy and active

[3]The name of the project has been anonymized.

third agers. The field was predominantly shaped by the AAL-JP, a huge European funding body which was also leading in the formation of the "rules of the game" (doxa). On its website[4], three major aims are listed that capture the doxa of the field:

> "*Foster the emergence of innovative ICT-based products, services and systems for aging well at home, in the community, and at work, thus increasing the quality of life, autonomy, participation in social life, skills, and employability of elderly people, and reducing the costs of health and social care.*
>
> *Create a critical mass of research, development and innovation at EU level in technologies and services for aging well in the information society, including the establishment of a favorable environment for participation by small and medium-sized enterprises.*
>
> *Improve conditions for industrial exploitation by providing a coherent European framework for developing common approaches and facilitating the localization and adaptation of common solutions which are compatible with varying social preferences and regulatory aspects at national or regional level across Europe."*

This exemplifies how the doxai of different fields merge within the field of AAL—norms, beliefs and ways of knowledge around technologies, aging, science and the economy mingle, complement, and contradict each other. Technologies to be developed in this field must be (framed as) innovative and bring economic profit; but they must also have a positive outcome for their users und contribute to positive aging. Positive aging is defined here by autonomy, social participation, employability and health. This operationalization depicts the demands that older people are facing today—or the doxa of aging—to be independent, socially engaged, productive, and healthy.

However, societal images of aging are not only shaped by a shift from disengagement to activity, but also by the increasing heterogeneity and individualization of older adults. An innovative technology that meets the demands of a diverse consumer group must, consequently, adapt to the individual needs and preferences of each single user. The ExerFun project aimed to follow these logics by…

> *"[…] combining three core aspects of AAL […]: new, innovative technology for sensing relevant mobility and gaming characteristics of individuals is used to drive a personalized gaming platform that serves the needs of the end-users in their private homes and increases their quality of life*" (ExerFun Project Proposal, p. 4)

The technology set out to adapt itself to the personal preferences and skills of its users, emphasizing the heterogeneity of older adults, but not without pointing to the "*risk of losing an active lifestyle and the connection with the society*" that accompanied the status of "*older adults living alone in their private homes,*" which were defined as its target group (ibid: 4). This was to be achieved by combining "*different technological innovations*" that would result in a smart technology that could, on the one hand, automatically adapt to its users and would hence be "*unobtrusive*" (a word used nine times in the proposal) and "*interoperable*" (a word used 20 times in the proposal). Thus, the innovation logics of the technology field merge with the logics of aging between activity and deficiency.

Moreover, logics of scientific research merge with logics of economic profit: predefined success parameters comprise "*statistically and scientifically valid results*" and "*randomized controlled trials,*" and the value of a "*scientifically and statistically sound evaluation*" is stressed in several pages of the project proposal. However, 56% of the total project costs is dedicated to business partners, while only 32% is dedicated to research organizations. This elucidates the different social positions and degrees of power among the agents involved.

## Agents and Power Relations

Who and what are the agents in this example? In her situational analysis, Clarke (2005) proposes a framework that can be used to structure the different actors involved in a situation. She suggests listing human and non-human, collective and implicated actors, and their discursive constructions, as well as political, socio-cultural, temporal, and spatial elements as actors. We want to apply this way of structuring to our empirical example (however, substituting the term "actor" with the term "agent") and consequently discuss power relations between these groups of agents.

### Human and Non-human Agents

First and most obvious, the project gathered several collective agents, namely eight partner organizations from five countries: one software and consulting company, two university departments (one technical, one sociological), two NGOs (one working with disabled older adults, one working with healthy older adults), two technology development enterprises and one geriatric hospital. The funding initiative, AAL-JP, was involved both centrally as a European body and locally in each state of the project partners.

In each organization, teams of several individual human agents were assigned to the project. Moreover, the so-called "primary end-users"—older adults aged 65 years and older—were involved in the requirement analysis survey and the field pilots to test the developed system. In addition, "secondary end-users," i.e., care personnel, were involved in focus groups and field pilots.

The central non-human agent was the technology being developed. The technical system consisted of a console, a television screen, and a sensor to capture bodily movements. These things require a certain spatial arrangement in the apartments at which they were to be installed. As the console and the sensor were to be connected to an already existing television flat-screen, there needed to be a space of about 4 $m^2$ in front of the screen to ensure safe "exer-gaming."

Bodies occupy an interesting position between human and non-human agents, as they are predominantly material, yet hardly non-human. In the project, the bodies of older adults were of major concern: they were to be moved in accordance to the games, and this bodily movement posed major challenges to the development process. A sensor had to be developed to capture bodily movements most accurately, the software had to be designed so as to translate those captured movements into the

[4]http://www.aal-europe.eu/about/objectives/ [Accessed 08.11.2017; 15:30].

movements of the game avatars with almost no delay and the difficulty, as well as the speed, of the expected movements had to be adjustable to cater to a wide range of physical conditions.

## Implicated and Discursive Agents

The above mentioned agents were involved in many project situations, even when they did not physically attend. Clarke (2005) talks of "implicated actors" when absent actors are referred to in a situation. They are most obvious in the scripting of technologies with a specific end-user in mind (cf. Akrich, 1992), and this process is systematized within AAL projects: a target group has to be described in the funding proposal and the characteristics of this target group are continuously and systematically synchronized through stages of end-user involvement. To receive funding from the AAL-JP, implementing such an end-user involvement process is mandatory. Hence, the imagined older end-user was, whether physically absent or present, a constant companion to the project. They were addressed and referred to, and hence acted, via what can be framed as traces of their needs and opinions - graphs presented their answers to questionnaires, interview transcripts, references to literature about them or through the voices of the end-user organizations that are part of the project to vocalize their demands in a structured and qualified way than is believed they could do themselves.

Not only the imagined end-users, but also the imagined technology was continuously referred to—even though not yet existent—in the course of the project: in the proposal, during project meetings, in marketing strategies, and in conversations with the end-users. Its qualities, demands, and ways of functioning were imagined in alignment with the (supposed) end-user qualities and demands. For this purpose, prototypes were designed, which should represent the not-yet-existent technology in the discussions.

Beyond the imagined end-users and technology, collective agents became implicated agents. The funding sponsors, for example, would primarily act via the research proposal, which served as the planned imagination of the approved project. Every deviation from this plan was negotiated with the funding sponsors in mind: would they approve of a prolongation of the second work-package? Similarly, "the market" was a collective implicated agent, as the project should make the developed technology ready for the market. Would the market appreciate the system? In regards to technologies for older adults, the market is not to be equalized with the end-users. This is first and foremost due to the fact that many technologies are so expensive that only a small share of individuals could afford them. Hence, other collective agents, like health insurances or care facilities, might take on the role of the potential buyer.

Besides implicated agents, which refer to specific human or non-human agents referred to in the research process, discursive agents comprise wider societal imaginaries, and fields of knowledge. Conceptually, we want to differentiate between doxa as the overarching logic of the field (see The Field of Active and Assisted Living Technologies and its Antagonisms) and guiding principles and ideas that played a less overarching, yet distinct role. One of the discourses that became an agent in the course of the research project was the ethics discourse. Its emergence is partly inherent in the field doxa, as the innovation logics imply development of technologies that are new and unfamiliar to the end-users and relevant stakeholders, and hence their functioning will be partly non-transparent. Ethical issues in AAL may comprise questions of privacy, control of personal data, confidentiality or autonomy[5] Therefore, certain provisions have to be taken against academic misconduct, like the use of an informed consent to ensure the voluntary and undeceived participation of end-users. The ethics discourse has, however, become so professionalized that measures cannot be left in the hands of the project consortium, funding bodies or legal requirements alone. Instead, the vote of an external ethics committee is increasingly needed to publish results gathered in AAL projects. Hence, through the facilitation of ethics as a discursive agent, the collective agent of the ethics committee entered the project (see **Figure 2**).

## Social Positions and Power

Applying this list of agents to our outlined theoretical approach calls for a comparison of the agents' different social positions and degrees of power. According to Bourdieu, social positions result from the amount and form of available economic, cultural and social capital (Bourdieu, 1984).

The most powerful agent in terms of *economic capital* was the AAL-JP and its national administrations. As the primary funding bodies, they could decide over the disbursement of budget rates or deem expenses as ineligible. In terms of budget allocation, the business partner organizations received the highest share with 56%, followed by research organizations with 32% and end-user organizations with 12%. But even though this points to unequal power relations between collective agents, the technology to be developed played a major part in this distribution: the acquisition of hardware, for which the business partners were mainly responsible, was expensive; and the economic profit it might bring in was promising, resulting in the tedious creation of an Intellectual Property Rights (IPR) agreement.

End-users involved were predominantly middle-class individuals, but as an imaginary, they were the customers from which to generate profit. Much more than their economic capital, their position was defined by their *social capital*: they constituted the wealth of social capital for the end-user organizations, which would not have been involved in the project otherwise. Curiously, however, it was a different form of social capital that was granted most relevance throughout the research process—the social capital of the technology or, put in other words, its interoperability. The possibility of communication between the developed software and other existing AAL systems and services was one of the primary project objectives.

*Cultural capital* played out in its institutionalized, embodied and objectivized form. Institutionalized, it structured the relations between the individual members within and between the partner organizations. Those with higher qualifications

[5]Guide for Applicants Ambient Assisted Living Joint Programme Call 6: http://www.aal-europe.eu/wp-content/uploads/2013/02/Guide_for_Applicants_20130211final.pdf

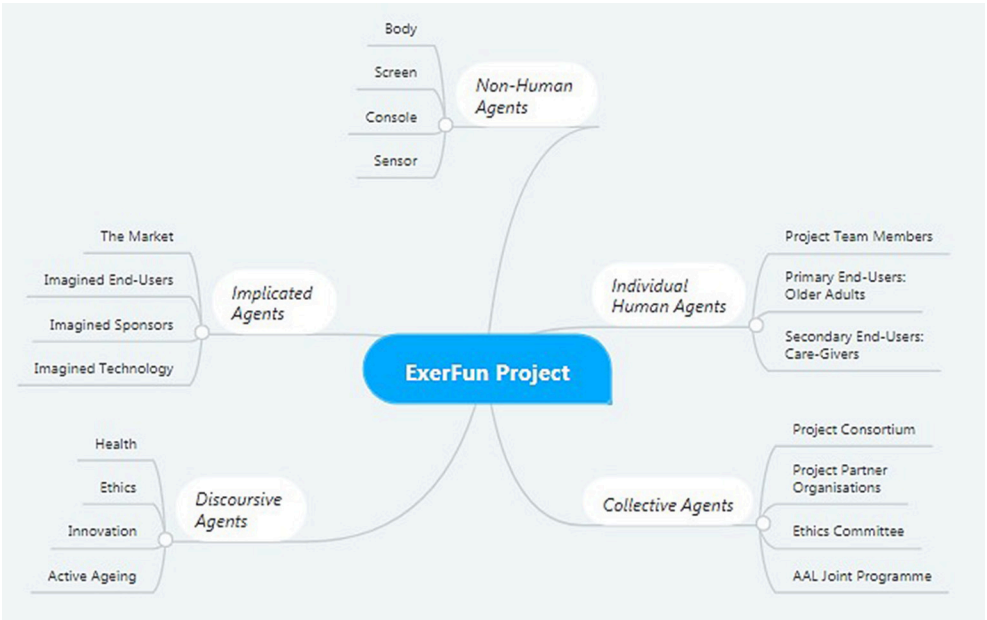


**FIGURE 2 |** Agents in the ExerFun Project.

were usually higher in the professional hierarchy and occupied positions of project leaders or senior researchers, as opposed to assistants and junior researchers. This also applied to collective agents - most university personnel held university degrees, whereas personnel of the end-user organizations had no academic background. Hence, they lacked legitimized knowledge about the proper reading of data or good scientific conduct, creating inequalities between the collective agents.

The most valuable form of cultural capital, however, was the understanding and competent use of the developed technology. The ability to competently play exergames was central within the project, and it was unequally distributed across individual and collective agents—for example, engineers were more competent than sociologists. Framed as most incompetent, however, were the older end-users. Young, male engineers with high technological competence as the developers of the technology were in stark contrast to the older, and often female, adults with little to no technological competence as imagined users.

To be playable by those supposedly unskilled individuals the technology should be able to "learn" about its users and adjust to their needs and preferences. The incorporated cultural capital of the technology was, thus, to competently "play" the users just as they should competently "play" the exergame. The older users, hence, were as much the target of the technology's incorporated cultural capital as the technology was the target of their embodied cultural capital.

## Social Practices and Power Dynamics

Amidst the specific field logics and the social positions of the involved agents emerge social practices, and these practices constitute social phenomena. In this section, we particularly want to focus on the processes in which the developed technology acted to co-constitute age within the project. In an exemplary manner, we will describe three constellations of practices

1. that target technologies
2. in which technologies initiate dynamics and
3. in which technologies interact with bodies.

In all these processes, power relations pre-structure human and non-human action and we will shed light on how they did so in the project.

### Practices That Target Technologies

With the first example, we want to show how constellations of social practices target technologies, namely by practices of scripting as shaping the future trajectory of technological action. In the ExerFun project, a predecessor technology already existed, which should be enhanced in the course of the project. Its intended use scenario or *script* (Akrich, 1992) was a hospital, rehabilitation center or nursing home, in which older adults would play the game with the assistance of a professional (e.g., physiotherapist). The newly developed technology, however, should be used at home by older adults of different fitness levels and without professional assistance. With this, the project reacted to the call's main objective, namely to support aging in place.

The example scenario laid out in the project proposal described a 66-year-old man and his 85-year-old mother. The son was active and healthy, but he perceived available exergames as too fast and stressful; his mother was facing mobility restrictions and "*is not really into modern technology*" (ExerFun Project Proposal, p. 7). This user imagination sets the limits within which older adults may be heterogeneous: while *all* older adults lose physical abilities, become slower and are thus not quite able to use "normal" technologies, there are differences in the *severity*

of this decline - male third-agers are still better off than female fourth-agers. To cater to this, yet limited, diversity, the system was designed to adapt different abilities and preferences to its users.

It would, however, be misleading to state that the project stopped at this stereotypical use scenario. It much rather integrated end-user involvement at various stages (e.g., a requirement analysis in the beginning, focus groups, and different stages of field pilots to test the technology).

The practices of end-user involvement can help us exemplify how power relations play into the scripting of technology. The crucial struggle for power is targeted around the question of who may represent the older adult. Already within the consortium, the partner organizations started to compete for the role of being the most authentic voice of the older end-users. They struggled for the power to define which end-user image would, in the end, be inscribed into the technology. To gain power, they played out their cultural capital: the sociologists argued with data and scientific methods as the only scientifically sound means to thoroughly scrape out end-user needs and wishes; the end-user organizations contended that only they knew about the difficulties older adults were facing in their everyday lives—a kind of knowledge that was more practical and not as out-of-touch with the real world as the sociologists' knowledge; and the geriatricians recognized that sociologists and representatives might know about older people's attitudes and behavior, but that this knowledge was worthless without knowing about their physical capabilities. Finally, the battle for creating the most credible end-user imaginary was not won with cultural, but rather social capital. As the end-user organizations were responsible for the recruitment of participants, they were gate-keepers to which end-users might be involved. This finally shaped the new imaginary of potential end-users and scenarios to be inscribed into the technology. Fourth-agers who had difficulties going outside and who received home-care by the end-user organization should play the game at home, but under the supervision of their care-givers. The first emergence of action thus described how technologies were used as the target of action, and how different agents played together in inscribing end-user imaginaries and use scenarios into them.

## Practices in Which Technologies Initiate Action

Whereas it is rather uncontested that technologies can be the target of action, the question of if, and how, they can initiate action is more difficult.

As mentioned above, the developed exergame was supposed to *learn* about its users. Practices of machine learning are, just like human learning, dependent upon experience, and things are experienced through the senses. Whereas humans experience environments with their eyes, ears and skin, non-humans may learn via sensors. These sensors are able to analyze motion based upon an algorithm and gather depth images that are being processes locally. Even though as much privacy as possible should be ensured with this, it evoked questions about data security. Beyond this, the learning aspect evoked concerns about the physical safety of its users' bodies: what if the system failed to correctly assess its users' level of fitness and adapt the game difficulty accordingly and the user would fall or get hurt? And if neither data security nor physical safety could be ensured during the trial period—as a trial is, precisely, intended to detect such pitfalls in the first place—how could people be motivated to participate in the field tests? Would they have to be informed about all possible risks —wouldn't that be deterrent? And if they were informed, could they understand a complex sensor system?

All of these questions touch upon ethical issues. The functioning of the technology, hence, induced the entering of an ethics discourse, and finally the collective agent of an ethics committee, into the project. As many scientific journals require the vote of an ethics committee, the internal handling of ethical issues turned out to be insufficient. Hence, an ethics proposal was submitted to an external ethics committee. This proposal was drafted by the project partners carefully with the technology in mind—just like the technology itself was being scripted with its possible users in mind. In this situation, hence, technology as the non-human agent exerted power over the individual agents; yet it was not as powerful as the ethics committee, whose vote could seal the continuation, extensive delay or even termination of the project.

## Practices in Which Technologies Interact With Bodies

The previous situations have exemplified how technology can be the target of action. Most often, however, technology interacts in a close-knit nexus of action and re-action. This can be exemplified when we observe the core practices of interaction between bodies and the technology—playing games via bodily movements.

Exergames work by interconnecting human and non-human actions via the translation of movement. Therefore, the technology consisted of three elements: a console for the software, a television screen for visualization, and a sensor that transferred motions of human bodies to the console, where the software translated them into motions of digital avatars that were to be visualized on the screen.

The software contained a range of different mini-games. One of them was called "Volleyball." It portrayed a comic-style version of a beach and a volleyball net, as well as two avatars. It could be played by either two persons or the second avatar could be operated by the system. With the start of the game, a volleyball appeared, falling toward one of the avatars. If the human player resembling the respective avatar raised their arms, the avatar did the same; and if they were raised in time, the ball was caught and thrown back over the net by the avatar. If the body movement was too slow or not vigorous enough, the ball fell to the ground.

When we reflect on this gameplay, we can see how a variety of agents has to act together in very short intervals to facilitate a flawless process within the nexus of social practices. When the game starts, the software acts to display a stimulus on the television screen—the volleyball appears. The individual human player(s) enter(s) the game when they start to move—no matter if their movement is accurate, i.e., fast and vigorous enough, or not. When the sensor captures movement and recognizes it, it

assesses its speed and strength and transfers the signal to the software, where it is translated into avatar movement that is to be, again, depicted on the screen. This nexus of action and reaction happens in the course of a few seconds, and it is dependent upon the collaboration of every agent involved.

How does power come into play here? By defining power as the capacity to direct or influence the actions of others, we can see that all agents are powerful in some way. Exergames pose an interesting case here. Contrary to, for example, exercise videos, the users are not supposed to repeat the actions they see on the screen; rather, the game is supposed to repeat *their* actions and translate them into visible movement on the screen. The avatars, hence, follow the movement of the human players - even more so, as the software is supposed to learn about the capacities and preferences of its players. However, once having entered the game, the scope of action for the human players becomes limited. In the volleyball game they can do little more than move their arms; if they do anything else their actions will be ignored by the sensor. Hence, the system needs its humans to participate to facilitate a proper game; but if they do, they must play by the system's rules.

## IMPLICATIONS, LIMITATIONS, AND OUTLOOK

In this paper, we have laid out a post-structural account of understanding aging in a digitized world. In what we framed as a material praxeology of aging with technology, we are concerned with how age is being done through discursive formations, social practices and materialities and how social inequalities are reproduced through these elements.

In the beginning of this paper, we presented an overview of approaches that have been used to study aging and technologies so far. From this overview, we extracted three core assumptions for our theoretical development: First, age is not a biological attribute, but rather a practical process that is being *done*. Second, both human and non-human agents are involved in this process. And third, these agents possess different social positions and degrees of power. Their contribution to the joint doing of age, hence, differs.

Based on these cornerstones, we set out to develop a material praxeology of aging with technologies. Such a "material praxeology" that considers both the field logics and power relations conceptualized by Bourdieu and, at the same time, grants more relevance to materiality, needs to make the following assumptions:

1. Social fields, as relations of power structures, constitute the contexts in which age as a social phenomenon is being done with and through technologies. These power relations can play out differently in different situations, depending on the forms of capital relevant in these situations.
2. Human and non-human agents—individuals, institutions, bodies, discourses and technological devices—are equally involved in this process. Technologies, in particular, can be both targets and initiators of action, as well as partners in interactions with humans.
3. The social practices that emerge within these fields are structured through power relations. These practices may change or reproduce themselves, depending on the level of competence and capital necessary to participate in them and the power relations that either hold them in place or make them change.

With the example of the "ExerFun" project, we depicted how such an account can help us to understand how age is constructed in the process of scientific projects in the field of AAL. Such a project is a rich depository of data, situations and materializations in which age is being done.

What are the implications and points of criticism for following a material praxeology of aging with technologies? We argued that formulating a Bourdieuan praxeology that takes materiality seriously improves our analysis of the co-constitution of age and technologies. Within this approach, aging and technologies are co-constituted in a social field, comprised of actors, discourses and power relations. In our empirical example, we tried to show how the actions, which emerge from such a field, are always structured by the power relations between the agents involved, but that these power relations can work out differently in different situations. Also, the agents most resourceful in terms of capital must not always be the most influential. The end-user organizations, for example, were conclusive in the definition of an end-user imaginary, even though they largely lacked economic and cultural capital.

Defining technologies and aging as social fields will enable future empirical analysis to focus more closely on the power relations that accompany the development of technology, as well as the doings of age. However, the field notion comes with a strong emphasis on the field doxa, which sets the standards for all actions within the field. Hence, it can be criticized that the field notion implies a deterministic relation between the field and its agents. This holds partly true for the example given; however, it must not hold true for other examples. First, the field doxa is historically contingent and thus prone to change. As the AAL field merges doxai of other fields, a change in them is likely to affect the AAL doxa—if, for example, a different understanding of age emerges in the gerontological field, or logics change in the technological field, the AAL doxa will most likely change in correspondence. Hence, aging researchers can influence the way in which action is structured within the AAL field. This applies particularly when changes in related fields are accompanied by changes of power relations in the respective field. If, for example, the sociologists would have supported a different image of aging, and had had more power, the doxa of the field of sociology might have taken over the doxa of the AAL field and might have been more influential in structuring action. Another example is the obligation to include end-user involvement processes in AAL projects. Even though such processes can be heavily criticized, this requirement grants the end-users, and their representatives, a certain amount of power and

structures action differently than it would have been if only engineers and designers were involved in the technology-development.

Concluding, we want to argue that taking power into consideration does not presuppose a causal determinism, nor does it restrict action altogether; power much rather increases dynamics between the involved agents, and structures the pathways of action instead of just delimiting it. Considering power from a processual, post-structural and social-constructivist perspective points our attention toward how social phenomena, like age, are constructed in the dynamic interplay between differently powerful agents, and how such processes and relations are prone to change, too. Moreover, we want to emphasize that such power struggles are not limited to (individual or collective) human agents, but are, in fact, becoming more and more technical. With machine learning, practices of scripting, for example, are becoming increasingly independent of human agents involved.

Finally, we acknowledge that the empirical account given is less systematic and detailed than it should be, and want to encourage other researchers to apply a material praxeology to their data in a more thorough and thoughtful way, formulating questions and criticism to such a framework and, thus, developing it further.

## AUTHOR CONTRIBUTIONS

The ideas and hypothesis tested in this paper arise out of AW's and VG's joint work in AAL projects at the Department of Sociology, University of Vienna. AW: wrote the first draft of the manuscript; VG: wrote sections of the manuscript. All authors contributed to manuscript revision, read and approved the submitted version.

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# The Careless Society—Dependency and Care Work in Capitalist Societies

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The article analyzes the status of care work in capitalist societies. Care is a necessity in the context of human dependency and vulnerability. Here I understand care work as materialized and "thickly embodied" (Lanoix, 2013) rather than as affective labor (Hardt and Negri, 2000; Lanoix, 2013). On a very basic level, capitalist societies are founded upon unequal class relations as well as on the cultural and economic devaluation and externalization of relational embodied care. This can be seen, for instance, as certain elements of care work are relegated to the private sphere and remain largely unpaid and invisible. This great amount of unpaid labor is a basic condition of capitalism. I introduce the concept of *value abjection (German: Wert-Abjektion)* here to illustrate and analyze these structural tendencies and their effects on care workers and the elderly care recipients.

**Keywords: marxist-feminist theory, care work, embodied work, relational care, elder care in Germany**

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## INTRODUCTION

In most capitalist societies care work, such as social services, cleaning, cooking, elderly care and child rearing, are still mostly unpaid or low-paid tasks and are mainly carried out by women in private households. The extent of its (de)commodification and (de)familialization, however, varies from welfare state to welfare state (Gøsta Esping, 1999). In 2013 in Germany, 35% more time was spent performing unpaid work than paid work; and women still did 1.5 times more unpaid work than men (Schwarz and Schwan, 2016).

In the following I argue that this amount of unpaid work is no coincidence, but instead a basic condition of capitalism. On a very basic level, the logic of capitalist societies not only hinges on unequal class relations, but also on the devaluation and externalization of elements of care and its relegation to the private sphere where it is performed (mostly) as unpaid and invisible labor (i.e., Müller, 2016). The structural devaluation and externalization of care from the public to private sphere also affects (elder) care work in the public sphere and on the market. This impacts the care recipients (in our example the elderly) and the care worker negatively. In the following, I develop the Marxist-feminist concept of "value abjection" (German: *Wert-Abjektion*) to illustrate and analyze the "abjection" (Kristeva, 1982) of care as a necessary condition of capitalism.

This article contains five sections in which I elaborate on the economic and cultural externalization and devaluation of care as a necessary condition of capitalism. The first section outlines Marxist-feminist debates, which I use as the foundation for developing the theoretical concept of value abjection. The second section illustrates how care and care work are conceived within the context of an ethical understanding of care that takes into consideration human dependency and vulnerability and underscores care work's relation to body work.

To better understand the societal devaluation of care, the third section explores the concept of value abjection, which revises Marx's value theory and entails a critique of Marxist theory.

Using a specific case, the fourth section demonstrates the current devaluation of elder care in the Germany's home care sector and draws on excerpts from semi-structured interviews with care workers conducted during my PhD research (Müller, 2016).[1]

The fifth section illustrates the central theoretical novelties of the concept of value abjection.

## BACKGROUND: MARXIST-FEMINIST DEBATE

A broad Marxist-feminist debate ensued in the late 1960s and early 1970s on the sexual division of labor, and particularly on the issue of unpaid care work (reproductive work, housework), which remains crucial to theorizations of care work today. The point of departure was the "androcentric reductions" of Marxist theory (Beer, 1987, 157, translation B.M.), which disregard both gender socialization and the "economic position of women who perform unpaid work" (Beer, 1987, 157, translation B.M.). Marxist-feminists sought to revamp the terms of Marx's critique of political economy or to supplement it with a feminist perspective in order to "interpret gender *and* class oppression and exploitation theoretically, particularly to tease out analytically the contradictory connection between female employment and housework" (Beer, 1987, 158, translation B.M.). Such a connection is apparent in the fact that while women's oppression did exist before capitalism, its emergence had a profound effect on the separation of the reproduction and production spheres (Schäfgen, 2000). Historically, the transition from feudalism to capitalism and bourgeois society simultaneously brought about the separation of the reproductive sphere/unpaid housework from the productive sphere/wage labor and the distinction between the public and private spheres (e.g., Bock and Duden, 1977; Hausen, 2000). Marxist-feminist authors aptly pointed out that the rationales for the sexual division of labor were patriarchal and ultimately based on women's capacity to bear children and their roles as mothers. In other words, the bourgeois notion of motherhood shifted from a purely biological role to a simultaneously biological and social one (Beer, 1987, 164). Unequal gender relations can thus be considered a condition that enabled the emergence and reproduction of capitalism (Hagemann-White, 1984; Beer, 1987). The construction of the bourgeois heterosexual family is the backbone of the capitalist and patriarchal labor division, bolstered by the institution of civil marriage that ensures unpaid reproduction work is performed out of "love" (Beer, 1987; Schäfgen, 2000).

This short overview demonstrates the relationship between topics that were identified by (socialist) feminists during the second wave of the women's movement. Within that context, discussions on domestic also play an important role in contemporary theorizations of care work. In the following, I discuss the points of contention between different positions within the domestic labor debate.

## Domestic Labor Debate

The work of Benston (1969) and Morton (1970) launched the international debate (Vogel, 2001, 1186), while Mariarosa Dalla Costa's article in 1972 initiated the European debate on domestic labor (Beer, 1984, 96; Vogel, 2001, 1189). Contributors engaged in these debates sought to broaden the existing concepts of labor and include unpaid work by women in private households.

Dalla Costa argues that with the emergence of capitalism men were expelled from families by becoming wage workers (Dalla Costa, 1973). As families ceased to be the center of production and it became located outside the family, production and reproduction became established as separate spheres, which also led to a split between paid and unpaid work (Beer, 1984, 97). Because women's housework produces and reproduces the laborer, which is the main commodity for the process of production, in (Armstrong and Armstrong, 1983, 19) summary of Dalla Costa's argument, it "appears to be a personal service outside of capitalism, but it is in reality the reproduction of labor power, a commodity which is essential to the production of surplus value." Dalla Costa conceives of housewives as exploited, productive laborers who produce surplus value (Vogel, 2001, 1189).

The different reactions to these initial positions gave rise to an international and controversial debate between socialist feminists and the so-called new left. Within the debate, one group demanded wages for housework (for more on the domestic labor debate, see Armstrong and Armstrong, 1983; Beer, 1984; Vogel, 2001).

Beer (1984) gives an overview of the issues in the domestic labor debate based on the following theoretical premises.[2] The first position, represented by Seccombe (1974), claims that domestic labor helps reproduce labor power and thus creates a value "equivalent to the production costs of its maintenance" (Armstrong and Armstrong, 1983, 22; Beer, 1984). The second position, represented by Gardiner and Harrison, states that domestic labor reduces the value of labor power and increases the profit of companies (Armstrong and Armstrong, 1983; Beer, 1984). The third position, represented by Paul Smith, argues that domestic labor transfers the value of nutritional goods to the regenerated laborer; and the fourth, represented by Gardiner et al. (1975), maintains that domestic labor decreases the laborer's value and thus increases the rate of surplus value (Beer, 1984).

After a lively start, the domestic labor debate quickly grew troublesome. The terms used were often vague and even the definition of domestic labor itself varied from author to author. The term "domestic labor" was used to refer to unpaid work, but it was not clear if it also included pregnancy, child rearing, etc. Additionally, the relationship between unpaid housework and

[1] In accordance with the ethical guidelines of the DFG (German Research Council), interviewees gave their informed and written consent in an interview contract that also ensured their anonymity. As per the institutional guidelines and national regulations, an ethical review was not required. This article is based on research conducted during my PhD. The final phase (four month) was supported financially by the Marburg Academic Research Center (MARA).

[2] Although they correspond with the following authors, according to Beer they represent the general topics in most publications on the debate.

women's wage labor remained unclear. This led Heidi Hartman to the conclusion that Marxism and feminism was an "unhappy marriage" (Hartmann, 2011).

From a Canadian perspective Armstrong and Armstrong (1983, 27) summarized the debate as being "frequently mechanical and functionalist" but nevertheless saw it as a starting point to develop the theories further. According to Armstrong and Armstrong, the domestic labor debate has not been able to show that "women's domestic labor creates value, although it has made clear the fact that women do necessary work at home – work that is useful to capitalism in many ways" (Armstrong and Armstrong, 1983, 25). Further, while "it has not shown that the law of value directly governs the allocation of domestic labor, it has opened the door to an analysis which explores how the operation of the law of value in the market impinges on the household, influencing but not determining domestic labor time and content." (Armstrong and Armstrong, 1983, 25) My theoretical considerations are along these lines. Thus, I too do not assume here that unpaid domestic labor produces value, or that housework can easily be integrated into the value theory. Like Armstrong and Armstrong (1983), I also conclude that this debate created the conditions for further theorizing the function of reproductive labor (or care work as it will be conceptualized in the following) in capitalism and its devalued status. Beer argues in this vein, and I draw on her interpretation of Paul Smith's theoretical arguments in my theoretical elaborations here, in particular on her statement that the "sexual division of labor [...] proves implicitly from a value theoretical perspective to be both a *condition* and *precondition* of commodity production. Bourgeois society has created mechanisms to keep unprofitable but necessary work from the market by demanding free services from women" (Beer, 1984, 145, translation and emphasis B.M.).

In the following I shift the focus from the productivity of housework as the central concern of the domestic labor debate and instead assume a value theory perspective, which enables me to demonstrate that care work is a basic condition and precondition of capitalism.

The psychoanalytic concept of "dissociation" can be useful in theorizing the constitutive power relation between care work and capitalism. Adorno and Horkheimer use it in *Dialectic of Enlightenment* to illustrate how power works (Horkheimer and Adorno, 1944/1997; Scholz, 1992, 2004, 2011; Jung, 2016); Annette Kuhn utilized the concept of dissociation within a feminist context (1983, 36, Kohlmorgen, 2004, 43), and Roswitha Scholz developed the concept of dissociation further by placing it within a value theoretical context (i.e. 1992, 2004, 2010, 2011), which I refer to below.

## Value Dissociation

Roswitha Scholz's theory of value disassociation takes up the issues from the 1970s debates by offering what I consider an updated Marxist-feminist reading of value theory. To grasp the connection between capitalism and gender relations, Scholz conceives of unpaid activities as "disassociations." Although Scholz developed her theory against the background of a Marxist-feminist analysis and agrees with many authors on key points,[3] she underscores the difference of her approach from those of other Marxist-feminists (Scholz, 2011; see also Haug, 2002; Hauf, 2006).[4] Scholz's theory of value disassociation provides a useful starting point that not only enables me to theorize the constitutive relation of capitalism and gender relations on a more abstract level, it also helps me develop the terms for addressing basic power principles and forms (such as disassociation and value) within patriarchal capitalism.

According to Scholz, gendered reproductive activities are disassociated from abstract labor and from the production of value and surplus value that are derived from it. Situated within a Marxist-psychoanalytic context, Scholz understands value disassociation in the following way: "that female reproductive activities and their corresponding feelings, qualities, attitudes, etc. (such as sensuality, emotionality, and care-taking) are structurally split off from the value of abstract labor" (Scholz, 2011, 118, translation B.M.). Thus, "commodity-producing patriarchy" is constituted not only by goods and forms of money as ends in themselves, but difference, seen as a feminine principle, is excluded as incomprehensible and contradictory, and therefore considered inferior (Scholz, 2011, 118ff.). This disassociation is also involved in dialectical relationship with value and is considered to be both its "immanent opposite" (Kurz, 1992, 5, translation B.M.) and a prerequisite for the emergence of value (Scholz, 2011, 118).

According to Scholz and many other Marxist-feminist authors, "commodity-producing patriarchy" is based on outsourcing care work, such as childcare and emotional labor, "which are opposed to the logic of value with their morality of competition, profit, power, etc." Care and emotions are outsourced to the reproductive sphere, which is assigned to women (Scholz, 2011, 123) and adheres to a different temporal logic (Haug, 1996, 105ff., translation B.M.). However, dissociation is not a subsystem of value, and as a consequence of the theorem of value dissociation, both value and dissociation may be critically assessed on the same level of abstraction (see Scholz, 2011). Value dissociation is conceived as a formal principle of society, which does not determine society as a whole, but instead acts in a fractured and ambivalent manner.[5]

Scholz's theory is instructive insofar as it attempts to analyze the interwoven structure of capitalism and gender relations, thereby providing a structural explanation for the devaluation of care work. However, this theoretical approach leaves some questions unresolved and certain theoretical points remain troublesome. For this reason, this paper focuses on three objections: the first concerns the fact that Scholz only superficially conceptualizes the term disassociation itself, and fails to develop

[3] Although I point out this similarity, it should not be forgotten that there are fundamental differences between these authors, such as in relation to the concept of work (Haug, 2002; Hauf, 2006; Scholz, 2011). A discussion of these differences lies beyond the scope of the argument here.

[4] Scholz demonstrates a slightly more positive attitude toward Frigga Haug and even more pronouncedly toward Tove Soiland (Scholz, 2011).

[5] Although Scholz repeatedly stresses this aspect, she does not succeed in conceptualizing these ambivalences, because her emphasis on fractures and ambivalence merely remains on the rhetorical level (for a similar critique, see Haug, 2002; Hauf, 2006).

the term more substantially. The second objection relates to Scholz's understanding and interpretation of Marx's theory of value. This calls for a re-conceptualization of the theorem of value disassociation, at least on two accounts, which I develop in the subsequent section of this article.

A third critique concerns the Marxist-feminist debate as a whole: the term reproduction or housework has not been elaborated sufficiently, as it only refers to unpaid work and not to the care-related wage labor. Its emphasis is thus more on housework and less on other aspects of care. Therefore, the focus in the following is (a) on a broad conception of care in a care-ethical sense that includes the materiality of the body and demonstrates the care dependency and vulnerability of all human beings; (b) on reworking the psychoanalytical term and analyzing care in the context of a different Marx interpretation, and (c) also demonstrating the role of value abjection regarding elder care and aging in professional elder care settings.

## A NORMATIVE UNDERSTANDING OF CARE FROM A CARE ETHICS APPROACH

Based on empirical analysis and care ethics theory, In the following I sketch out three dimensions that characterize care work and the status of care on a normative level.

### Vulnerability and Dependency vs. Autonomy

Care ethics theorists and feminist phenomenologists do not focus (exclusively) on universal rights, principles and juridical regulations (as in more mainstream philosophy) but criticize their underlying androcentric assumptions, particularly that all subjects are autonomous and independent. In contrast, care ethics theorists build on an *ontology of relationality* that conceives of people as living within a network of care and dependency (Schües, 2016, 253). Human dependency and vulnerability are the basic conditions of all human beings, not just children, the elderly and the infirm. Thus, everybody is vulnerable and in need of care at all times. This core assumption of care ethics (Gilligan, 1982; Tronto, 1993; Conradi, 2001; Conradi and Vosman, 2016) alters the frame of analysis: if everyone is in need of care at all times, care must take on a central role in any and all analyses within these contexts.

### Care as a Relationship and Complex Relational Work

To outline care work more closely, I use a description made by care worker, called Rachel[6], who works in the German home (elder) care sector. These descriptions illuminate the underlying normative conception of care. Rachel's critique of the conditions that prevent her from providing good care, can provide an initial indication of what care is or ideally should be, which is relational and embodied.

"When I have a patient who only is assigned to 10 min for an injection and putting on compression stockings I visit him. *But I know, because I am the one who visits the patient on a regular basis*, that he suffers from dementia, that he has to walk down the stairs and say hello to his pet on the way down, because he always does this when he sees his pet, then 15 min have passed before I can start my work. Actually I like to say hello to him. I don't like to say: "We are going downstairs immediately, because we have to do this." (Müller, 2016, translation and emphasis B.M.)

From Rachel's evaluation of this specific regiment for time and task management, which becomes necessary through to the marketization of care, there is a critique of separating tasks from relational contexts. Rachel emphasizes elements of care, which are also considered crucial to care ethics. On a more practical level, her critique demonstrates the main care ethical principles of understanding care as relationship and relational work. Rachel states: "*But I know, because I am the one who visits the patient on a regular basis*, that he suffers from dementia, that he has to walk down the stairs and say hello to his pet on the way down, because he always does this when he sees his pet."

Here, Rachel has a continuant relationship with Jeff the care receiver, and therefore knows of his everyday needs. The care worker also states that she would like to welcome him and connect with him on a very basic level, by just saying hello and asking him about his day. It becomes apparent that she would like to treat Jeff like someone with individual interests and needs. She would like to react to and interact with his individual bodily and emotional needs and desires (e.g., to talk to his pet). However, it is also her goal to provide medical care (thrombosis stockings and syringe). Here, care is a very complex process comprised of medical and social elements. The care worker's request for good care is linked to the qualities of attentiveness, responsibility, competence and responsiveness, which Tronto (1993) describes as care ethics that need to be present in every care interaction. While Rachel does not name these qualities using the same words, they resonate in her demand to provide good care. In summary, using excerpts from Rachel's interview, care emerges as a complex but also relational process, as a relationship based on interaction, continuity and knowledge.

### Care's Third Dimension: Care as Embodied Work

According to Julia Twigg, Lanoix (2013) and other phenomenological approaches, care work is not only cognitive but also embodied work that includes the body of care giver and care receiver. For Twigg (2000), care is body work that not only includes spirit and mind but "care for the space", and therefore includes cleaning. (Twigg, 2000; Daly and Szebehely, 2012). Body work contains "the less attractive aspects of the body. Occupations that deal directly with the body and its wastes are recurringly regarded as low in status, on the border of the polluted. In caste societies, sweepers and barbers are drawn from low castes or untouchables. In modern Western societies, such jobs are done by the lowest paid, least regarded workers; being a lavatory cleaner epitomizes a low status job, however much people might recognize that it needs to be done" (Twigg, 2000, 391).

[6]To ensure anonymity, all names are pseudonyms.

However, care work does not merely contain physical dimensions of the body. According to Monique Lanoix, care work is at least ideally "thickly embodied labor" (Lanoix, 2013). It encompasses embodied interactions between care receiver and caregiver, which can include spontaneity, joy, affection and even pain. "Thickly embodied labor" is an embodied relation and can be described with the complexity of someone's touch, the feeling of warm skin or a spontaneous laugh (Lanoix, 2013).

In contrast, thinly embodied labor is reduced to a physical and mechanized act, which Lanoix explains using the example of robotic care: to lift somebody in a chair could be done by a robot. It would be thinly embodied labor because there is no relation, no reciprocal bodily touch and most importantly, not only for Lanoix but also in the words of Joan Tronto, there is no spontaneous attentiveness and responsiveness to the care dependent's feelings in the 'here and now' of the care situation, such as a shared good or bad feeling, a smell or a reaction of the care worker to a care dependent's goose bumps, which demonstrate bodily that he or she is freezing (Lanoix, 2013).

Care is thinly embodied if it is done in a pre-programmed, robotic way. According to Lanoix (2013) a human caregiver can also act like a robot. The care practice as thinly embodied labor will be demonstrated in the third section of this paper.

The difference between thick and thin embodiment becomes theoretically even more pronounced when applying a phenomenological concept that differentiates between the body as object and the living body (German: *Leib*) as body-subject. Phenomenologists like Helmut Plessner or Hermann Schmitz distinguish the *physical body* as the one we *have*, from the *living body as* the one we *are*, the body we *feel* (*feelings like hunger, pain, tiredness*) (Schmitz, 1990; Plessner, 2003). A feminist interpretation shows that this assumption of two dimensions of the body does not necessarily reflect the nature-culture split, because the physical body and living body are understood as entangled with each other, as knowledge about the body that structures the felt body feelings (Lindemann, 1994; Jäger, 2004).

Viewed in this light, care work is normatively and in the conception of the care worker, a relational embodied practice, not only includes the body as an object which can be dressed and fed, but also takes into account the dimensions of the body felt by the care receiver and the caregiver. Care work is a living body and mutual interaction between two embodied beings. Touching is therefore not a mechanical act, but a living bodily interaction between bodily beings, conceiving of care work as thickly embodied labor is neglected in the commodification of care in the home care sector in Germany.

To conclude the first section: because of human (inter-) dependency, care and care work are always needed. Care work is not only a very complex and material process, but also a relational and embodied process that encompasses the physical and the living body. Care work is embodied work that deals with human vulnerability and dependency and is a basic condition of every society.

However, the normative conception of care described here as thickly embodied and of relational work is often differently shaped and structured in a capitalist society. Societal forces lead to care practices that are often more mechanical or thinly embodied and focus solely on the physical body as object and shape the everyday practice of care. In the following section I analyze these societal forces on an abstract level, and show how they shape care as thinly embodied, and contribute to a general devaluation of care and care work.

## THE DEVALUATION OF CARE AS ABJECTION OF RELATIONALITY, DEPENDENCY AND THE LIVED BODY

The analysis of the basic conditions of capitalism is augmented by the concept of value abjection (German: *Wert-Abjektion*, Müller, 2016), which I develop within a Marxist and feminist context and against the conceptual background of value dissociation (Scholz, 2011). In doing so, I follow a different interpretation of Marx, which I combine with the psychoanalytical concept of "abjection" within a very broad conception of care. Here, I grasp value as a basic mode of capitalism as developed by Marx, and abjection as a basic mode of the symbolic order as developed by psychoanalyst Julia Kristeva. In the following I aim to demonstrate how these power relations are entangled as a fundamental power mode in capitalism (Marx and Engels, 1962; Kristeva, 1982; Brentel, 1989; Tronto, 1993; Hirsch, 1994; Scholz, 2011).

### Abjection

The term abjection literally means degraded or rejected. Although Kristeva does not give an explicitly feminist reading of psychoanalysis (Suchsland, 1992), her concept of abjection has been used advantageously in feminist theory, and can therefore be critically applied (see, for example, Grosz, 1990; Butler, 1991, 141 and 1995; Engel, 2002).

Drawing on Lacanian subject theory, Kristeva mainly understands the concept of abjection as an *active* mechanism of self-defense or repulsion in the face of horrifying and threatening objects. Kristeva analyses abjection as a precondition for the subject's entry into the symbolic order. What cannot be verbalized is the diffuse, unstructured and heterogeneous, the refusal of which is a precondition for self-being. The pre-verbal represents the non-viable, it is neither object nor subject *but abject* (Kristeva, 1982). Examples include the slimy, bodily fluids and excrements, or more generally, that which lacks structure (Buchwald, 2002, 44). That which is non-viable and dangerous must be disposed of and is thus a prerequisite for the "birth of the self" and the symbolic order (Kristeva, 1982, 3). As proper and as a whole unit, society is based on the exclusion and expulsion of the improper, unstructured, and unclean (Kristeva, 1982). The abject is the persistent sign of the subject's necessary relation to animality, materiality, and ultimately death (Grosz, 1990, 89), the threat of which must be negated and rendered abject. According to Elizabeth Grosz, this process can be understood as a symptomatic response and rejection of the limits of the body, materiality and mortality (Grosz, 1990, 89f.). According to Kristeva, however, abject elements cannot be eliminated entirely. They lurk at the border between the subject and society and threaten their stability (Grosz, 1990, 87; Suchsland, 1992, 123).

Consequently, the abject is the sign that both subject and society are constantly in danger (Grosz, 1990, 89).

## Value

Marx's de-naturalization of capitalist society as a historically specific power relation is the basis for this feminist-Marxist perspective on value theory. His view not only de-naturalizes but also consequently decodes the social relations of what appear to be natural incidents. In relation to the understanding of value as form, Marx illustrates that value is not a natural asset of a commodity, but that the value of a commodity is produced by class antagonism. That we ascribe value to commodities, for example in the form of money—and the assumption that it has value in itself—is a result of a society "in which the process of production has mastery over man, instead of the opposite" (Marx, 1990, 175) and in which their "own movement within society has for them the *form* of a movement made by things, and these things, far from being under their control, in fact control them" (Marx, 1990, 169, emphasis added B.M.).

A central figure in Marx's theory is the double-free wage laborer, who demonstrates how labor is organized and enables us to differentiate capitalism from other modes of production like for example feudalism. In capitalism, the laborer is a *double-free wage laborer*. The first dimension of freedom is somewhat ironic, because it implies that the laborers are free from capital in the sense that they don't own capital. The free laborers have no other commodities (no money, machines or companies) they can sell to make money. The only commodity the laborers have is their own labor power, which is what they sell. Second, under the law they are free with regards to their own labor power, to enter into a work contract (in contrast to forms of peonage or slavery which are the labor conditions in feudalism). The wage laborer as double free laborer is the basic producer of surplus value, because its labor produces more value than the capitalist has to pay for the reproduction of the laborer. Within an antagonistic class society, labor is the source of value and surplus value. On this basis, Marx decodes the basic elements of the societal structure, but only takes wage labor into account. However, regarding the reproduction of the laborer it is necessary to also take care work into account, which is not a focus in his analysis. In fact, in calculating the value of the laborer, Marx does take the need for nutrition into account, but not the fact that the reproduction of every individual laborer, as well as the reproduction of the entire labor force, also requires care *work*: somebody who cooks the food, raises the children, provides emotional support, etc.

Feminists like Adriane Brensell and Friederike Habermann have hence considered the double-free wage laborer to be a *triple-free wage laborer,* because it is also free from care work (Brensell and Habermann, 2001). Although this argument is certainly correct, it needs to be taken further. The double-free wage laborer is an *instrumental figure* (*zweckrationale Figur*), and is not only abstracted from care work, but also from its dependency on care in general. The figure of the double-free wage laborer is free from care work *and* seems to be an autonomous self that is also free of bodily dependency, contingency and vulnerability. In capitalist society, the figure of the wage laborer renders care, in broad terms as vulnerability, (bodily) dependency and contingency, invisible. Bodily dimensions are often seen as dreadful elements because:

"The body is taken as a symbol for any bounded system and, by the same token, bodily orifices and fluids (blood, milk, urine, feces, sweat, and tears) stand for potential threats to the social collectivity, namely transgressions of the social order. This is because margins and borders are so problematic—messy and untidy—for societies. " (Campkin and Cox, 2008, 17)

Bodily fluids, and unstructured and diffuse relational aspects of the living body including pain, hunger and joy, are subject to abjection. It is this third form of freedom—with the abjection of care in a broad sense as the abjection of the messiness and contingency of the body—that enables the laborer to become the surplus value producing figure. This makes it apparent that classes are not the only driving force of capitalism, but that the abjection of care as living body and relational work and dependency are also economic and cultural preconditions of capitalism (Müller, 2016).

In a feminist-Marxist sense, we need to widen our scope of analysis. Along with considering classes as a driving force of capitalism, we must also regard the contradiction between abject others (those who obviously need and provide care) and the free-floating affluent and autonomous subjects (seemingly free from dependency and care work) as elementary components of the analysis.

The reason for care's abjection is both economic and cultural. In economic terms, acknowledging care work through remuneration for it would make the reproduction of the labor force too costly and extremely minimize the surplus value and profit; and, because care functions according to a different logic of time (Haug, 1996), it is difficult to measure. In cultural terms, the instrumental figure of the laborer appears to be free of sickness, dependency and mortality. The body and health of the laborer are rendered culturally abject by structurally devaluing them as "being mortal" (Gawande, 2014) and vulnerable. Capitalist society and modern medicine do not deem death and fragility part of life, but problems that must be eradicated (Callahan, 2005; Banerjee and Rewegan, 2017). These cultural assumptions in combination with the economic contradictions described above form the basis on which guidelines for aging and care practices are formulated.

The concept of value abjection merely serves as a theoretical tool of analysis on a very abstract level, which enables care to be understood as a basic condition in capitalism. On a more concrete level, this general or abstract tendency relies on specific historical power relations and the relationship of forces that become "materialized" within specific institutions. The abjection of care is therefore not always the same. It is a general tendency and necessity in capitalism, but the analysis of the ways in which it is concretely (institutionally) calls for a different level of abstraction. Such an approach explains, for example, the differences between capitalist states such as Germany, Canada and Sweden, and the differences within certain states regarding their transformation from a Keynesian welfare state to neoliberal "national competition state" (Hirsch, 1994).

As a basic mode or tendency in capitalism, value abjection results in an overall devaluation and exteriorization of care, thereby defining care as unpaid work. This tendency to devalue and render care abject affects care work and those receiving care on the formal market and in the public sector.

## MARKETIZATION AND ABJECTION OF RELATIONAL BODY WORK IN GERMANY'S HOME CARE SECTOR

An analysis of the German care system, especially after the introduction of the Long Term Care Insurance (LTCI), illustrates how pronounced this abstract tendency to render the relational-bodily content of care abject actually is. Commodification and marketization render the relationally embodied aspect of this work abject; while this very abjection of the relational-embodied content of care is a precondition for the commodification and marketization of care. In turn, as *thinly embodied labor*, care work is made to be task- and goal-oriented rather than relational.

The German model is known for its definition of care as very centered on the physical body and in terms of extremely specific tasks. Long Term Care Insurance (LTCI) only pays for certain care needs. It only covers strictly defined care tasks, which care dependents choose in advance as part of their "package." Tasks covered under LTCI are mainly body-oriented nursing care, such as showering or combing hair. After many years of struggle and long debates in which dementia associations played a key role, a new definition of care dependency was introduced in 2017, which now includes social care needs for example of persons with dementia (supervision, companionship). As a result more care dependents especially regarding dementia are recognized by the insurance and receive financial support (Ministry of Health, 2015).

Nonetheless, the reforms still fail to address the key problems of daily care work. First of all, the insurance still covers only some of the dependents needs for care, which means they still have to decide if their budget is sufficient to purchase social care or if they need to purchase further assistance (such as showering or cooking) from this budget. Second, the LTCI designates a time limit for each task or a package of tasks in home care (For example, 37 min for un/dressing, showering, brushing teeth and oral hygiene. Additionally, care agencies are considerably reducing the time allotted so that a care worker can attend to more tasks in one shift.

An employee of a German health care insurance agency explains the system as follows:

"As the tasks for Hessen [a German jurisdiction B.M.] in 2004 did get further developed, an hour corresponded to 600 points [. . . ] in the following years the care agencies optimized the system to balance more points within 1 h. Employees are often required to complete a task in less time. The result is nursing care per minute—you can read about in the media—and that has never been part of the negotiation." (Conversation with a member of the German health care insurance company, AOK, translation B.M.).

Narrowly defining care activities as tasks, time restrictions, and the pressure due to the low wages of the care worker symbolize a successful attempt to structure care and care work as cheaply and profitably as possible. The added time pressure reduces the possibility for relational care.

In the German LTCI system, the pressure of cost efficiency put on the care agencies is passed on to the care worker. This underfunding leads not only to precarious working conditions, but also to a Taylorization of the working process that structures the work as thinly embodied labor. The relational aspect of care is thus neglected and rendered abject. The microanalysis of interviews with an elder care worker in the German home care sector illustrates this:

"Today a lot has changed. I, we, have only care packages (*Module*), which have to be purchased. I cannot provide anything that has not been purchased, even if I see the need (..) I'm not allowed to do it, because it's not paid for, and I have to finish my tasks within a specified time and I'm not allowed to exceed that time" (Müller, 2016, translation B.M.).

That excludes everything that might actually be needed, but has not been purchased or prescribed.

"Such things, yes, if people have just purchased a small nursing care package and, um, what do I say, when an accident happens and their feet are unclean/dirty as well then I'm essentially not allowed to clean their feet or I have to say: 'It's more expensive today, yes.' That's the point" (Müller, 2016, translation B.M.).

It seems that all the needs that cannot be grouped are uncontrollable or immeasurable, are structured as abject. The example of the patient's dirty feet demonstrates those uncontrollable and dangerous needs and body fluids that manifest themselves at the border of the body, which are uncontrollable, messy non-objectable, unplanned and unstructured in Kristeva's (1982) sense of the abject. The relational dimension, including, for instance, attentiveness to needs in the 'here and now' and the relation between caregiver and recipient, expressed through responsiveness, are also abject in the sense that they are invisible and prohibited within the official work requirements.

Time pressure plays an extremely important role here. A restrictive time regime is supposed to make care tasks more profitable, because care workers are supposed to accomplish more tasks in one work shift. Tasks are measured in terms of the time given to accomplish the task, but the short time span does not include the social and relational aspects necessary for a proper care interaction—to calm somebody down, to be responsive to someone's needs or sorrows are needed to build trust and a relationship.

The care providers are critical of the fact that they have to work under constant time pressure and describe the time restrictions as making their work fragmentary and causing a "constant time shortage."

The care worker explains that the time restrictions are often managed and electronically using smart phone applications and GPS. This time pressure and surveillance can be considered a new direction of work that results in the abjection and exclusion of relational-embodied care.

To return to Rachel's observations, she states:

[. . . ] We've got little computers [smartphones, B.M.] that they use to keep an eye on us. We have to press a button when we enter the apartment, and when we leave we have to press it again, so the time spent is recorded. And our services are noted on the computer: stockings off −2 min, stockings on −4 min, and so on [. . . ] and then the total time spent is calculated on the top. And it beeps very loudly when the time is up. So you have to watch it all the time. And then the elderly person asks you: "Are you in a hurry again?" Or "Are you being observed again?" Yes, they

do realize it, it's not hidden and they feel that you are under time pressure" (Müller, 2016).

One result of this abjection, besides deskilling the care worker and care work, is that the relational and embodied care work is not neglected but done regardless of the regulations, often privately, even if it results in unpaid work, for example, filling in documents at home. Carers often try to regain the time they "lost" by doing relational work outside the recorded times, sometimes through risky and subversive practices, as shown in the following example of Rachel:

"To be honest, I often press the button [of the smartphone, B.M.] earlier, so after the 10 min, which I have to care for him, I stop the computer so that he can have 5 min to talk to his pet, I cannot take this away from him. In order to make up for the lost time, I drive back faster. Luckily I don't smoke, so I don't need time for this [. . . ] And probably it's a pity but, if I have a patient afterwards, for example, who got 45 min, I press the button earlier although I'm still driving, because that woman's insurance pays, she needs only 10 min of her 45 min. So I give 5 to the old man so that he can talk to his pet. *This is not allowed and certainly a reason to fire me*, because I commit health insurance fraud, I betray my employer and the patients [. . . ] (Müller, 2016).

Her strategy could be defined a "*subversive reallocation of* time," as a form resistance against an "uncaring society," to use a term coined by Baines (2004). The strategy could also be called "compulsory altruism" (Land and Rose, 1985) because the German nursing care system seems to be founded and relies on, the fact that most care workers understand nursing as relationally embodied work and not just as a task in the sense of thinly embodied labor.

## CONCLUSION

The aim of this analysis was to demonstrate that care work as embodied work is always necessary but that the relational and embodied aspects are constantly structured as abject. The concept of value abjection enables at a high level of abstraction in analyzing the economic and cultural necessity and the tendency to render elements of care abject as a condition and precondition of capitalism. Patriarchal capitalism thus relies and builds on care work, but requires that specific elements of care to be structured as abject, unpaid and invisible. Moreover, patriarchal capitalism imagines subjects to be autonomous, young, white and independent. Thus, dependency, fragility, incurable 'illness and aging are invisible in society, as the modern and postmodern (male) subject is pictured as free from care needs. Messy and uncontrollable aspects of aging (e.g., dementia), care needs of the relational "living body," as well as care giving are widely considered as exceptions instead as a basic condition of humanity. The described cultural and economical forms of abjection are the conditions for aging and care. While the physical body is commodified in advertising, campaigns and programs for "active aging" and wellness, the messiness of the "living body" is rendered invisible and abject. I provided concrete examples from home care that showed how relational and embodied elements of care are abject in order to render care more profitable. The women who (still) mostly perform care work, but also receive it, are abject in the sense that their physical needs are provided in a Taylorized manner by workers subject to precarious conditions. Relational needs like attentiveness, empathy, or general responsiveness, are deemed invisible and abject. The care system appears to be built on the premise that care is unpaid work. The German authorities and agencies providing care not only rely on unpaid work in the so-called private sphere, but also on unpaid work provided by professionals working in Germany's home care sector.

The concept of value abjection provides a framework for analyzing these tendencies in capitalism. It differs from other theoretical approaches because it entails a broad concept of care and connects concepts from value theory and psychology in order to analyze the economic and cultural spheres. It also combines different levels of abstraction (macro and micro analysis) that can be applied to both theoretical and empirical perspectives. Thus, it aims to lump and slice (Armstrong and Armstrong, 2002), achieving the former by showing basic tendencies and power relations in capitalism on an abstract level, and the latter by demonstrating the need for the abjection of care on an everyday basis using concrete empirical analysis. Thus, the concept can be applied to related empirical fields like residential long-term care and care in private households as well as care in other countries.

The concept of value abjection is useful and can be further developed to understand the specific abjection of bodies with regards to racism and heteronormativity.

Particularly in the context of migration, care and racism the concept of "affective value" which Encarnación Gutiérrez Rodríguez defines as "value produced through the energies, sensations and intensities of human encounters within a hierarchical system of colonial classification, entrenched in the logic and dynamics of the modern/colonial world system" (Gutiérrez Rodríguez, 2012) could be taken together with the concept of value abjection.

The concept of value abjection is thus an analytical tool that enables a critique of power relations that structurally externalize and devalue care and constitute care as non-work. For this reason, strategies geared toward better living and care conditions must strive to overcome these power relations and to recognize "life as purpose as end in itself" (Klinger, 2013, 103).

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The author confirms being the sole contributor of this work and has approved it for publication.

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# Doing Age and Doing Desire in and Through Film. Queer Perspectives on Gender, Aging, and Desire

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In recent years a growing number of films on and with elderly people have been produced. Love and desire are central features of some of these films although more often heterosexual than homosexual. In our paper we would like to address the intersections of doing age and doing desire in five films that have recently been produced. By analysing the films we will develop a taxonomy of the various forms of desire displayed. Yet, we will also show how these films do not just represent desire in old age but how they materialize in and through the desire they produce in us, the spectators. In our analysis we look especially at filmic strategies, which cope with, reify, produce and counter images of desire in old age. We consider these filmic strategies as performative, which means that film can contain a utopian as well as subversive potential. We are especially interested in the potential of film to create something other than expected, something that leads us beyond representation of the known, something new that emerges with the specific aesthetics of film. In order to trace this potential we draw upon the concept of the surrogate body in the cinema which helps us resituate the notion of embodiment in the actual cinematic experience. In this somatic space of meaning, which our body has become for the film, desire moves in the diegetical and the non-diegetical levels of the film. In the films we will analyse, a specific corporeal-somatic experience becomes possible that lies beyond a simple and normalized heterosexuality in old age. The images create, as we want to suggest an aging trouble by queering our anticipations and stereotypical expectations—they also materialize as desire in the bodies of the spectators.

**Keywords: aging, embodiment, film, desire, gender**

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## FILM AS PERFORMATIVE AGENCY AND THINKING PATTERN

In *Skyfall* (UK/USA 2012, Sam Mendes) Judy Dench, nearly 80 years old, is staged as Bond's boss ›M‹ of many years, but also as an aging and at the same time highly attractive woman. Her beauty and sublimity is developed through the filmic mise-en-scène and unfolded as the film reaches new aesthetic possibilities through the motive of the beautifully aged lady. The camera moves slowly and in a counter-cut to the chase toward Judi Dench. While the sequence reaches its peak, Dench's face becomes larger and larger until the shot ends in a close-up. Dench gives the command to shoot. Metallic rhythms are woven into the sounds, which remind us of a moving train. The shots of the chase are light brown—the shots of Dench, however, have gray-silver nuances and are kept in a cold blue light. The chase is shot in a rapid speed and the movements of the figures and things go in different directions—the camera movement toward Dench is slow and steady. With

the horizontal movement of the camera toward a vertical focus, the cross-hair of the chase is the standing figure Dench: the quiet and steady center of the sequence. In *Skyfall*, the presentation of Judi Dench shows not just an elderly lady who is highly attractive but who also has power over (younger) men. Here, power is not associated with masculinity and youth but with femininity and mature age. This can be considered a filmic utopia, which reverses the power-relations between the genders and the ages. Interestingly, this kind of beauty seems to be reserved for mature women; it is based on bodily markers of age such as wrinkles, gray hair, and frailty. With genuinely filmic means such as make-up, costume, lighting, color, and distance of framing, the elderly lady develops her very own cinematographic appeal.

Film can be very specific in its cinematographic strategies and it has an intense influence on our experience of the world. The German film philosopher Hagener speaks even of a reversal of the "classical hierarchy between film and world" (Hagener, 2011, p. 58), which presumes that film is merely a representation of the world. He supposes that in "the current age of media-immanence" (ibid.) it is impossible to think of a pre-medial outside of the film. Rather, Hagener states:

> film no longer (represents) reality, but becomes world in the sense that there is no space anymore from which it is possible to imagine a pre-medial universe. Film—successful or not, in cinema or television, in the gallery or on a mobile phone—always offers us at least two things: a second life which we can inhabit temporarily but also another life for ourselves. Whenever, a film is successful, it lets us, for a moment, participate in another life, yet it also has the power to change us permanently (Hagener, 2011, p. 58)[1].

If we always already live in images and the images always already live in us, as Hagener states, then there can be no age(ing) without film and no film without age(ing). Film determines the writing and the design of one's life. Moreover, film is specific in its expressions about life and aging, and thereby it becomes a mode of performative agency and a pattern of thinking. Film influences therefore our "being-in-the-world" in a very specific way. It also affects our handling of world. It also influences the scripting and designing of our lives; it affects our dreams and stimulates our wishes; it incites our desires. It sometimes also creates our desires. Our desires are a fundamental part of how we design and script our lives, the drive us and they direct us. Desire is an intensity that drives us, our fantasies, our cultural productions and therefore also film.

Desire in and for elderly people is in Western society a rather tabooed. Images are rare, in mainstream culture they are scarce. Yet, elderly people do desire, they desire each other, they desire younger people, they desire live and love and intimacy. In this paper, we would like to introduce a number of films that feature desire between elderly people. Yet, this desire, as we will show, is not simply to be understood as a filmic representation of sexuality in old age. In our understanding film is able to generate something beyond representation and in this very ability of film we find a queering of stereotypical expectations of sexuality in old age. Film is able to not just represent but also to materialize desire and embodiment—also of course—of elderly people.

In the following paragraphs we will analyse how filmic strategies can performatively produce materialities and sensualitites of aging. We will address a number of questions such as: How is desire in old age staged? How is gender produced and how does it intersect with and/or precondition the representations of the elderly? Which filmic strategies can be identified when it comes to the representation of elderly bodies? Are there possibilities to show desire in old age as an independent filmic staging without reproducing stereotypes? How can film subvert stereotypical images of sexuality and formulate possibilities of desire for this desire in the spectators? Is it possible to detect a queering of desire in old age through film? Can film subvert stereotypical, hetero-/normative representations and materialize as desire for other possibilities? Therefore, it is the aim of this paper to give insight into filmic representations of old age in the context of desire and embodiment in contemporary European film. Hereby we want to focus on the potential of film to subvert stereotypical images of old age and its possibilities to give way to the materialization of different and differing designs of aging and desire.

But first we would like to return to non-stereotypical portrayal of female old age in film. Judi Dench's staging as ›M‹ in *Skyfall* (2012, Sam Mendes) as highly attractive and beautiful woman who has power over younger men can be approached with two central concepts in aging studies and gender studies: doing gender/doing age and the gender/aging trouble. These concepts emphasize that age and gender is not something one is but something one does. They can be complemented by a *doing desire* which is posited beyond a naturalization of age and gender[2]. Parallel to and intersecting with *doing gender* and *doing age* desire in elderly people is produced by and in filmic representations. We want to go even further—as we regard theories of materialization as the necessary consequence of theories of performativity—and argue that the desire that is represented in film moves through us—the spectators—and materializes as our own. We will introduce filmic images of desire in old age that describe a "somatic space of meaning." In this space, a differing desire—as is our hypothesis—materializes. This happens through images which are a potentiality, possibilities, they do not become actualized, yet, they sensitively and affectively inscribe themselves in the spectators. These pictures could show something but they don't. They simultaneously subvert traditional and normative images of sexuality. They produce a desire in the (bodies)

[1]German Original: "nicht länger Realität, sondern wird zur Welt in dem Sinne, in dem sich kein Ort mehr finden lässt, von dem aus ein praemediales Universum vorstellbar ist. Der Film—ob gelungen oder nicht, ob im Kino oder Fernsehen, in der Galerie oder auf dem Mobiltelefon—bietet uns immer wenigstens zwei Dinge: ein zweites Leben, das wir zeitweise bewohnen können, aber auch ein anderes Leben für uns selbst. Wenn ein Film gelungen ist, verschafft er uns für einen Moment Teilhabe an einem anderen Leben, aber er hat auch die Kraft, uns dauerhaft zu verändern."

[2]*Doing desire* has been introduced by Tolman (1994) in the context of changing sexuality of adolescent women. Our own use of *doing desire* is derived from the concept of *doing gender* by Candace (West and Zimmerman, 1987) as well as the concept of *doing age* by Lövgren (2013).

of the spectators for this desire. How this desire is produced aesthetically is the focus of this paper and will be analyzed first, in *Wolke 9* (2008, Andreas Dresen) by which we will show how central film aesthetics is as regards desire. We will move on to develop a typology of desire which is built upon four categories which we will call: images of deprivation, images of imagination, images of retrospection and images of incompletion. The films we will use as examples to illustrate these four categories of images of desire are *Vergiss mein nicht* (2012, David Sieveking), *Amour* (2012, Michael Haneke), *Et si on vivait tous ensemble?* (F/D 2012, Stéphane Robelin), and *Irina Palm* (2007, Sam Garbarski)[3].

## DOING GENDER, DOING AGE, AND DOING DESIRE

Recently, a number of different concepts of aging have been introduced. We find neoliberal concepts of successful aging, meaning that society demands of every individual to be productive, even of he aged, successful therefore meaning to not become frail, dependent, asexual and sedentary. There are also attempts to frame aging as being "affirmative" as regards an embodied and materialized way of "becoming" different (Sandberg, 2013). We find those approaches most fruitful for our analysis of film. Film can be affective, intense and affirming—it can let us become different. As we have shown above, film can produce agency and is performative.

As much as you will always find a doing gender in a gendered world you will always find a doing age in an age structured world. Just as much, is age something that means different things in different ages, cultures and contexts (Lövgren, 2013, p. 37). When it comes to film a variety of aspects of the construction of bodies and identities are equally relevant. These are, just to name a few: race, class, sexuality, nation, ethnicity, and religion. All these categories become relevant when talking about gender and age(ing) in film. In film and through film, categories of identity are disordered and re-ordered. Film does not just represent and quote these categories, film carries those categories as experience and materialization into the world. Therefore, film also is complicit in doing whiteness, doing bourgeoisie, doing working-class, doing heterosexuality, and so on.

In the following analysis we want to particularly emphasize one of these doings: this is the doing desire in old age. Even though heteronormativity as such is not challenged in the films we analyse, which is to say that the desire that happens is organized in heterosexual terms, we do feel that queering aspects can be found in the very particular doing desire which these films undertake. Our hypothesis is that in these particular films a corporeal-somatic experience becomes possible that lies beyond a simple and normalized heterosexuality in old age. In the films, we find subversive movements, which undermine and question stereotypical images of both old age and sexuality. This happens through filmic movements, which describe and generate not a facticity but a possibility. What is of main interest for us, is the filmic movement of a doing desire which produces "potentialities of old age" through specific images of doing desire.

In contemporary film, we rarely find aged characters who are old and frail, sick or dying (Michael Haneke's *Amour* is a prominent exception here). Rather, it is their youthfulness, their activity, their desire for life, which dominate the filmic representation. We find alternative co-habitation such as living groups or residencies for aged artists; as well as new love affairs, common cooking with friends, etc. The cinematographic diversity of aged people thereby foils specific forms of behavior or modes of appearance, which are normally ascribed to older people. Ivo Ritzer describes this specific form of doing age in *The Expendables* (USA 2010, Sylvester Stallone)—albeit only in relation to men (Ritzer, 2012, p. 319). The differences which produce doing gender also structure doing age—as we have already described in our introduction on Judi Dench in *Skyfall*. Ritzer, describing the design of the future for the aged male body in *The Expendables*, argues that there is a tendency to display forms of age(ing) that show the body as productive and useful (ibid.). By referring to Foucault's bio-power, describing the controlling processes of bodies in modern societies, Ritzer concludes that the age(ing) body has to be concealed and influenced by "compensatory body techniques." Old age is made invisible. Instead, as Ritzer argues, competencies associated with youth(fulness) such as mobility, spontaneity, expressivity pass into later phases of life (ibid.). This "making useful" of aging male bodies can be identified as a specific mode of doing age. Especially when it comes to desire, however, the notion of the youthful body prevails as desirable. We want to ask which images of age(ing) are produced, resisted and counteracted especially when it comes to the unfolding of desire in film.

## AGING TROUBLE

Miriam Haller uses the concept of gender trouble proposed by Butler (1990) to criticize the notion of age(ing) as a natural and solely biological fact (Haller, 2005). The categories, which determine the notion of age can produce disturbance and disruption, yet also the rebellion and the trouble, which Butler describes in *Gender Trouble* (Haller, 2005). With this theoretical background, the concept of performativity also becomes interesting in regard to age(ing)—especially because it enables us to conceive of categories as dynamic and flexible. As much as gender categories can subversively be undermined, categories of age can be used performatively to show us how, on the one hand age is construed and on the other, how it could always be differently. Film is here especially interesting, since it performs subversion and pronounces possibilities rather than facts and facticity. Especially, when it comes to the display of desire in and between elderly people, aging trouble seems to become virulent. In mainstream cultural productions, the aged body and sexuality are rarely portrayed together. The norms and normalizations that come with representations of sexuality prohibit playful images of sexuality in the elderly. We find that the perception of the representations of desire in old age as taboo resembles the heteronormative perception of queer desire. We therefore consider it apt to speak of representations of desire in the elderly as somehow queering the norm—not as queer, but as

[3]In our analysis we do not distinguish between documentary and fiction since what is important for our analysis is the film aesthetic strategies that show and produce desire. These film aesthetic strategies are composed of mise-en-Scène, sound, cinematography.

an active queering of normative perceptions of intimacy, love, sex, bodies, and desire. Film contains, just as queer theory the possibility of the invention of different worlds (O'Sullivan, 2005) through the continuous production of new ways of seeing, of knowing, of connecting, of feeling connected and of life as such (Sikora, 2016, p. 64). Film is able to extend our consciousness and to build affinities with other bodies (MacDougall, 2006, p. 17). When film shows desire, this is even intensified, since desire is a troubling motion—it is on the move, between bodies, in bodies, and also between film and bodies.

## DESIRE AND FILM

We understand desire as a movement, which can only emerge in and through cultural discourses and practices. This means that in this understanding desire is not something that can be located in an individual person. Desire as a movement moreover, needs phantasy; it needs images and imagination saturated with desire (see also Berlant, 2012). Desire emerging through phantasy becomes wanting—a wanting that points to the future. In this futurity it becomes a potentiality, which can be fulfilled or not, which can be satisfied or not. In this, the paradoxical nature of desire becomes apparent: in its satisfaction desire vanishes—at least it will cease to exist in that very form it formerly desired its satisfaction. This means, that desire can only exist in the form of its non-satisfaction and in its non-fulfillment. Desire therefore, can only exist in the form of a potentiality, which points toward something prospective, something in the future. Moreover: desire has to be understood in a twofold way: first, as a desire which is evoked on the diegetic level of the film that is the desire which emerges between characters in the narrative and therefore as a desire which lives in the moving images. Secondly, as the desire which emerges between the audience and the film. This is the desire, which the film evokes in us—the desire which we want to see and experience, in and out of the film, with the film, and also when the film is over.

Probyn (1996) states that desire always moves in images because images always bring into play a specific socio-historical imaginary (Engel, 2011). In that understanding, images materialize in images and become visual material. Desire materializes in images. This could be framed a little differently when it comes to film. According to Voss (2011) spectators become surrogate bodies. As spectators, we lend our three-dimensional bodies to the two-dimensional screen, which is how we become a "constituent feature of the filmic architecture" (145). In this somatic space of meaning, which our body has become for the film, desire moves in the diegetical and the non-diegetical levels of the film.

Beginning with the stereotypical, presumably authentic staging of sexuality of an elderly couple in *Wolke 9* (2008, Andreas Dresen) and moving on to *Vergiss mein nicht* (2012, David Sieveking), *Amour* (2012, Michael Haneke), *Et si on vivait tous ensemble?* (F/D 2012, Stéphane Robelin), and *Irina Palm* (2007, Sam Garbarski)[4]—we will develop a typology of desire, which is built upon four categories. We call these: images of deprivation, images of imagination, images of retrospection, and images of incompletion.

## DESIRE AND AGE(ING) IN *WOLKE 9*

In a shot-reverse-shot sequence we witness the sexual intercourse of two people. She sits on him, he lies on the floor. We see both faces in close-up. (Küpper, 2010a,b) states that in *Wolke 9* sex in old age becomes "kinofähig"—suitable for cinema. Andreas Dresen, the director, states that in his film he wanted to display the beauty and truthfulness of naturally aged bodies by displaying them without artificial changes: "so wie sie sind"—as they "really" are. This however is a paradox: instead of appearing artificial, the aged skin is supposed to appear with wrinkles and age spots. This, however, produces the notion of a naturally aged body, which in this moment demarcates the borders between the supposedly natural and unnatural (ibid.). Dresen's intention to show bodies "as they really are" overlooks the fact, that bodies are always staged; even a natural appearing body is staged—it is staged as natural. Doing age happens through filmic strategies, which become materialized in our experiences. Film *per se* as a medium always already shows bodies as non-natural. Bodies in film are always staged by costume, lighting, make-up, editing, framing, sound, etc. In film, all bodies are staged no matter if it is a documentary style as in *Wolke 9* or a Hollywood's aesthetic as in *Skyfall*. Stone (2013) describes embodiment of imagination, which is experience that becomes body or embodied. Film is an all-inclusive experience—visually, aurally, and kinaesthetically. Our imagination is stimulated by the moving image and the moving sound—their materialization becomes embodied in us. More precisely: they create us anew constantly—as the young and as the aged, as women and as men, as black and white, as homo and hetero.

This fact of embodied films requires thinking about the normative aspects of film. In *Wolke 9* sexual intercourse is (failed) heterosexual coitus or female masturbation, which appears only as a substitute and not a pleasurable act. There are no alternatives to heterosexual sex. The film does show aging bodies which are covered in wrinkles and age spots in dazzling bright light, yet this happens in a very traditional filmic method of presentation: certain body parts are put in the center of the image and therefore also the attention, other body parts are shown in close up. Dresen's film is not different to other filmic sex acts with the one difference that it is not young but aged bodies, which engage in sex.

Obviously, this filmic performance calls for comparison with the filmic performance of young bodies engaging in sexual encounters. We claim here, that *Wolke 9* cannot fulfill its claim to create its own cinematographic aesthetic. There are no new or different filmic strategies for elderly bodies as one can often read in reviews of the film—instead elderly bodies find themselves in the same positions, the same setting and in the same performances in which young bodies are presented

[4]In our analysis we do not distinguish between documentary and fiction since what is important for our analysis is the film aesthetic strategies that show and produce desire. These film aesthetic strategies are composed of mise-en-scène, sound, cinematography.

in sexual encounters. Sexual activity is portrayed as (failed) heterosexual penetration and female orgasm happens through masturbation, which is narrated as an act of compensation and not as a lustful performance in and for itself. The facticity of the shown undermines the intention to bring together age and desire because the film relies on stereotypical presentations of (hetero-)sexuality. This is not to say that aged people have a different sexuality to young people in general—quite the opposite—there are as many sexualities as there are sexual encounters. In *Wolke 9*, as we see it, one only finds a (hetero)normative and sexist portrayal of sexuality. There are no alternatives, no possibilities. There is no potential to think desire in old age with and through the film.

The portrayal of age and desire in *Wolke 9* claims to be authentic. Yet, film as an aesthetic product that is composed, arranged and designed cannot claim to be authentic. Film can present an offer for identification beyond the filmic experience *per se*. However, the disidentification of aged people with Dresen's film seems to support our argument (see Hartung, 2011). Yet, we do find filmic strategies in other films, which draft desire in old age as a possibility and with this also an initiation of agency or rather options of agency which are beyond stereotypical features. Therefore we do not to pose the question of whether there can be an authentic representation of old age in film. We want to ask how film can portray desire in old age as a possibility and not as a stereotypical act that claims to be authentic.

## EMBODIMENT AND IMAGINATION

Stone (2013) describes the embodiment of imagination and especially of *ageist* Stereotypes as an important aspect of age in relation to disability. The more we assume and imagine to be less mobile, sicker, more forgetful in old age, the more likely it is that we will become it. Stone asks in this context "How much of our bodily experience is materialized as a result of our imaginations?" (68). For Stone it is first and foremost our imagination of how we will age that will become embodied. She describes how the experiences we make in our live materialize in our bodies. Film is one of the most comprehensive experiences—it is visual, aural, kinaesthetic, and therefore prone to become embodied and to materialize in us. Yet in out understanding, they do not just materialize temporarily, as Voss (2011) conceptualizes it in her theory on the spectator as a surrogate body for the film, but permanently. Doing age, doing gender and doing desire happens through filmic aesthetics, which materialize in our experience. Our imagination is stimulated by moving pictures and sound—they become embodied and create us anew constantly with every new film.

## IMAGES OF DEPRIVATION

The documentary *"Forget me not" (Vergiss mein nicht)* by David Sieveking from 2012 tells the story of Gretel who has Alzheimer and her husband Malte who takes care of her. In a medium shot and high angle from above, Malte puts his hand on Gretel and caresses her. When the camera shoots both from the side and moves closer, one can sense desire emerging between the two. Something else, something more could happen now, more than the film is willing to show. This is about more than intimacy: this is about the recollection and the forgetting of desire and at the same time about the possibility and potentiality of future desire. What is not of interest for us here, is the question if there is an authentic representation of desire in old age but how the film designs and creates old age and desire as a possibility and simultaneously how it performatively creates an interconnection between past, present, and future—in the sense of a doing desire and a doing age.

## IMAGES OF IMAGINATION

The complexion of past, present and future is also to be found in *Amour*, a film by Michael Haneke. The film tells the story of an older woman and the care she receives through her husband. Here, in the constellation of old age, illness, and dying, desire seems to be impossible.

But where is the desire now? Is it not existent or not relevant anymore? Is it banned into long lost memory? Or maybe, as we suppose, it can be found in the imaginary scene at the end of the film, when the old couple leaves the apartment and thereby leave behind the corpse of the old woman decorated with flowers. Where do they go? Maybe into a new life, where desire is possible again? Maybe into a past in which they were a desiring couple. Maybe theses imaginary pictures also point to a new past in which they will have lived desire differently? The film does not show or tell us. It does not actualize these images which we want to name images of imagination. The film rather evokes their possibility in an imaginary space, which withdraws itself from the linearity of temporality. Something very similar happens in the film *And If We All Lived Together*? the original title in French is: *Et si on vivait tous ensemble* ? by Stéphane Robelin from 2011.

## IMAGES OF RECOLLECTION

In *Et si on vivait tous ensemble?* (F/D 2011, Robelin) desire is also produced in the mode of recollection, yet not in the vein of imaginary images but real images. The film is about five older people who live together in a shared house. One of the women, Jeanne, talks about her sexual experiences from the past. She talks about her phantasies and preferences - for the future. Desire is evoked here in multiple occasions. Yet, it will not be actualized, at least not for Jeanne. There are a couple of short sex scenes for example between Annie and her husband Jean. One is filmed on a couch in a long shot. Both characters are shot from behind and filmed only shadowy. Predominantly however, desire happens retrospectively in the memory or as a vision of the future—therefore there is no actual visualization of desire in the film. In a longer sequence between Jeanne and her former lover Claude desire however is unambiguously insinuated. Both, Jeanne and Claude sit face to face on the couch, while Jeanne's husband Albert sleeps next to them. Claude takes picture of Jeanne while she poses for him in rather unmistakable poses.

In these images which we term images of recollection; we experience how the desire between Jeanne and Claude has been or rather how it could have been 40 years ago. And we sense what would have happened in the present, in the past yet also in the future. That means that the desire, which is built here is not discharged, it remains in its movement in the film and carries us through the film. In the last scene of the film—after Jeanne's funeral—everybody searches for her together with her confused husband Albert. They call out for her in the park while the final credits are run over the film. Last but not least in our typology of images we want to discuss images of incompletion—they show desire in a quite similar fashion—although in the predominant mode of unfulfillment.

## IMAGES OF INCOMPLETION

The British film *Irina Palm* (B/D/LUX/UK/F 2007, Sam Garbarski) tells us the story of Maggie who is looking for a job in order to pay for a surgery her grandson requires. Maggie finds a job in a sexshop, which pays rather well—after some hesitation she takes it on since time is precious. She becomes the "best hand" in town. While sitting in a cabin, she jerks off men through a whole in the wall. While this film deconstructs the image of younger women satisfying older men, here we are dealing with a grandma who is desired by younger men. The film thereby undermines stereotypical ideas of the desirable young female object by creating images who we want to call images of incompletion. These images are primarily incomplete since they only show one side of the desire—in this case male desire.

Admittedly Maggie also feels desire. She falls in love with her pimp Miki and Miki falls in love with her. At the end of the film the image fades into black and into the exterior of the story—exactly at that point when the two admit their desire for each other**.** This desire therefore also remains incomplete and does not become actualized. We will remain uncertain of the future the two will or will not have together. The images remain incomplete and the desire is only hinted at and, for us, end in a fading to black when the credits come.

## POTENTIALITY OF DESIRE AND QUEERING PERSPECTIVES

In these films we have analyzed, the filmic generation of desire in old age happens always only through its potentiality, and not through its factuality. We read this in the sense of a subversive doing age/doing desire. The images we discussed create, as we want to suggest an aging trouble by queering our anticipations and stereotypical expectations. Mainly by leaving us alone with our desire. These films leave us alone on the first level of desire, the desire between the characters in the narrative and on the second level of desire, that is the desire between us, the spectators and the film. Beyond a stereotypical sexuality in old age, a filmic desire emerges that actualizes itself aesthetically as well as narratively in the very images of desire as deprival, imaginary, recollection, and incompletion.

As has become apparent in our analysis of films, a typology of desire and age can be formulated, in which we see a queering potential of heterosexual desire in old age. However, our typology leaves aside filmic concepts of explicitly non-heterosexual desire and encounters. It also leaves aside other doings, such as doing class or doing whiteness. We therefore plead for opening our typology toward the inclusion of interdependencies of more intersections. The cultural production of moving images in film points toward new futures, they are able to create new worlds for us to experience. We live with and through them; change can become with the perception of new and different images.

In the context of ageism, the systematic discrimination of people due to their age, other forms of discrimination are to be considered, especially in their overlapping and mutual amplification. Especially in films such as *Et si on vivait tous ensemble?* (F/D 2012, Robelin) we find a doing bourgeoise that needs analysing in relation to desire. In Gerontophilia (CA, 2013 Bruce La Bruce), a film about the desire between an old black man and a young white man, the doing desire intersects with several other doings. The analysis of such intersections and their materializations seems highly promising to us as regards the understanding of our embodiment as social beings through film. By analysing the desire between the protagonists in *Gerontophilia*, Eckert (2017) shows how the camera enables queer images and possibilities through a specific aesthetics that could be described as a queering symmetry between bodies, gazes, contacts, visibilities. By using this queering symmetry as a mode of thinking, the film presents new possibilities of the relationships between aging, gendering, desiring, and embodying. As regards the analysis of filmic aesthetics that subvert conventional images and create new image of age, gender, and desire we see great potential in films that do not just portray white, bourgeois and heterosexual desire but move beyond these limiting notions.

## AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

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# Configuring Dementia; How Nursing Students Are Taught to Shape the Sociopolitical Role of Gerontechnologies

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This article contributes to the discussion on the materiality of age and aging in this special issue by presenting a case that illustrates how nursing students are trained to shape gerontechnologies in ways that have sociopolitical consequences for older adults with dementia who are aging at home. Drawing on ethnographical fieldwork and grounded theory, I deliberately stage a dialog between STS theory on technology, and relational approaches to the social study of dementia in an analysis of a lecture where master students in a university nursing program learn about gerontechnology and dementia. I identify inability to purposively use technology, recalcitrance, and attentiveness as three problematic behaviors that are described as typical for older adults with dementia who are aging at home, and selection and placement of gerontechnologies as two ways in which the nursing students are taught to delimit this behavior by material means. I show how selection and placement of gerontechnologies are means by which care professionals shape gerontechnologies in ways that can disempower older adults who are aging at home, and I show how the educators draw on a biomedical understanding of dementia to accomplish a link between disempowering, and caring for older adults with dementia. I argue that care professionals practices of shaping gerontechnologies can be understood as empirical sites where care professionals exercise power over older adults with dementia who are aging at home by sociomaterial means. I conclude that there is a continued need for studies of gerontechnologies that stage analytical dialogs between STS theory and understandings from other fields with longer traditions of studying processes of aging, to further elucidate how gerontechnologies can matter to older adults and the experience of aging.

**Keywords: gerontechnology, dementia, mediation, intermediaries, configuration, user representations, welfare technology**

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## INTRODUCTION

Demographic ageing is believed to lead to a future crisis for healthcare systems and welfare states because the increased demand of healthcare services will put financial strain on welfare states where healthcare and eldercare is heavily subsidized. Particularly since there is also an increasing shortage of caregivers for the elderly and registered nurses, as well as other types of healthcare professionals (Broadbent et al., 2009; Nye, 2009).

In the context of the challenges posed by demographic aging, technological innovation has emerged as a key theme as nation states have sought for solutions (Östlund, 2004; Neven, 2011; Cagnin et al., 2012; Mort et al., 2012; Peine and Herrmann, 2012; De Smedt et al., 2013). Innovations that enable older adults to age at home are usually referred to internationally as gerontechnologies (Graafmans et al., 1998; Charness and Schaie, 2003; Joyce and Loe, 2010; Sixsmith and Gutman, 2013).

One of the key issues that gerontechnologies are meant to solve in relation to demographic aging is dependence on long-term institutional care. As Topo, 2009 points out, this is partly because a dramatic increase in demand is believed to create unsustainable financial problems for nation states, but also because older adults tend to express a will to remain in their homes for as long as possible (Wang and Moyle, 2005; Pekkarinen et al., 2006). Because the risk of dementia increases with advancing age, and dementia traditionally leads to long-term institutional care (Pekkarinen et al., 2004, 2006; Wang and Moyle, 2005), demographic aging is predicted to also mean a considerable increase in the number of people in need of institutional care unless a solution can be found (Gray et al., 2008). The prevalence of dementia is 4.2% for people aged 70–74, 8.6% for people aged 75–79, 13% for people aged 80–84 and 25.3% for people aged 85–89 (World Economic and Social Survey, 2007). As Topo, 2009 points out, this means that the premise that gerontechnologies can enable older adults to age safely in their own homes is inextricably tied to the understanding that this also applies to older adults with dementia. However, the social study of gerontechnologies is still an emerging field (Östlund, 2004; Joyce and Mamo, 2006; Peine et al., 2015), and so far only little is known of how gerontechnologies shape the experience of ageing with dementia.

In Norway, the political ambition is to achieve a nationwide implementation of gerontechnologies into municipal services to support aging in place despite mental or physical disability by 2030. As part of the national program for the implementation of gerontechnologies, 17 out of Norway's 426 municipalities have implemented educational showrooms where local care professionals facilitate the implementation of gerontechnologies by teaching visitors about the benefits of gerontechnologies (Helsedirektoratet, 2012). Thus, the realization of the implementation of gerontechnologies into services has, at least in part been delegated to care professionals whom have been tasked with the role of educators. All of these showrooms are open to the public and attract visits from a variety of members of the public from all over Norway. A few of these showrooms have specialized on dementia. In these showrooms, the educators teach care professionals how they can select and install gerontechnologies for older adults with dementia who are aging at home.

Norway has a 150-year long political tradition of holding the welfare state responsible for the psychosocial and socioeconomic well-being of all members in Norwegian society (Schiøtz, 2003). Contemporary Norwegian policies that describe the rights for people with mental disabilities like dementia build on social and cultural gerontological research. They privilege relational understandings of mental disabilities over biomedical perspectives. This means that the welfare state is responsible for the provision of services, including adaption of the individuals' home environment, that empower care recipients, including individuals with mental disabilities like dementia, by increasing the individuals possibility to retain their democratic rights to equal treatment and participation in society (NOU, 2011).

In the context of demographic aging, this political ideal has shaped Norwegian policy on gerontechnologies. In Norway, gerontechnologies are referred to as welfare technologies. This is a political term that specifies the work that gerontechnologies are supposed to do in the context of services provided to citizens by the Norwegian welfare state in terms of how gerontechnologies are supposed to provide benefits to those services, as well as the citizens who receive them.

This definition specifies that gerontechnologies should contribute to the *"increased safety, social inclusion, mobility and physical and cultural activity, as well as increase the individuals' possibility to manage everyday life on their own despite decreased psychological or physical capacities"* (NOU, 2012, p. 99).

Thus, the production of social equality and empowerment for Norwegian citizens with mental disabilities like dementia has been made part of the role that gerontechnologies are supposed to fill in Norwegian society. This is an ambitious goal, particularly when considered in relation to previous research in the fields of STS and social studies of dementia. STS has a long tradition of showing that materiality is not "innocent," and the claim that matter *matters* in relational sociopolitical terms because it can perpetuate or disrupt the production of social inequality in society is arguably the greatest contribution that STS has made to the social sciences (Marres, 2013). These studies illustrate how the sociopolitical roles that technologies will play, meaning how they will matter in sociopolitical terms, continues to be shaped by people long after an artifact has left the factory [see Oudshoorn and Pinch (2003) ch 1 for a comprehensive overview]. Meanwhile, relational approaches to the study of dementia have a long tradition of showing how dementia care is often more controlling than empowering of people with dementia (Fox, 1995). This literature shows that practices of care can be understood as sociopolitical power-struggles between care professionals and older adults with dementia, where the latter are often disempowered (Bartlett and O'Connor, 2007; Brittain et al., 2010). Thus, it cannot be assumed that educators that teach nursing students how to use gerontechnologies as they care for older adults with dementia are shaping the technology in ways that perpetuates the political ideals attached to welfare technologies. Nor can it be assumed that the way these gerontechnologies are shaped will not matter to older adults with dementia who will be the target of caring practices modeled after these instructions.

In the face of this ambitious goal, I explore the role of Norwegian educators who work in demonstrational showrooms and teach future nurses, as well as other visitors, what older adults with dementia who are aging at home need from gerontechnology. Throughout this exploration, I ask: How are the educators teaching the nursing students to shape gerontechnologies as part of caring for older adults with dementia, and how can this way of shaping gerontechnologies matter to

older adults? Until very recently the dialog between STS and relational approaches to dementia has been almost non-existent (Joyce and Mamo, 2006; Joyce et al., 2017). One implication is that STS researchers have tended to overlook the role of care professionals in the study of gerontechnologies. Another is that social studies of power struggles between care professionals and older adults with dementia have tended to disregard how care professionals can shape gerontechnology in ways that matter to the sociopolitical roles they play in the lives of older adults who are aging at home. By contrast, I will deliberately stage a dialog between STS and relational approaches to the study of dementia. I will accomplish this dialog by conducting an empirical analysis of how the technology is being shaped by drawing on analytical concepts and ideas from STS. Specifically, "configuring the user" (Woolgar, 1990), User representations (Akrich, 1995), and Mediation (Schot and De la Bruheze, 2003), as well as the notion that materialities can matter to users in sociopolitical terms (Winner, 1980). Thereafter I will interpret the results of this by drawing on concepts and understandings from relational approaches to dementia, specifically "personhood" (Kitwood, 1997) and "citizenship" (Bond, 1992; Harding and Palfry, 1997; Lyman, 1998; Gilleard and Higgs, 2001). My aim in staging this dialog is to see whether these two approaches can complement each other analytically, and to try to elucidate the potentiality of further dialog between STS and relational understandings of dementia.

## HOW CONFIGURATIONS, USER REPRESENTATIONS, AND MEDIATION MATTERS

The notion that users can be configured (Woolgar, 1990) is central to STS research that is concerned with how technologies delimit or afford peoples actions (Oudshoorn and Pinch, 2003). In conceptual terms, configuring the user refers to processes where the identities of putative users to technologies are defined and constraints are put upon their likely future actions by material means (Woolgar, 1990). For instance, very small screws often secure battery hatches on children's toys. Such battery hatches may be understood as an attempt by the designer to ensure that very small children will not be able to remove and swallow batteries. The tiny screws are a material constraint on the toy that configures the user by shaping the space of agency available to the person who wants to open the hatch. This person will require access to a screwdriver of the right size, as well as a sufficiently well-developed hand-eye coordination and motor capacity to successfully remove the very small screw. While this does not mean that no small child will ever be able to open the hatch, it does decrease the likelihood that they will be able to do so. Consequently, to say that putative users can be configured by material means does not mean to imply that the future actions of those putative users are determined in any final way. Technology users frequently act in ways that are unanticipated by those who are trying to configure them. However, configurations can nevertheless shape users spaces of agency in ways that makes it difficult to act outside of the imagined scenario that the configuration is built on, or be someone else than the designer intended. In this sense, user representations (Akrich, 1995), meaning imagined identities of putative technology users, can come to matter in configurations (Oudshoorn and Pinch, 2003).

In STS, the term mediation (Schot and De la Bruheze, 2003) implies the shaping or re-shaping of materialities like technologies by actors who are not designers or users. Mediation is characterized by the mutual articulation and alignment of product characteristics and user requirements, that occurs as the characteristics of technologies and putative user's needs are defined, constructed and linked (Schot and De la Bruheze, 2003). Intermediaries (Pinch, 2003) can construct user representations by acting or speaking on behalf of putative users in relation to their needs or desires (Oudshoorn and Pinch, 2003). In similarity to designers, intermediaries can configure users, however, they means by which they do so differ from designers' means of configuring users. For instance, Pinch (2003) showed how a traveling salesman mediated the Minimoog synthesizer by forging a relationship with the designers and convincing them that he knew what consumers wanted and needed. Thus, while designers shape the technology "from scratch," intermediaries work from a version of the technology that already exist and use other means to shape it. The Minimoog salesman used his experiences of consumers to become a trusted advisor on what "the market" would pay for (Pinch, 2003). Thus, mediation (Schot and De la Bruheze, 2003) is an innovative activity that can occur when intermediaries (Pinch, 2003) draw on the means and space of agency available to them to speak and act on behalf of users in order to shape the technology into a particular version of itself. As part of this process, intermediaries (Pinch, 2003) can configure (Woolgar, 1990) those users and make the technology come to matter in a particular version of itself.

The statement that user representations and configurations can matter has a double meaning in STS. It refers both to how social categories like gender or age literally come to matter when technologies are shaped by, often stereotypical, user representations, and to how this particular version of the technology can matter in sociopolitical terms. For instance, Winner (1980) showed how bridges in Long Island were deliberately designed to be so low that busses, and therefore also the low-income citizens that depended on bus transportation, were kept out of exclusive areas. In this sense, materiality can be shaped in ways that matter to people in sociopolitical terms by perpetuating social inequality by sociomaterial means. It is in this sense that artifacts can be said to "have politics" (Winner, 1980). To the extent that many people become dependent on an artifact that perpetuates social inequality in a particular way, this material exercise of power can have far-reaching effects (Pfaffenberger, 1992). Feminist strands of research in STS have drawn on this notion to show how technologies and other artifacts perpetuate sexist (Berg and Lie, 1995; Rommes et al., 1999) and ageist (Neven, 2010, 2015; Peine and Neven, 2011) values in society. Thus, to say that technology matters, means not only to say that social categories can come to matter in the sense that they are quite literally materialized, but also that the choice of user representations and the potential capacity for the materiality to structure society for large groups of people can matter in sociopolitical terms.

## RELATIONAL APPROACHES TO THE STUDY OF DEMENTIA

Relational approaches to the study of dementia have evolved out of a critique of what is commonly referred to as a biomedical understanding of dementia (Bartlett and O'Connor, 2007; Brittain et al., 2010). From a biomedical perspective, dementia is a disease that while it may manifest in different ways at different times, carries a number of foreseeable implications. For instance, the gradual but ultimately inevitable loss of cognitive abilities necessary to competently manage the task of making informed decisions (Feinberg and Whitlatch, 2001; Karlawish et al., 2002). The biomedical understanding has for a long time, been the traditional way of understanding dementia (Kitwood, 1997; Bartlett and O'Connor, 2007). There are however, other and more relational ways of understanding dementia that challenge the biomedical model. Bartlett and O'Connor (2007) nicely capture the contrast between a biomedical understanding of dementia and more relational approaches when they write

> the field [of research on dementia] is changing […]. Until only recently expressions such as 'the confused' (Meacher, 1972) and 'dementia sufferers' (Jacques, 1992; Cheston and Bender, 1999) were commonly used. Now people with dementia are more likely to be referred to as 'people with dementia' […]. A result of this shift is that gradually, research has begun to emerge aimed at capturing the perspectives of persons with dementia (see for example Braudy-Harris (2002); Wilkinson (2002)). This body of research now clearly documents that persons with dementia are often quite aware of their situation (Clare, 2002), and can contribute important and unique insights about their experiences and needs (Bender and Cheston, 1997; Braudy-Harris, 2002; Phinney and Chesla, 2003; Beard, 2004; Clare et al., 2005; Hirschman et al., 2005; Whitlatch et al., 2005).

What Bartlett and O'Connor (2007) are getting at here, is how more relational approaches to the study of dementia challenge the notion that dementia is a purely biomedical phenomenon. In difference to the biomedical approach that by default posits that people with dementia are less competent, relational approaches to dementia are characterized by an understanding of people with dementia as differently competent.

Bartlett and O'Connor (2007) describes how two main relational approaches to dementia have developed over time. These two approaches draw on different concepts, each of which can be used as "lenses," together or on their own, to highlight different aspects of interactions between people with dementia and their social surroundings. Initially developed by Kitwood (1997) the personhood concept has emerged as the so far most influential concept in relational approaches to dementia (Brooker, 2004; Woods, 2001) and has effectively displaced the notion that the biomedical approach to dementia is the only viable way of understanding dementia (O'Connor et al., 2006). In contrast, to the biomedical approach that assumes a trajectory of irrevocable decline, the personhood lens is characterized by the view that social interactions with others and others' perceptions of the self are equally important as neuropathological factors (O'Connor et al., 2006; Bartlett and O'Connor, 2007). Personhood has been used as a lens to analytically focus how biomedical understandings of dementia perpetuate the social stigma and discrimination associated with dementia, and its introduction has meant a shift where the importance of hearing the perspectives of people with dementia has become recognized (Bartlett and O'Connor, 2007). As a result, we now know that people with dementia are often aware of their situation, as well as of what they want and need (Bender and Cheston, 1997; Braudy-Harris, 2002; Clare, 2002; Phinney and Chesla, 2003; Beard, 2004; Clare et al., 2005; Hirschman et al., 2005; Whitlatch et al., 2005; Bartlett and O'Connor, 2007).

As Bartlett and O'Connor (2007) point out the personhood concept continues to be important, its use is limited because it does not provide a framework for the exploration of the possibility that care is sometimes constitutive of power and control (Fox, 1995). Personhood is an apolitical concept that is primarily concerned with psychosocial matters. For instance, quality of life is treated as a matter of experiencing well-being (Brock, 1993; Rudman, 1997) as opposed to a matter of exercising influence. As such, personhood does not provide an appropriate lens for the study of dementia care in terms of power and politics (Bartlett and O'Connor, 2007).

By contrast, the other main relational approach to dementia draws on a Foucauldian understanding of power (Foucault, 1967, 1980) and the notion of citizenship, precisely in order to describe social interactions between people with dementia and their social environments as sociopolitical power struggles (Bond, 1992; Harding and Palfry, 1997; Lyman, 1998; Gilleard and Higgs, 2001).

As Bartlett and O'Connor (2007) point out to dementia is characterized by the view that citizenship is not something that people simply have or do not have (Dreyfus and Rabinow, 1982), but rather, something that is accomplished in social interactions (Barnes et al., 2004). Thus, citizenship is defined as a practice (Shotter, 1993; Isin and Wood, 1999; Lister, 2003; Barnes et al., 2004) through which people with dementia relate to their social context (Prior et al., 1995). The notion that citizenship can be a practice challenges the more traditional notion of citizenship as set of rights and responsibilities that are bestowed on a person (Marshall, 1992) in formal processes of decision-making (Bartlett and O'Connor, 2007). From this perspective, power struggles and the retention or acquisition of citizenship are inevitably part of any social interaction between people with dementia and their social environment because these social interactions are the empirical sites where power and citizenship are accomplished. Drawing on the citizenship lens, research on decision-making processes in the context of care have shown that people with dementia and their carers often disagree in relation to risk. Carers are often prone to see risk as the management of physical risk, while older adults with dementia are often more concerned with risk in relation to their personal and social identities (Ballinger and Payne, 2002; Robinson et al., 2007; Hughes, 2008). Recently, studies of citizenship have also started to acknowledge that materialities also shape the experience of aging, with or without dementia (Joyce

and Mamo, 2006) and that materialities are actors to be accounted for in the study of power-struggles between people with dementia and their social contexts (Brittain et al., 2010).

## METHOD

The empirical material analyzed here was gathered through ethnographical fieldwork conducted during visits in 4 different showrooms in two urban and two rural areas of Norway in 2015. This study singles out one of these visits where I participated in an educational demonstration held for 25 nursing students by two educators. This type of demonstration or "demo" is part of a collaboration between the showroom and the university. The demo is given in the form of a lecture that includes demonstration of a variety of gerontechnologies. This lecture is part of a mandatory course in the university's master and bachelor programs in nursing and ergotherapy and is normally closed for members of the public. My own participation was the result of an invitation extended to me by the two educators, "Eva" and "Noora" during a meeting where I explained that I was interested in studying how they taught students about gerontechnologies for older adults with dementia. The ethical considerations of this study were reviewed and approved by the Norwegian Social Science Data Services (NSD). Written and verbal information about the study was distributed to all participants. Verbal informed consent to my presence as well as to being audio recorded and quoted for the purposes of research was obtained from all research participants. This consent procedure is in accordance with Norwegian law as well as the general ethical guidelines issued by NSD and the individual instructions provided to me by NSD as the start of this study.[1] The audio recordings were transcribed word for word by a research assistant and translated from Norwegian to English by myself. Translations privilege clarity of meaning over verbatim. All names are fictional and all information concerning the care professionals professional titles and training, as well as the name and location of the showroom and the affiliated university are withheld to ensure anonymity. Pictures of the gerontechnologies that were taken during the lecture have been included to provide clarity for readers. These pictures were deliberately chosen because they do not compromise the integrity of the anonymization process.

In analyzing how the educators teach the nursing students I paid particular attention to how Eva and Noora taught the nursing students to mediate (Schot and De la Bruheze, 2003) the gerontechnologies demonstrated during the lecture by constructing user representations (Akrich, 1995) through descriptions of how older adults with dementia are prone to act toward technology. I also paid particular attention to how they used these user representations to teach the nursing students how they can configure this behavior and thus delimit the problems it can cause by shaping the technology in a way. These statements were not treated as fact or fiction, but as Noora's and Eva's verbalized meaning-making of the understandings that they using to shape the nurses strategies of action (Swidler, 1986, 2006) in their future roles as professionally active nurses who will use gerontechnologies to care for older adults with dementia who are aging at home. The analytical procedure drew on social constructionist grounded theory (Bryant and Charmaz, 2010; Charmaz, 2014). *In vivo* coded segments of the transcriptions were sorted into grounded categories through abductive inferencing (Reichertz, 2007), that informed subsequent theoretical coding (Bryant and Charmaz, 2010; Charmaz, 2014). Through this analysis, I identified three user representations (Akrich, 1995) which were described as typical behavior for older adults who are aging at home, two ways that nursing students are taught to strategically configure this behavior by material means and one rationale that enabled these configurations to be perceived as care as opposed to anything else. The three user representations were: cognitive inability to purposively use technology; recalcitrant behavior and attentiveness to the appearance of new items. The two ways of configuring this behavior was *selection* and *placement* of gerontechnologies and the rationale was a biomedical understanding of dementia. Thereafter I used the concept of personhood and the concept of citizenship as analytical lenses to interpret these results. This analysis enabled me to identify these user representations and configurations, and the rationale they are based on as sociomaterial means by which care professionals can mediate (Schot and De la Bruheze, 2003) gerontechnologies in ways that disempower older adults that are aging at home. On the basis of these combined results, I argue that care professionals can act as intermediaries (Pinch, 2003), and that their practices of shaping gerontechnology, for instance through placement and selection, can be understood as empirical sites where care professionals can exercise power over older adults with dementia who are aging at home, by sociomaterial means. I conclude that there is a continued need for studies of gerontechnologies that stage analytical dialogs between STS theory and understandings from other fields with longer traditions of studying processes of aging, to further elucidate how gerontechnologies are shaping and being shaped in ways that can matter to older adults and the experience of aging.

While the claims of this study are limited to the sample described, it should be noted that to the extent that many older adults with dementia who are aging at home become dependent on nurses who have been trained to mediate (Schot and De la Bruheze, 2003) gerontechnologies in this manner, these configurations may have far-reaching sociopolitical implications.

The following section describes the results of my analysis. It is structured as follows: I first identify inability to purposively use technology, recalcitrance and attentiveness as three problematic behaviors that are described as typical for older adults with dementia who are aging at home, and selection and placement of gerontechnologies as two ways in which the nursing students are taught to delimit this behavior by material means. Thereafter I show how selection and placement of gerontechnologies are means by which care professionals shape gerontechnologies in ways that can disempower older adults who are aging at home.

[1] More information about Norwegian law and NSD's ethical guidelines in relation to consent procedures can be found here http://www.nsd.uib.no/personvernombud/en/help/information_consent/

## HOW NURSES ARE TAUGHT TO USE SELECTION AS A MEANS OF CONFIGURING DEMENTIA?

In describing to the students what type of gerontechnology that older adults with dementia need in general terms, Noora distinguished between passive and active gerontechnologies

> I differentiate between passive and active technology and when I say active technology, I refer to devices where the user needs to be active. Those are suitable in the early stages of dementia. Passive technology on the other hand, does not require an active user, it is just there to provide safety. For instance, by signaling if the user falls. Those technologies are more passive so they are suitable in later stages of dementia. So, this is about knowing what type of technology that fits with different stages of dementia.

In this quote, Noora is constructing two user representations of older adults with dementia who are aging at home. Users who are able to use technology in a purposeful manner, which she describes as the "early stages of dementia," and users where the individual is unable to use technology in a purposeful manner which she describes as "later stages of dementia." She also connects these user representations by identifying them as suitable users for two distinctly different types of gerontechnologies. She first identifies semi-automated gerontechnologies that she describes as "active technologies" where the individual with dementia is involved in the use of the device as suitable for older adults in early stages of dementia. She contrasts the description of semi-automated gerontechnologies against a description of fully automated gerontechnologies that she describes as "passive" gerontechnologies that "only produce safety" and describes them as suitable for older adults in the later stages of dementia.

In making these user representations and attaching them to the different types of gerontechnologies, Noora is teaching the students to configure older adults with dementia and bring dementia to matter through selections of gerontechnologies. If care professionals are selecting different types of gerontechnologies for different people and basing the selection on their assessment of the older adults "level" of dementia, as opposed to any other criteria, dementia is brought to matter through selective practices that materialize a particular type of gerontechnologies in the homes of older adults with dementia. As I will show in the following section, this configuration is not without its potential sociopolitical consequences.

## SELECTION AS CARE AND AS SOCIAL INEQUALITY

To understand the sociopolitical potential of this configuration it is important to consider how Noora is able to accomplish a link between caring for older adults with dementia who are aging at home, and limiting the selection of gerontechnologies to fully automated devices that only produce safety.

This requires a different reading of Noora's quote. Specifically, a reading that on one hand focuses on how Noora is interpreting the situation from the position of a person with a deep understanding of the technologies she is about to demonstrate, and on the other hand considers the social capacity for materiality to shape the interpretations people attach to them.

Note for example, how Noora's description not only illustrates what the students should do when they become care professionals. It also illustrates her understanding that there are two types of gerontechnologies to choose from. Fully automated technologies that she describes as "passive technologies" that are only there to provide safety, and "active technologies" where the range of functions is not limited to the capacity to produce safety, but where the technology itself requires that the person using the technology does so actively.

Technologies intended for use by the general population often require very high levels of cognitive abilities, an implication of what has been described as our contemporary hyper cognitive society (Post, 2000). Early STS studies of technology design processes often described designers user representations as a result of the "I-method" (Akrich, 1992), meaning that the designer imagined user's needs and desires as similar to their own. Approximately a decade later, the routine inclusion of older adults that act as test subject in the development phase of gerontechnology production is described as a "sine qua non" (Sixsmith, 2013; Peine et al., 2015). This design strategy is employed precisely to avoid situations where the design of gerontechnologies configures the user as something else than an older adult (Neven, 2010). However, even though there has been progress, contemporary design processes for gerontechnologies often exclude people with dementia (Orpwood et al., 2010). Even in cases when the gerontechnology under development specifically targets this user group. For instance, Neven (2011) describes a case where the technology producer screened potential test persons for early signs of dementia because they believed people with dementia lacked the skill necessary for participation in the test process.

With this in mind, Noora's distinction between active and passive technologies can be understood as a verbalized description of her interpretation of how semi-automated and fully automated technologies configure users differently, leaving care professionals in the disempowered position of having with little to no choice but to match care recipients with the "right" type. From this perspective, the delimitation of the selection of gerontechnologies for older adults with dementia who are aging at home to fully automated gerontechnologies that only produce safety can be understood as the more caring alternative to selecting gerontechnologies that such older adults cannot operate.

However, if older adults with clearly pronounced dementia are only provided with gerontechnologies that produce safety it means that they are being exempted from gerontechnologies that produce the other benefits mentioned in the definition of welfare technologies. This definition clearly specifies that welfare technologies should provide *increased safety, social inclusion, mobility and physical and cultural activity, as well as increase the individuals' possibility to manage everyday life on their own despite decreased psychological or physical capacities* (NOU, 2012, p. 99). Thus, this configuration of dementia not only has the capacity

to bring dementia to matter in the form of material differences between gerontechnologies offered to adults with more or less clear signs of dementia. It also has the capacity to matter to older adults with clear signs of dementia who are aging at home by producing social inequality in the form of a delimitation of their access to gerontechnologies that produce other benefits that safety. As such, the selection of gerontechnologies is a material mode through which care professionals can configure dementia and make dementia matter in ways that may produce social inequality for the recipients of their care.

As I will argue shortly, this highlights precisely why the act of selecting gerontechnologies for older adults with dementia is an important empirical site for the study of power struggles between care professionals and older adults with dementia who are aging at home. However, before doing so I will first describe how placement configures dementia and brings dementia to matter in ways that can have sociopolitical implications for the older adults with dementia who may have to depend on care professionals decisions.

**FIGURE 1** | Bed equipped with a visible flat pressure sensitive sensor.

## HOW NURSES ARE TAUGHT TO USE PLACEMENT AS A MATERIAL MODE OF CONFIGURING DEMENTIA

When teaching the students about gerontechnologies that are suitable for all older adults with dementia who are aging at home, Eva and Noora showcased a large variety of ambient assisted living technologies (AAL's). AAL's are a form of information and communication technologies (ICT's) that allow caregivers to gain insight into the goings on in the older adults home from afar in the case of an incident that triggers the technology. Such devices can depend on cameras, but sensors are more common in Norway due to restrictive legislation and Eva and Noora only demonstrated AAL's with sensors to the nursing students. When teaching the students about AAL's, Eva and Noora showcased large, flat pressure sensors, meaning sensors that are able to register the presence or absence of pressure, that can be placed in beds, on the floor, inside doormats and in chairs, as well as smaller pressure sensors and motion sensors that can be fixed to various surfaces (see **Figures 1**–**4** for pictures of some of these sensors). All of the sensors are ICT's with the capacity to alert care professionals should they be triggered, either by sending a text message to a designated mobile phone or a signal to an alarm central.

When teaching the students about AAL's Eva described AAL's as suitable for all older adults with dementia. However, she also described recalcitrant behavior toward AAL's as typical for people with dementia and constitutive of pitfalls that care professionals must anticipate.

> We have to be able to anticipate these pitfalls because [older adults with dementia who are aging at home] can become pretty creative when they start to think that these devices are annoying.

In describing recalcitrant behavior of older adults with dementia as "pitfalls," Eva is referring to the capacity for older adults with dementia to disrupt the functionality of AAL as a general tendency for people with dementia and constructing it as a problem that care professionals must solve.

**FIGURE 2** | Bed where the flat pressure sensitive sensor has been concealed under the white bedsheet.

In demonstrating an AAL in the form of a flat sensor that is meant to be placed in beds (see **Figure 1**) Noora made a similar

**FIGURE 3** | Doormat with integrated sensor.

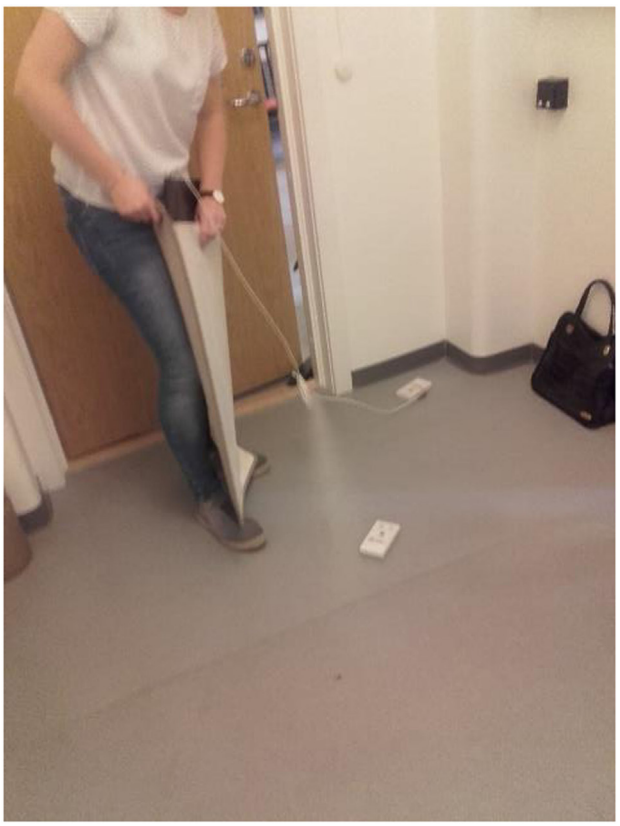

**FIGURE 4** | Doormat with removable pressure sensitive sensor.

description when she referred to a scene in an educational video produced by another municipality and distributed *via* YouTube

> I have to ask, have you seen the movie "Margot challenges the welfare technology? You should google it if you have not seen it yet. Anyway, it has a funny point to it. There is this lady that has a bedsensor like the one I will show you, and the alarm clock goes off in the middle of the night, and at first she is confused but then she remembers – it's time to watch the superball finals! And she goes up to watch tv, and then alarms start to sound and Margot is healthy and has moderate dementia so she is annoyed that the technology has told the care professionals that she is out of bed. So she gets a vacuum cleaner and some books and a potted plant and puts them on the pressure sensivtive sensor so that it will believe that she is still in bed. So that is funny. But it also tells us something about how [care professionals] need to think when we are placing the technology so that we delimit the risk that people can tamper with the technology."

Ending this story, Noora pulled back the covers of a bed placed in the showroom and lifted the bedsheet to show how a flat sensor can be hidden under the bedsheet to disinvite tampering.

Describing this scene, Noora constructs it in a particular way. Dementia is never mentioned in this movie. However, in Noora's description the lead character Margot has "moderate dementia," by which she means dementia that is pronounced but not always manifest. Thereafter, Noora describes Margot's attempt to fool the pressure sensitive sensor by piling things on it as "tampering" a behavior she describes as caused by annoyance with the technology. Together, these descriptions link Margot's behavior to dementia and simultaneously frames that behavior as recalcitrant and irrational, as well as potentially dangerous. Finally, Noora describes this story as an example that shows how important it is that care professionals carefully consider the placement of sensors. She then describes the proper placement of sensors as a placement that disallows "tampering" and lifts the bedsheet to reveal the concealed bedsensor.

In doing so, Noora defines the significance of her story to the students, not as a description of a potentially funny move, but a real example of recalcitrant behavior that is typical for people with dementia. Thereafter she ties this description to demonstration of an invisible sensor and refers to it as an example of a placement that can counter such behavior. In other words, she uses her description of Margot to construct a user representation of older adults with dementia who are aging at home as typically recalcitrant and then shows how care professionals can deliberately use the placement of sensors as a means of configuring recalcitrant behavior to solicit compliance.

The placement of sensors was also described as an important means by which care professionals can configure older adults with dementia to solicit compliance in relation to other AAL's when Eva demonstrated a type of AAL that depends on a sensor that is placed on the floor. This particular sensor is meant to signal to care professionals that someone has left their apartment or house and needs to be found before there is an incident. When Eva demonstrated these AAL's she showcased a doormat placed in front of the entrance to the showroom and explained that while these AAL's are typically integrated into doormats, the appearance of a new doormat and visible cables in the home of an older adult with dementia triggers tampering.

> Eva: Here in the hallway we have a few different ways of detecting that someone has left their house. So if one of you could please exit through the door we can see what happens [beeping sound from mobile phone]. Now this doormat sensed that [the student] stepped on it, so now it sent me a text message that informs me that someone has left their house. So the doormat is connected to the transmitter over there. I would not have set it up like this in the home of an actual [older adult with dementia] but what I want to show you is that this transmitter also works with the pressure sensitive sensor in the bed.

In demonstrating the doormat Eva first describes it as one of many technologies that care professionals can use to discover if an older adults with dementia has left their home. She then proceeds to describe how the doormat sends a text to a mobile phone when it registers that someone steps on it and explains that the signal is not sent directly from the doormat, but from a small transmitter connected to the sensor in the doormat by a cable and hung on a radiator. She also refers to this placement of the transmitter in the showroom as a misrepresentative example of how transmitters should be placed in the home of an older adult with dementia. At this point, I asked why she thought that the transmitter should not be placed in this way in the actual home of and older adult with dementia.

> **J:** Sorry, you said that you would not have set it up like this in the home of an actual [older adult with dementia], why not?
> **E:** Good that you ask. When I said that I referred to how I would not leave the cables out in the open like that. If there was a carpet or a chest of drawers there I would have hidden the cables. Because, as we talked about before, if an [older adult with dementia] sees that something has changed they start to mess with it. So that is what I mean when I say that I would not set it up like this on the home of an actual [older adults with dementia]. And this doormat is especially good because it is possible to remove this one, this black sensor, and then you can place it under the usual doormat so that it looks like nothing has changed.

When Eva answered my question, she described older adults with dementia as attentive and prone to "mess with" new objects in their home, and the visibility of new artifacts as problematic because it can spur this tendency. Eva uses this description to illustrate what a "good" placement looks like and describes this placement in terms of concealment. The sensor, the cables and the transmitter must be hidden to reduce the risk that the device is "messed with." Eva is also providing examples of how a concealed placement can be accomplished pragmatically when she explains that cables can be hidden behind furniture like chairs and chests of drawers. Finally, she explains that a particular type of doormat is especially suited to such hiding because it allows for removal of the sensor which can then be placed under the doormat or rug already present in the putative users home, something which will help in the accomplishment of an illusion of no-change (see **Figure 3** for a picture of this doormat).

Eva's use of the term "mess with" is important in this context because it frames older adults interactions with the technology as problematic. Somebody who is "messing with" technology is not simply adjusting it to their liking, but disrupting it. By using this term to conceptualize the behavior of older adults with dementia toward visible parts of the technology Eva accomplishes a rationale for hiding the technology. A second observation is that she initiates this explanation by defining the unconcealed placement of the technology as unsuitable in the home of a care recipient. Thus, she is referring back to her previous description of what the technology does to identify the type of care recipient she is talking about as a care recipients with dementia who may wander off in the night and need to be found by care professionals. Together, these three statements thus act together to coconstruct the notion that the technology must always be hidden in the home of all service recipients with dementia where it is installed because their interaction with the technology is disruptive due to incompetence.

In making this explanation, Eva is constructing a user representation (Akrich, 1995) of older adults with dementia who are aging at home as a problem to the technology. They are people who cannot be trusted with the technology in their homes. She then draws on this user representation to construct the strategic concealment of technology as a way that the students can and should configure (Woolgar, 1990) older adults with dementia while simultaneously delimiting their possibility to notice and "fiddle" with the technology.

The strategical value of selection is also illustrated by Eva's description. By describing the doormat with a removable sensor as particularly suited to the accomplishment of the ideal of a concealed placement, Eva is drawing on the user representation (Akrich, 1995) she has constructed to single out a specific device as particularly valuable in configuration (Woolgar, 1990) of older adults with dementia. In doing so, she is simultaneously constructing the selection of this device as a means by which care professionals can delimit the possibility for older adults to "mess with" the technology. In this sense, selection is part of the accomplishment of a visual illusion meant to configure older adults with dementia by delimiting not only access to, but also knowledge of the presence of technology in their home.

## PLACEMENT AS CARE AND AS A MEANS OF SUBVERSIVELY SOLICITING COMPLIANCE

In teaching the students about how they should configure older adults with dementia who are aging at home by placing AAL's such as bed sensors and doormats where they are less visible when they become care professionals, Eva and Noora are describing the concealed placement of the sensors and cables as a way of ensuring the functionality of the technology. In other words, they are illustrating how the students can act to ensure that the technology will function as intended. Meaning that it will be able

to alert care professionals in the case of an incident where an older adult with dementia leaves their bed or home. At least as far as such insurances are possible by material means.

Research that draws on biomedical understandings of dementia has often described dementia in terms of a flawed ability to make well-informed choices (Feinberg and Whitlatch, 2001; Karlawish et al., 2002). Thus, from a biomedical perspective, Noora and Eva's descriptions of how older adults with dementia are prone to, intentionally or unintentionally, disable sensors meant to keep them safe can be understood as illustrative of an understanding of dementia as manifest in confused behavior that is constitutive of risk to the individual's safety. Inferencing from this understanding, it is possible to see how Noora's and Eva's are able to understand their descriptions of how the students should use the concealed placement of AAL's as a strategic means of caring for older adults with dementia who are aging at home by hindering them from intentionally or unintentionally disabling the technology.

However, other interpretations are possible too. Consider for instance Noora's example of the recalcitrant tendency to intentionally disable visible bed sensors that she describes as typical for older adults with dementia. In describing this behavior, she is referring to this tendency as caused by an unwillingness to allow the technology to alert care professionals when the individual leaves the bed. In other words, hiding the technology can also be understood as a method of soliciting compliance from older adults with dementia who do not want this technology.

In the case of the doormat, the method of using placement and selection as means of hiding the technology is meant to delimit the possibility for older adults to "mess with" the technology by delimiting their possibility of knowing that the technology has been placed in their hallway. Thus in this case, the selection and placement of gerontechnologies is described as a means of disempowering older adults with dementia by rendering them oblivious of the technology's presence.

## HOW SELECTION AND PLACEMENT CAN BE OCCASIONED BY A BIOMEDICAL UNDERSTANDING OF DEMENTIA?

So far, I have identified the selection and placement of gerontechnologies as two material means by which nurses are taught to configure older adults with dementia who are aging at home. I have also showed that while these selections and placements can be understood as caring practices, they can also be constitutive of social inequality and used by care professionals to subversively solicit compliance from older adults with dementia who are trying to reject the technology. In this section, I will show how this notion of caring relies on a biomedical understanding of dementia and I will show how care professionals practices of selecting and placing gerontechnologies can be understood as important empirical sites for the study of power struggles between care professionals and older adults with dementia.

If nurses limit their selection of gerontechnologies to fully automated devices that only produce safety, they do on the one hand eliminate the risk that the older adults will be paired with a technology that they cannot operate. However, social inequality is also being produced because it delimits the possibilities for those care recipients to receive other technologies that are capable of producing other effects. Similarly, if care professionals hide sensors and cables they do on the one hand solicit compliance from older adults but on the other hand they are doing so in order to eliminate the risk that the older adult intentionally or unintentionally disassembles the technology. Thus, these situations can in themselves be understood as descriptions of caring practices that carry the downside of also being constitutive of social inequality and disempowerment, or, stories where safely aging at home for an adult with dementia comes at a price. So how are the educators able to understand this as a caring practice?

When Noora and Eva describe how the nursing students should select and place gerontechnologies in particular ways when the care recipient is an older adult with dementia who is aging at home, they do so by illustrating these selections and placements as care. This verbal accomplishment of selections and placements of gerontechnologies as care, depends on the illustration of nurses practices of selecting and placing gerontechnologies in particular ways as a means of countering risks. Specifically, that older adults will be unable to use technologies as well as intentionally or unintentionally disable sensors. In other words, this description of care relies on the notion that older adults with dementia who are aging at home lack the cognitive capacity to competently make their own decisions and adequately assess risk scenarios. This view is relatively common, particularly amongst care professionals (Ballinger and Payne, 2002; Robinson et al., 2007; Hughes, 2008).

With this in mind, it is possible to revisit the analysis and reconsider the notion that care professionals should select and place gerontechnologies in terms of privileges being awarded to care professionals at the cost of including the older adults with dementia in the decision making process. In the analysis, I showed how a delimitation in the selection of gerontechnologies for older adults with dementia who are aging at home is constitutive of social inequality when it means that these older adults are only supplied with gerontechnologies that produce safety. As opposed to gerontechnologies that are capable of producing other benefits such as "*social inclusion, mobility and physical and cultural activity*" (NOU, 2012, p. 99). I also showed that this delimitation in care professional's choices can be understood as a caring practice when understood as a way of delimiting the risk that older adults with dementia are supplied with technologies that they cannot operate. However, this notion of caring is reliant on the idea that older adults with dementia who are aging at home are fundamentally incapable of choosing for themselves or even participating in the decision-making process. This notion is characteristic for a biomedical understanding of dementia.

Thus, while the educators are configuring gerontechnologies, the educators are simultaneously being configured themselves by a biomedical understanding of dementia that shapes how they understand the possibilities for older adults with dementia to interact with gerontechnology.

## MEDIATION AS AN EMPIRICAL SITE WHERE CARE PROFESSIONALS CAN DISTRIBUTE POWER BETWEEN GERONTECHNOLOGIES AND OLDER ADULTS

As I have shown, the act of selecting gerontechnologies is no trivial matter and can produce social inequality for older adults with dementia who are aging at home. As such, decision-making processes related to the selection of technologies are sociopolitical and can be understood as practices where citizenship is enacted. To exempt older adults with dementia who are aging at home from decision-making processes that concerns them means to deny them the possibility of exercising citizenship by exerting influence in that decision-making processes. In the above description of the citizenship literature, I show how power struggles and the retention or acquisition of citizenship are part of any social interaction between people with dementia and their social environment because these social interactions are the empirical sites where power and citizenship is accomplished. Thus, from a citizenship perspective, the production of social inequality is not limited to the choices that care professionals make, but inherent in the selection process itself when older adults with dementia are being denied the possibility of exercising citizenship by influencing the selection. From this perspective, power struggles and the retention or acquisition of citizenship are also inevitably part of any selection process related to types of gerontechnology, because these social selection processes are the empirical sites where power and citizenship are accomplished. Ballinger and Payne (2002), Hughes (2008) and Robinson et al. (2007) have shown that carers are often prone to see risk as the management of physical risk, while older adults with dementia are often more concerned with risk in relation to their personal and social identities. Here I showed that the delimitation of gerontechnologies to fully automated technologies that only produce safety is described as the correct way of caring for older adults who are aging at home because it delimits the risk that older adults will have technologies that they will not be able to operate, but perhaps those older adults have other preferences?

Similarly, it is possible to draw on the notion of citizenship to revisit and re-evaluate the idea that care professionals should delimit the risk that older adults with dementia who are aging at home disable their AAL's through the strategic use of concealed placement. From this perspective, the strategic use of concealed placement as a means of delimiting the care recipients' knowledge of the presence of AAL's in their home, or to solicit compliance from "recalcitrant" older adults who intentionally try to disable bed sensors is possible to understand as delimiting of the care recipients possibilities to enact citizenship by rejecting the technology. For instance, Paterson and Hughes (1999) (p. 604) describe how the ways that people with dementia alter their physical surroundings can be understood as a "quest for citizenship." As such, the concealed placement of gerontechnologies can be understood as a way that the care recipient is being disempowered in relation to their possibilities of enacting citizenship by rejecting the technology.

In this sense, the capacity for care professionals to mediate gerontechnologies and configure older adults, for instance through selection and placement, can be understood as a capacity to distribute power in the relationship between gerontechnologies and the older adults that become the users of those technologies. From this follows that care professionals practices of mediating gerontechnologies and configuring older adults is an important empirical site for the study of how gerontechnologies shape the experience of aging.

## A CONTINUED NEED FOR DIALOG

While I do not claim to provide an exhaustive account of how care professionals can act as intermediaries (Pinch, 2003) or of how they can mediate (Schot and De la Bruheze, 2003) gerontechnologies, I have shown that nursing students are taught to mediate (Schot and De la Bruheze, 2003) gerontechnologies as part of their training. I have shown how such mediation can be accomplished through the selection and placement of gerontechnologies, and that selection and placement can configure older adults with dementia who are aging at home. I have also shown how this configuration brings dementia to matter in ways that can produce social inequality and loss of citizenship for older adults with dementia who are aging at home, and I have shown how the understanding that this configuration is constitutive of care as opposed to anything else is occasioned by a biomedical understanding of dementia. On the basis of these results, I have argued that care professionals practices of shaping gerontechnologies can be understood, and studied as empirical sites where power is being distributed in relationships between gerontechnologies and the older adults that becomes the user.

The dialog between STS theories on intermediaries (Pinch, 2003), mediation (Schot and De la Bruheze, 2003), the sociopolitical capacity of materialities, and relational approaches to dementia (Bartlett and O'Connor, 2007; Brittain et al., 2010), that I have staged in this analysis offers a possibility for STS researchers to rethink how gerontechnologies shape the experience of aging.

While STS research has a long tradition of showing how materiality can matter in sociopolitical terms, STS research that has focused on gerontechnologies have so far only credited designers with the possibility of drawing on user representations to configure older adults by shaping the technology (see Joyce et al. (2017) for a comprehensive and recent overview of this research).

By contrast, this article has shown that care professionals can act as intermediaries and mediate gerontechnologies, and that their mediation of gerontechnologies can *matter* to older adults in sociopolitical terms. I have also shown that such mediation may be accomplished by mundane means like selecting and placing gerontechnologies in particular ways. STS has the tools to describe how older adults can be configured by sociomaterial means, as well as the tools to describe how sociomaterial configurations matter to older adult users. However, STS has arguably a very short history of engaging with the relationship between technologies and processes of aging (Östlund, 2004; Joyce and Mamo, 2006) and lacks a research tradition that describes the interplay between care professionals and older adults in terms of power and politics. By staging the analytical dialog between

STS and relational approaches to dementia I have showed how concepts like personhood and citizenship can enrich the interpretation of how mediation and configuration can matter to older adults. From this I conclude that there is a continued need for empirical studies of gerontechnologies that stage analytical dialogs between STS theory and understandings from other fields with longer traditions of studying processes of aging, to further elucidate how gerontechnologies can matter to older adults and the experience of aging.

## ETHICS STATEMENT

The ethical considerations of this study were reviewed and approved by the Norwegian Social Science Data Services (NSD). Written and verbal information about the study was distributed to all participants. Verbal informed consent to my presence as well as to being audio recorded and quoted for the purposes of research was obtained from all research participants. This consent procedure is in accordance with Norwegian law as well as the general ethical guidelines issued by NSD and the individual instructions provided to the author by NSD at the start of this study.

## AUTHOR CONTRIBUTIONS

All contents of this article and the research it builds on is the author's own work.

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# Materialities in and of Institutional Care for Elderly People

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Since some decades, nursing homes for elderly people are discussed as "total institutions" in the sense of Erving Goffman. However, this line of research has not clarified yet as to how the creation of a totalizing nursing home is actually achieved on the basis of everyday practices and interactions. In my contribution I address this research gap by looking at how material and spatial arrangements in nursing homes for elderly people affect the ways its residents are socially constructed. By drawing on Goffman's ideas on the creation and presentation of the self, I engage with the question of how the placement and handling of material objects in nursing interactions lead to the institutionalization of a resident's self: Empirical examples of how materialities are deployed demonstrate how residents are stripped of their self-identity and how nursing staff members exercise rigid control over their everyday lives. Yet, it is also shown how the usage of material objects help residents to subvert some of these practices. I argue that looking at the material and spatial arrangements of a nursing home on a micro-level of social interactions helps us especially in reconstructing those often latent, inconspicuous and overseen processes in which a totalizing environment is created.

**Keywords: care and nursing for elderly people, total institution, materialities in and of nursing and care, material care studies, organization ethnography**

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## INTRODUCTION

Why should we consider material objects[1] when we examine age and aging in its various manifestations? Why should materiality matter at all? One of the central premises of Material Culture Studies is that it is important to look at the constitutive role of materiality for social experience in all its diverse and differing forms (cf. Appadurai, 1986; Miller, 1987). Yet, as some argue, not all things matter and not all the time (c.f. Hahn, 2005, 2015). Within Material Culture Studies or Science and Technology Studies there is a tendency to emphasize the changeable, polysemic and ambiguous nature of things (cf. Korff, 2005; Frers, 2010; Ludwig, 2011; Hahn, 2015). Yet, certain things do indeed matter (cf. Miller, 2005). I would assert that there are certain symbolic properties of material objects that are somehow fixed, at least to one person and at least for a certain period of time. This means that things may be used to reproduce specific ideas about a person, such as being an elderly person. As this contribution will explore in more detail, things may be of relevance to the staging of oneself (Goffman, 1961, p. 27, cf. 1959, p. 32ff.). Also, and this will be the main focus here, materiality in its interplay with spatial arrangements is crucial for the formation of certain institutions for geriatric care: By looking at nursing homes for elderly

[1] Within Material Culture Studies, the term "thing" is mostly used and encompasses all material items, including those objects which are not produced by human beings; things that occur "naturally", but which are used and modified by humans (Hahn, 2014: 19). Therefore, I will also mainly use the term thing in this article.

people and their material-spatial arrangements this contribution draws heavily on the concept of the "total institution" by Erving Goffman (1961) and how this is discussed with regard to institutional elderly care. While most research into nursing homes as–however "moderate" (Koch-Straube, 2003, p. 346)–total institutions do not adequately consider their material and spatial arrangements, this paper takes a closer look at the placement and role of things in institutionalized nursing interactions. In his *Asylums* Goffman took a special interest in how "the physical facts of an establishment can be explicitly employed to frame the conception a person takes of himself" (Goffman, 1961, p. 150)–or of herself. Goffman displayed a certain sensitivity for "the relationship between self and site" (Alworth, 2014, p. 6) with regard to certain material and spatial arrangements within a total institution which this paper addresses.

Starting point of my argument is the relationality of space, materiality, and nursing practices: space and materialities as well as the members of an institution like a nursing home (be it total or not) are never neutral actors, together, reciprocally, they construct what is known as a nursing home (cf. Natter and Jones, 1997; Löw, 2001; Hujala and Rassinen, 2011). Hence, in this paper, material and spatial environments are conceptualized as both, being products of *and* producers of social realities in a nursing home. Until today, only little research has been done into the concrete materialities of nursing and care for elderly people or how things shape the processes involved (cf. Artner and Atzl, 2018).[2] Looking at the role of things can advance some of the central concepts or perspectives regarding materiality, especially those that point to the situational embeddedness of materiality in our everyday life and that emphasize the need for close examination of the interactions between things and people on a micro-level (cf. Hahn, 2014). This is where my research on things in elderly care is located.

In order to outline the argument of the relevance of material objects in institutional elderly care, in the second part, I will take a closer look at inpatient care for elderly people and how this is discussed in the sense of Goffman's concept of the total institution. In the third part, I will outline how the material and spatial arrangements are discussed within research on nursing homes as total institutions and why there are shortcomings when it comes to the consideration of the role that things play in these contexts. I will present and discuss some of my empirical findings[3] about the effects of the spatial arrangements of things in a nursing home in Germany in the forth part. In the final part, I will draw a conclusion on the specific roles which things can have in the (totally) institutionalized form of care that is a nursing home.

## INSTITUTIONAL ELDERLY CARE

In the second part I want to outline, first, what form institutional elderly care can take using the example of Germany, whose organization of nursing and care for elderly can be compared to those of other OECD-countries (cf. Pavolini and Ranci, 2008). Secondly, I will demonstrate how this is primarily discussed with regard to Goffman's idea of a total institution. Ending this section, I will elaborate on the shortcomings of one of Goffman's most famous concepts and his perspective on the role of material and spatial arrangements in a total institution.

### Institutional Elderly Care in Germany

Since the early 1990s the number of care recipients living in nursing homes in Germany has increased by more than 50%, even though the majority of people in need of care live and are nursed in their own homes (Heinzelmann, 2004, p. 31). Nevertheless, in nursing homes for the elderly, over 60% of the residents suffer from dementia, albeit in varying forms and degrees (Schneekloth and Wahl, 2007, p. 9).

In Germany, nursing homes for elderly people are the more traditional institutionalized way of living and of caring for elderly people, most of whom are over the age of 80. One central characteristic of nursing homes is the full coverage of services including care, nursing and day-to-day needs: Alongside care and nursing, this includes preparing meals and helping people to eat, cleaning rooms, medical treatment, educational and entertainment programs, sports activities and so on (Posenau, 2014, p. 19). Besides watching television and listening to the radio or interacting with other residents, at least half of the residents in nursing homes participate in the collective activities offered by the institution (Schneekloth and Wahl, 2007, p. 10). Most nursing homes also offer pastoral care and terminal spiritual care (Schneekloth and Wahl, 2007).

Many activities in nursing homes are explicitly determined by the German social security legislation. Since 1995 and the inception of the German long-term care insurance act, nursing and care services provided by nursing homes have been restricted to four central areas (Hämel, 2010, p. 187f). People in need of care and nursing must be supported in the areas of:

1) personal hygiene (e.g., bathing, dental care, support in excretion),
2) nourishment (e.g., bite-sized food preparation, support with food intake),
3) mobility (e.g., getting up and going to bed, dressing and undressing, walking, standing and so forth), and
4) household activities (e.g., shopping for groceries, cleaning, washing dishes and clothes).

[2]One important exception is the joint project funded by the Federal Ministry of Education and Research from February 2014 to January 2017: "Care and Things–Objects and their Significance in Past and Present Nursing Practice" (grant number 01UO1317A-D; see also Artner et al., 2017). At this juncture, I would like to express my very special thanks to Isabel Atzl, Anamaria Depner, André Heitmann-Möller, and Carolin Kollewe for their many years of extremely productive collaboration.

[3]Within this research study, the access to the care homes for elderly people where the research was conducted was ensued through their management staff. An ethics approval was not required for this study as per institutional and national guidelines. Oral informed consent was obtained from all research participants, in accordance with institutional and national guidelines (c.f. Deutsche Forschungsgemeinschaft (DFG), 2013, 2014). All participants were informed that the data collection (interviews, participant observations) could be stopped at any point in time and that all the data gathered (especially all the names of persons, institutions, cites and so forth) is anonymized. I would like to thank all participants for their support.

Compared to home health care, we find that inpatient care (apart from semi-residential care and short-term care) is conceptualized as 24-h full-service care, thus holistically affecting its residents: after moving into a nursing home, a resident's options are more or less reduced to the act of purchasing additional services provided by the respective establishment, such as paying a visit to the in-house hairdresser (Schmidt, 1999, p. 51ff.). Residents and/or their relatives are not expected to participate in the arrangement and organization of a facility (its living areas, its social services and so forth; Hämel, 2010, p. 187f.). The specific nature of these services is decided by the management or the provider of each establishment; some nursing homes have an advisory board of residents that have a say in this (Posenau, 2014, p. 19). These matters also depend on the size of a nursing home, which varies from facility to facility (from 10 to more than 100 people), and the way they are managed, from private individuals to communities, from churches and charitable organizations to companies (Heinzelmann, 2004, p. 32). In fully residential establishments, caring, nursing and maintenance are provided by professionally employed people (albeit often in precarious employment situations), usually in specific routine procedures. The required duties of nursing and care are delivered by these members of staff, who must also document their activities on a daily basis.

In sum, nursing homes (in Germany) are said to be instrumentally rational (Dathe, 2014, p. 170; cf. Strauch, 1978, p. 104) and in order to meet their objective they are systematically organized, which i.a. entails a differentiation of their members along different roles (nurses, residents and other care staff). This implies that institutions control the construction of their clients' self which results in specific normative ideas about e.g., what it means to be old and living in a nursing home for elderly people. The image of the elderly in nursing homes can range from helplessness, neediness, being of an undemanding nature or in need of activation to being able to be activated, having a right to one's individuality and self-determination (Dathe, 2014, p. 174ff.). However, structural constraints, such as chronic understaffing often force nursing and care staff to gravitate toward the first image of needy elderly people (Dathe, 2014). It has been shown that this may also cause some forms of "learned helplessness and instrumental passivity" (Harper Ice, 2002, p. 346). But there are even more constraints that residents in nursing homes for elderly people might face. The next part will discuss this with a special focus on Goffman's idea of a total institution.

## Nursing Homes for Elderly People as "Total Institutions"

One characteristic of many societies worldwide is a distinction between places where we live, where we sleep, clean ourselves, where we spend our leisure time and/or where we work. In a so-called "total institution" as defined by the sociologist Erving Goffman (1961), this separation is suspended for its inhabitants or members. All activities in everyday life happen at the same place: the institution. By this, Goffman meant jails, psychiatric wards, hospitals and also nursing homes.[4] Members of these institutions generally share the same fate as "like-situated individuals, cut off from the wider society for an appreciable period of time" who "together lead an enclosed, formally administered round of life" (Goffman, 1961: xi). Their daily conduct is largely prearranged and determined by the staff working in them: Everyday life is scheduled by the institution, all members are treated in the same way, they all have to follow the same institutional rules. One central characteristic is the unequal distribution of power between the members and the staff.[5] This inequality is critical for the social construction of the self; how the members of a total institution see themselves and are perceived by others. Besides being segregated from wider society, inmates in a total institution share the same fate of living in the company of a group of similar others (Goffman, 1961, p. 17) which receive the same treatment and daily activities that are for the most part prearranged on a schedule by the institution. Additionally, inmates are subject to certain procedures that lead to an undeniable kind of stripping of self identity which inter alia includes the loss of one's possessions but also the intrusion of one's privacy.

Since the late 1960s, the concept of the total institution has also been discussed with regard to nursing homes for elderly people (for the US see Hook et al., 1982; Kahn, 1999; Harper Ice, 2002; Kaup, 2011; for the UK see King and Raynes, 1968; King et al., 1973; Jenkins et al., 1977; Clark and Bowling, 1990; for Germany see Koch-Straube, 2003; Heinzelmann, 2004; Amrhein, 2005; Roth, 2007; Pöschel, 2013). The critiques which were formulated have caused some changes in the organizational structures of nursing homes, inter alia regarding the residents' rights (Heinzelmann, 2004, p. 57). These changes have, however, led to the idea that the term "total institution" might be an exaggeration, as nursing homes are certainly not prisons or psychiatric wards (Prahl and Schroeter, 1996, p. 173, cf. Richard, 1986; Gebert and Kneubühler, 2001). Even though nursing homes for elderly people were identified as total institutions by Goffman himself–as those types of "institutions established to care for persons felt to be both incapable and harmless" (1961: 15)–the debates surrounding nursing homes increasingly moved away from a stricter definition: "Most research on elderly people in institutional care has implicitly collected data which is pertinent to Goffman's model. These studies, through data on patient satisfaction, level of daily activity, amount of privacy and flexibility of routines appear to confirm that the features of total institutions are difficult to overcome, except in very small hostels

[4]Goffman differentiates five distinct categories of total institutions. Nursing homes belong to the first category, establishments where the main function is to "care for persons felt to be both incapable and harmless; these are the homes for the blind, the aged, the orphaned, and the indigent" (Goffman, 1961: 16).

[5]As Goffman indicates (see for example 1961: 15), the experiences of people within total institutions vary from establishment to establishment. A prison and a psychic ward might put more restrictions on its inmates as hospitals or nursing homes. Additionally, the degradation of the self also depends on an individual's socio-economic resources. Therefore, the distribution of power within a nursing home might also vary between, for example, luxurious facilities that offer high-end care services compared to those with more basic care supply.

and homes" (Townsend, 1962; King and Raynes, 1968; cf. King et al., 1973; Jenkins et al., 1977; Davies and Snaith, 1980; Godlove et al., 1981; Clark and Bowling, 1990, p. 1202, Foldes, 1990; Thomas, 1994; Kahn, 1999). This is why some have suggested conceptualizing nursing homes more as a sort of "moderate total institution" (Koch-Straube, 2003, p. 346; translation by the author).

Due to the mentioned changes we currently find a wide range of different forms of nursing homes for elderly people with quite different concepts of caring and nursing as well as of age and aging. However, within the German context, most nursing homes are still very functional: the aspects of living and dwelling in these institutions are for the most part oriented toward a cost-effective organization of nursing and care (Prahl and Schroeter, 1996, p. 154f.).

According to the seminal ethnographic study by Ursula Koch-Straube (2003), nursing homes still present some striking characteristics of a total institution. This applies, for example, to the constraints of social interactions for the residents of nursing homes or the rigorous planning of their everyday life, as well as the fact that all affairs of daily life happen at the same place in the nursing home. For these reasons, the residents of nursing homes have practically no privacy, as this is almost entirely under the control of the staff. An institutional environment might have a negative impact on a residents' quality of life, leading to a higher rate of psychological distress symptoms amongst older people (cf. Voyer et al., 2005). This is one reason why some studies emphasize the role that the spatial arrangement has in this regard: "The idea here is primarily to develop a momentary and positive 'sense of place' for older people." (Andrews et al., 2005, p. 114) Hence, the focus is put on "unique place-experiences and what they mean to older people with different physical and cognitive abilities" (Andrews et al., 2005). These places should also resemble what was coined as "therapeutic landscapes" i.a. by health geographers (Andrews et al., 2005, cf. Gesler, 1992): "Therapeutic landscapes refer to the positive psychological associations that people attach to places, and concurrently their perceived restorative and healing qualities of places" (Andrews et al., 2005: 115).

The research on nursing homes as total institutions has not clarified in detail how staff exercise rigid control and display patronizing behavior, and how exactly an impersonal atmosphere is actually *achieved* in daily practice. There is still a lack of research on the micro-level that deals with the actions and interactions in a nursing home as a total institution on the ground. This is where my concern with material and spatial arrangements in a nursing home comes in: as I want to demonstrate in this paper, things and the way they are spatially arranged can have a considerable impact on the way elderly people are constructed as residents of a nursing home. Doing so, I will also pick up on the critique toward Goffman's concept of the total institution and especially his approach toward materiality as will be outlined in the next section.

## Critique Toward Goffman's Approach to Materiality

Some critiques of Goffman's concept of the total institution emphasize the undermining of the role that material and spatial arrangements actually have in achieving a total institution in day to day social interactions–even though they "were 'total' insofar as they physically confined their inmates, limiting their access to valued resources: not only material possessions but also time, personal space and control over one's daily routine" (Scott, 2010, p. 214).[6]

It is said that Goffman does not take material objects into consideration as a factor in their own right, that might shape social interactions: "Goffman (1959, 1961), also pays attention to the material arrangements of people and objects within the 'interaction situation.' Notions like 'co-presence,' 'face work,' and 'front and back stage' draw attention to the material arrangements among human beings that enable and constrain social interaction, but Goffman treats materiality *per se* as something like a stage on which all the interesting performances occur." (Pinch, 2008, p. 463) This judgment might be confusing as other critics especially emphasize that "Asylums and other books are remarkably attentive to the nonhuman" (Alworth, 2014, p. 4). Goffman himself writes in *Asylum* that he seeks to reconstruct the "encompassing or total character" of total institutions and how it "is often built right into the physical plant" taking the shape of "locked doors, high walls, barbed wire, cliffs, water, forests, or moors" (Goffman, 1961, p. 16). Yet, throughout the book he treats material objects as if they merely provided the setting of an interaction but to a lesser extent as something which is part of them (Pinch, 2008, p. 463).

As will be demonstrated in the following sections, a very important distinction must be made when it comes to certain kinds of material aspects, namely those that are used to foster a sense of oneself: Goffman took a special interest in how "the physical facts of an establishment can be explicitly employed to frame the conception a person takes of himself" (Goffman, 1961, p. 150)–or of herself. Goffman displays a certain sensitivity for "the relationship between self and site" (Alworth, 2014, p. 6). I will seize on these ideas regarding the effects of the material and spatial arrangements of a nursing home for elderly people in more detail in the following.

# MATERIAL AND SPATIAL ARRANGEMENTS OF TOTALIZED INSTITUTIONAL ELDERLY CARE

Before I discuss how certain materialities or things influence the construction of oneself within a nursing home seen as a total institution in the sense of Goffman with regard to my own research, in this section I will outline what I mean when I refer

[6]There were of course more points of critique towards Goffman's concept which for reason of limited space can only be shortly mentioned here. Scott (2010: 217) brings in three critical discussions: 1. overemphasizing the coercive identity erasure taking place on total institutions and overlooking the subtle processes of negotiation, legitimation and mutual surveillance through which power operates in the interaction order; 2. methodological flaws and questions of representativeness: "institutions vary in their degrees of totality, just as inmates vary in their degree of commitment to them" (Scott, 2010: 217); 3. the nature of total institutions has changed since Goffman conducted his research in the 1960's, especially those establishments linked to (mental) health care, even though some totalizing momentum still exists there (cf. Quirk et al., 2006; Goodman, 2013).

to space (Space in and of a Nursing Home for the Elderlies) and things (Things in Institutionalized Elderly Care).

## Space in and of a Nursing Home for the Elderlies

Space and materialities as well as the members of an institution like a nursing home (be it total or not) are never neutral actors, together, reciprocally, they construct what is known as a nursing home (cf. Natter and Jones, 1997; Löw, 2001; Hujala and Rassinen, 2011). The production of space that Martina Löw (2001: 53), as well as others, describes is a highly complex undertaking which (to save time) will be described here in a simplified way: space is a relational social category, produced by an interplay between people and material objects. Or, as Wolfgang Natter and Jean Paul Jones describe it, "space is produced by social relations that it also reproduces, mediates and transforms. [. . . ] Therefore, in contrast to a category of space as self-present social essence, it is more useful to start with a conception of space that, like the subject, is a *lack* to be filled, contested, and reconfigured through contingent and partially determined social relations, practices, and meanings." (Natter and Jones, 1997, p. 149, italics in original) Furthermore, we have to assume that there is a reciprocity between space and social order: "While we construct our work environment or merely act in it, the environment, for its part, constructs, creates, maintains or changes us–our identity, our status and position in the social order, even our bodies." (Hujala and Rassinen, 2011, p. 441).

Health and nursing research increasingly take the role of place in nursing homes into consideration, yet, "the growing social and health geography literature focused on caring that, to date, has lacked an emphasis on the mechanisms of caring practices and, in particular, on the caring practices of health professionals" (Andrews et al., 2005, p. 111). The question of how a nursing home is accomplished, how it is (spatially) designed and how nursing practices take shape through the actual placement of people and things has not yet been sufficiently taken into consideration. Nevertheless, the spatial arrangements of nursing homes did gain some attention recently within gerontology (cf. Meyer et al., 2017) or nursing studies (cf. Hujala and Rassinen, 2011).

The architectural structure of a nursing home usually allots residents fixed places for sleeping, eating and for carrying out other activities, such as gymnastics. This in turn usually makes it easier for the staff to efficiently do their jobs and to control the organizational procedures. In nursing homes, we find public areas, such as the external façade and its local environment. We find semi-public areas, such as the entrance, the cafeteria or certain corridors. There are semi-private areas, such as the residential units or groups, and their shared spaces, such as a dining room and/or living room. Last but not least, there are private areas, such as the residents' private rooms.[7] These private rooms function as places to live and sleep, sometimes also to cook and eat. This is also the place where residents are nursed and cared for, where their personal hygiene is taken care of. Unlike their former home, their private life is concentrated into one place, a single or sometimes also shared room in the nursing home (Oswald, 2015, p. 709). There is only a fractional amount of private space available for the resident, it is indeed a compression of their space of action. This reduced space for action may be accompanied by a certain loss of participation and increased heteronomy: Besides questions of participative management in the organization of care and nursing processes (Thiele et al., 2002, p. 563), this also refers to the way residents can move within the physical space of a nursing home and how they relate to its physical decor, the material objects in it. In the following, I outline more aspects of the spatial arrangements of nursing homes.

### The "Home Paradox" (Martin, 2002, p. 866):

For some people (the residents) nursing homes are places to live and for other people (the staff) they are places to work, thus becoming two forms of places whose functionalities and rationalities may very well collide and interfere with each other: "Residential organizations may be like a home but, as many scholars note, they are not homes in the usual sense (Diamond, 1992). They are formally administered organizations with budgets, paid staff, trade unions, and structured mealtimes, bathing routines, and rules about coming, going, using the kitchen, and taking medication." (Martin, 2002, p. 867) Goffman (1961, p. 19ff.) also pointed to this paradoxical situation in a total institution.

### The Blurring of Boundaries Between the Public and the Private:

Closely linked to the home paradox is the blurring of boundaries between what is private and what is public within a nursing home for the elderlies (cf. Kaup, 2011). This impacts the way care work itself is perceived by the wider society: "The values, feelings, and interactions that make up the relational essence of care in the private sphere are sometimes devalued, discouraged and even forbidden in the public world. Care givers and the people they care for are pressured by norms, rules and policies of the public world to make care conform to the image of work that predominates in the public world." (Stone, 2000, p. 90) That means, even in the more private spaces within a nursing home (the resident's room for example), the logics of the public world of work permeates intimate (hence–private) caring practices and thereby devaluating it.

### The Centrality of Bodies in Nursing (Homes') Practices:

In comparison to other working and living environments, nursing and caring for elderlies (in nursing homes) are essentially linked to bodily experiences for both, the residents as well as (especially nursing) staff (cf. Twigg, 2000a,b; Wismar, 2007; Hujala and Rassinen, 2011). There is a tendency within nursing to conceive those being cared for primarily as bodies and less as human beings (cf. Twigg, 2004): "Residents' bodies are subjected to the organization's authority and justificational ideology that place (into rooms, beds), control (residents' bodies, time, activities, privileges), and frame/define them (as able

[7] For a more detailed description of the spatial arrangements of nursing homes for elderly people, see Meyer et al. (2017).

or dependent) in particular ways" (Martin, 2002, p. 864).[8] Some of these works mention Goffman's writing on the social construction of the body but the role that materialities play in these processes is still unclear.

## Things in Institutionalized Elderly Care

Until today there is little research concerning the concrete interplay of things and human beings with regard to those contexts in which people (and their bodies) are placed at center stage. This is the case in nursing and caring for elderly people. However, nursing should be of particular interest to the study of materiality as the (material) corporeality plays a constitutive role for nursing in itself (cf. Remmers, 2011). When looking at the role of materiality in nursing (i.a. for elderly people) we take the main premises of phenomenology (cf. Plessner, 1970, 1980, 1981) as the starting point of our investigation: Because of their own bodily materiality people are able to discern and experience material objects. In other words: Realizing the materiality of a thing is only possible because we realize our self as something material (a sensing body which can touch and smell etc.). This material reciprocity is fundamental both for the relationship between things and human beings (cf. Depner et al., forthcoming) as well as for the interactions in the field of nursing (cf. Artner et al., 2017).

Up to date, only little research has been done into the concrete materialities of nursing and care for elderly people or how things shape the processes involved (cf. Artner and Atzl, 2018). Most studies focusing on the material arrangements of nursing practices tend to be evaluative.[9] Yet, looking at the role of things can advance some of the central concepts or perspectives regarding materiality, especially those that point to the situational embeddedness of materiality in our everyday live and that emphasize the need for close examination of the interactions between things and people on a micro-level. There is an increasing need to empirically look at the ways in which things are situationally used and operated. It is claimed that we need to look at the socio-cultural context of the usage of things. But the factual role that a thing has and the meaning it receives can only be revealed with regard to the way it is handled and used: The meaning of a thing is not fixed, it may change depending on the context and the social situation (cf. Hahn, 2005, 2015; Korff, 2005). This is where my research on things in elderly care is located.

The aspect of the compression of private space is of special importance in my own research on the material arrangements of nursing homes seen as total institutions in the sense of Goffman: The less space there is available to live in, the more important it is how this living space is actually filled. If we take into account Goffman's dictum of the "identity-kit" (1961: 27)[10] and especially the severe consequences if one looses the control over her/his personal belongings, this means that we have to look at how the compressed private space is filled with personal or institutional things. This perspective is informed by a relational approach to material objects and to space which is informed by Goffman (cf. 1959, 1974), who repeatedly spoke about how places are created through the placement of people and things, the latter of course being placed by people. Through that placement, places maintain a symbolic effectiveness that extends beyond their physical here and now. This idea also points to the way things are understood here–as products of social interaction. Besides the possibility of a symbolic reference that goes beyond a given situation in which a material object is used or referred to, this also means that its symbolic meaning is not fixed but has to be constantly re-produced. This is also one reason for the variety of interpretations, as things can be and are used in different situations and settings differently by people with quite different backgrounds. Yet, I would still assert that there are certain symbolic properties of material objects that are in a way fixed, at least to one person and at least for a certain period of time. This means that things may be used to reproduce certain ideas about a person. Here I refer to Goffman's term of the "identity kit" (1961: 27): For Goffman, certain things might serve as equipment for one's identity. If one loses the right to own property, this might lead to something which Goffman calls the loss of one's status as a civilian (cf. Goffman, 1961: 24) or the "passage from civilian to patient status" (Goffman, 1961: 127). The loss of ones identity kit is especially precarious in a situation in which the private and public is blurred through certain spatial and material arrangements–as is the case in many nursing homes.

This brings us back to the concept of the total institution. According to Goffman, the dispossession of personal belongings is another characteristic of a total institution: through the deprivation of personal possessions the member of a total institution loses "control over the guise in which he appears

[8]Martin puts a special emphasis on the role of the staff in old people's homes (OHP): "Guided by administrators and the facility's philosophy, routines, social relations, and cultural ideology, I saw OPH staff socially constructing residents' bodies through talk and practice (Bordo, 1993). They enacted a conception of bodies–as strong or weak, able or disabled, touchable or untouchable, clean or dirty, fair or foul smelling–in ways that shaped residents' perceptions, experiences, and feelings. [. . . ] Often residents cannot control their own bodies relative to place, time, activity, or function. For example, they cannot go for a stroll at will, make a cup of tea at 2 a.m., or walk the dog at sunrise, as they could 'at home.' Some cannot move from their beds or use the toilet without help from staff. They are subjected to the power and discipline of a formal organization that manages their use of space, social relations, behavior, and bodily functions" (Martin, 2002: 867).

[9]Within health care work instrumental perspectives on materialities dominate; for example, research on the functionality and the safety and well-being of patients (cf. Pearson et al., 2001; Petzäll et al., 2001; Barnes, 2006; Dijkstra et al., 2006; Boldy et al., 2007) or research on the design of care environments, especially in dementia care (cf. Day et al., 2000; Falk et al., 2009; Topo and Kotilainen, 2009). From the point of view of practice, objects play a key role in different issues in the treatment and care of elderly people, especially those who suffer from dementia. All in all, the discussion about how things and devices are involved in the care and in the lives of elderly people tends to be critical, if not evaluative (cf. Dominguez-Rue and Nierling, 2016). The fact that there are hardly any or at least not enough studies on the effectiveness of objects and technological devices in care for old people has been criticized (Gibson et al., 2016). The involvement of objects in care work has recently become more relevant (cf. Artner and Atzl, 2016; Artner et al., 2017; Böhringer et al., 2017).

[10]Goffman defines this as the following: "One set of the individual's possessions has a special relation to self. The individual ordinarily expects to exert some control over the guise in which he appears before others. For this he needs cosmetic and clothing supplies, tools for applying, arranging, and repairing them, and an accessible, secure place to store these supplies and tools–in short, the individual will need an 'identity kit' for the management of his personal front." (1961: 27).

before others (…), thus suffering a personal defacement" (Goffman, 1961: 20). However, in a nursing home, the resident clearly has much-advanced rights to own property. But, as shown in recent studies (cf. Depner, 2015), in practice elderly people moving to a nursing home have to and do (or want to) in fact leave the vast majority of their personal belongings behind. The compression of private space goes along with the decrease in personal belongings, in the things people own and can identify with. Furthermore, there is a tendency not only to uniformly design the interiors of resident's private rooms, but to homogenize caring practices and the means to accomplish them (Andrews et al., 2005, p. 111).

As I now want to demonstrate with regard to my own research, in nursing homes we not only find fewer personal things; we also find that the compressed private spaces of the residents are somehow permeated by the things of the institution of a nursing home–things that make an institution and that somehow institutionalize the residents within it. When living under the conditions of a (moderate) total institutions like a nursing home for elderly people, the relationship between oneself and one's things changes. By adopting Goffman's ideas on the constitution of the self in total institutions I will discuss how this affects residents of nursing homes already on the level of the materialities of their everyday life. By looking at its material and spatial arrangements, we can draw a much more accurate figure on the functioning of a nursing home as a (moderate) total institution than the literature on nursing homes provides so far.

## EMPIRICAL EXAMPLES OF THE ROLE OF NURSING THINGS IN CARE FOR ELDERLY PEOPLE

### Research Design

Between 2014 and 2016 I conducted ethnographic research a nursing homes for elderly people in Germany.[11] An examination of the micro-level of nursing interactions between people and things through mainly participant observation,[12] this study focused on the role that things can have in nursing practice. I was interested in how things help (or hinder) the creation of the socially shared realities, self-evident truths and interpretational schemes which influence the field of care for elderly people. My inductive research project mainly examined the question of how things are used to produce and reproduce not just social order in the form of powerful social relationships, but also notions of normality (including those which influence normative discourses). This is why I looked beyond specific situational uses of material objects within interactions and drew conclusions about general everyday workflows, relationships and moral concepts of care in practice. In addition to the participant observations, I analyzed instruction manuals and textbooks, and carried out semi-structured narrative interviews with nursing staff. In this paper I will primarily introduce situational photographs of inpatient care settings to demonstrate my argument. What the figures illustrate will be discussed with regard to my ethnographic data (mainly participant observations and interviews).

### Object-Based Compression of Private Space

The first finding about the effect of the material and spatial arrangements in a nursing home for elderly people refers to the blurring of boundaries between the private and the public. Through the placement of things there is not only a compression of private spaces for residents but it also reduces their possibilities of constructing their selves through their very own "identity kit" (Goffman, 1961, p. 21). Let me first demonstrate this with a figure of a resident's room in one of the nursing homes in which I conducted my research.

In **Figure 1** we see a private room, in which we find personal belongings of the resident as well as things that are provided and owned by the nursing home. We see personal things, such as figures on the wall or the photographs in the back, the dolls on the couch or the little figurine of an angel, the paper star hanging from the ceiling or two clocks. Some furniture, like the couch, the TV stand, the floor lamp and the bed table, also belong to the resident. The two jackets on the couch are two visitors' (the resident's son and grandson). Besides that, we also see many things that belong to the nursing home, for example the bed, which had to be the same model in all residents' private rooms: a special electronic nursing bed. We see also some things which are more clearly related to nursing: among other things we see a feeding cup, a bottle holder for an intravenous pole, a disposable incontinence sheet on the bed or an emergency bell next to it.

Looking at the arrangement of material objects in this room, we see a hybrid between a private space and a space of nursing or the nursing home, with things used or organized by nursing staff.

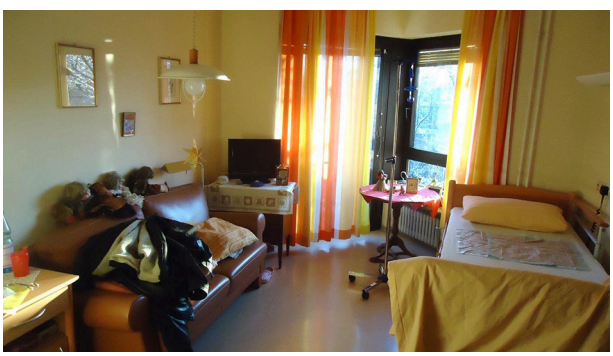

**FIGURE 1 |** Private room of a resident of a nursing home, taken by Artner 2015.

[11]This research was mainly part of the project called "Care and Things", as mentioned in footnote 2.

[12]Many studies focusing on the question whether a nursing home for the elderly is in fact a total institution rest upon surveys (interviews) and only few on other observational (ethnographic) methods which focus on face-to-face interactions of the participants involved [with exception by i.a. Martin (2002) on aesthetic and bodily experiences, Koch-Straube (2003) on everyday life, or Hujala and Rassinen (2011) on organizational asthetics and materialities of management]. In some studies this caused methodological problems, as i.a. most of the residents interviewed showed a tendency to be overly optimistic and were reluctant to express criticism (Clark and Bowling, 1990: 1205; cf. Peace et al., 1979).

Here, the compression of private space as discussed by Goffman becomes apparent: this is a room where residents sleep, watch television, relax but where also their personal care, therapeutic or medical treatments take place. Furthermore, even the personal belongings of the residents that we see here can only to a very limited extent be conceptualized as part of a household, as an autonomously and managed site of civic privacy and self-determination (Goffman, 1961, p. 17ff.) as they are arranged and managed by the staff, especially the cleaning staff on a daily basis. This affects the status of the personal things as they are made part of the institution by formal procedures, e.g., the cleaning and washing routines: resident's cloths are tagged with a name badge, there are fixed times when clothes are to be washed, and it is usually the nurses or the cleaning staff that decide this.

This, however, as my observations showed, impacted the residents in certain ways, as the protection of personal belongings became of importance. Some residents for example developed strategies of hiding cloths from nurses and cleaning staff as they themselves wanted to decide when a t-shirt has to be perceived as dirty and when not. The staff on the other hand then waited and seized those moments when they could remove the T-shirt they deemed as being in need of cleaning without the resident noticing it. In a similar vein, there were cases in which nurses were not allowed to touch assistive appliances like a wheelchair. These requests were accommodated but explained to me as very "stubborn" behavior. Another example that points to the importance of managing one's own room or at least the personal belongings in it could be a resident who presented himself as more physically fit than others: he invited me to his private room to show me his impressive collection of tin soldiers. While he showed me around in his room he very proudly talked about how he managed the cleanliness of his room almost autonomously and that he even made his own bed.

## Secondary Adjustment Through Things

When looking at the micro-level of social interaction we find many more strategic usages and negotiation processes involved. For example, there were strategies by the residents to subvert things that were used for nursing, respectively owned by the nursing home: for example, when residents removed the disposable incontinence sheet from the bed or when they took the remote control of the nursing bed. These moves were often prevented by the nurses who tried to demonstrate to them that these things were not to be touched or handled by residents but by the staff only. Another kind of subversive usage of things was the throwing away of things: it did occur quite regularly that residents pushed down their plastic feeding cups from the table in the dining room. Staff explained this behavior as a sort of "playing" with the feeding cups, thereby trivializing these actions of the residents. Yet, they did not mention the reasons for this play and why it happens so often, or if maybe this play was a mode to express discomfort or protest. A third way to subversively use things is by not using or ignoring them– or by excessively employing them: the emergency call system which connected the emergency bells (i.a. in the private rooms) with the cordless telephones every staff member carried with themselves serves as a good example here. This system was used by some residents excessively whereas other residents almost always ignored the emergency bells and would rather loudly call for nursing staff to come to them. Whereas, excessive emergency calls were not sanctioned, residents who disused the emergency bell were rebuked.

Be it pride over one's possessions, the tactic to withhold things (like clothes) or to take-over things meant to be used by nursing staff, or be it to excessively overuse, ignore or misuse things (e.g., throwing away feeding cups), whatever the case may be, all these incidents exemplify what Goffman termed "secondary adjustment" in total institutions: "In every social establishment participants use available artifacts in a manner and for an end not officially intended, thereby modifying the conditions of life programmed for these individuals. A physical reworking of the artifact may be involved, or merely an illegitimate context of use [. . . ]. While this transformation process underlies many complex practices, it can be most clearly seen where the practitioner is not involved with others (except in learning and teaching the technique), he alone consuming what he just produced." (Goffman, 1961, p. 207f.) Practices of secondary adjustments are important for the (re-)establishment of a sense of self in light of the continuous mortification of the self in a total institution. As this mortification takes place through dispossessions of personal belongings, secondary adjustment also means to keep or regain certain material objects like "small, illicit, talisman-like possessions that inmates use as symbolic devices for separating themselves from the position they are supposed to be in" (Goffman, 1961: 307). But the reaction of the staff to these not officially intended ways of applying things also shows how their interpretation of the negotiation process they had with residents about the placement and usage of things eventually approved their status in having the last word over those very things. The subversive actions of the residents were conceded to them by the staff. A limited acceptance of these kinds of insurgent behavior is an important part of what Goffman had in mind with his concept of secondary adjustment in total institutions.

## Material and Spatial Institutionalization of an Elderly Self

A third finding points to different ways in which the institutionalization of the resident's self is achieved through specific ways of placing (institutional) things. To illuminate this, let us take a closer look at the second part of a private room, the bathroom, which in this case is shared by two residents.

In this bathroom we see only few personal things. In **Figure 3** we see some personal hygiene products owned by the two residents that share this bathroom which are arranged on top of or besides the lavatory: A shampoo and a body wash bottle, two canned crèmes, two perfumes and a deodorant, a soap in small plastic container, a nail brush as well as two toothbrushes, toothpaste and two bottles of mouthwash. These are used by two different persons living in the nursing home who share this space of intimacy. All the other things in the bathroom that we see in **Figures 2**, **3** (which shows a broader part of the bathroom) are provided and owned by the nursing home and for the most part only used by nurses. Even terrycloth or disposable washcloths,

**FIGURE 2 |** A shared private bathroom of two residents, taken by Artner 2015.

**FIGURE 3 |** A shared private bathroom of two residents, taken by Artner 2015.

which we can only see suggestively here on the shelf, were mostly used by nurses who often gave them to residents while they helped them to wash themselves. In many other bathrooms I saw a very similar figure. Nursing things were omnipresent: almost everywhere, I saw disposable gloves or disposable washing cloths and other things which were only or mostly operated by nurses– such as the small washbasins we see here; these were if at all handed to residents and cleaned after use by the nurses.

What does this omnipresence tell us? Let us, for instance, have a closer look at the disposable gloves. In this respective nursing home these were available to nurses in different sizes in every private room, mostly but not only in the bathrooms. These gloves were only used by nurses; no "misuse" by residents was reported. Residents did not claim these as something they operated with; they were not perceived as being part of their belongings even though they were part of their private rooms. Moreover, the gloves we see here are the property of the nursing home and somehow of the residents' rooms, but not of the residents themselves. The residents have the gloves in their private rooms or bathrooms but do not own them, the nursing home does. The staff seem to trust the residents not to "misuse" them.

The usage of gloves by nurses, for example when they helped residents with their personal hygiene, was not brought up, not spoken about, during these interactions. Their usage happened en passant, somehow naturally. Disposable gloves were not only used in most of the nursing processes I observed, it was mostly the first thing that nurses put on and the last thing they pulled off, when the interaction with a respective resident ended.

Disposable gloves can be described as a basic nursing thing or as being "insignia of nursing," as Koch-Straube called it (2003, p. 209, translation by the author). These are things which are especially designed for nursing and the usage of which is to be primarily controlled by nursing staff. Besides disposable gloves, these things can be disposable incontinence sheets, lifter technologies, toilet chairs, disposable washcloths, medical ventilators and so on (Kollewe et al., 2017, p. 30, cf. Depner and Kollewe, 2017). Some of these things can be seen in the figures above. As already mentioned, their deployment was mostly conducted or at least supervised by nursing staff.

They help to create a situation, such as helping a resident to shower or go to the toilet as a nursing situation. From all interactions in the bathing rooms observed, the nurses were the ones that gave instructions on what residents had to do and how they had to do it. In many cases, this happened non-verbally, mainly by handing over things like standardized cotton washing cloths which were provided by the nursing home. Especially in bathing situations, in which most residents depended on the help of the nurses, and in which the utilization of standardized things was highly common, there were almost no negotiations taking place about how things should be used.

However, these things also shape the nursing home as an institution: These were standardized things, validated by the German statutory health insurance's medical technical aids register (in German: Hilfsmittelverzeichnis der Gesetzlichen Krankenversicherungen) and in general provided by the nursing home management. There is rarely the chance for staff and even less for residents to participate in the decision-process for or against a specific product. Even though used on a daily basis by and for residents, the way these things were acquired did not necessarily resonate with the need of the residents. In a similar vein, (Hujala and Rassinen, 2011, p. 443) discovered that "operational decision-making about purchasing equipment that makes daily care work easier also seems to ignore the end users."

As a result, the omnipresence of these nursing things in the private rooms and the bathrooms of the residents marks these rooms and their inhabitants as part of an *institutional nursing arrangement*: the private rooms, including the bathrooms, are

not only private places for the residents to live but also places where nurses work, where the nursing home's staff organize nursing and care work. It is an institutionalized private room, institutionalized through these particular material and spatial arrangements, as especially obvious with regard to the photographs I showed as examples. In the following, I want to conclude on my perspective on the material and spatial arrangements of these processes of institutionalization.

## CONCLUSION

In the last part I want to reflect on the question how a perspective on the material and spatial arrangements of a nursing home can contribute to the literature on nursing homes for elderly people as total institutions. Goffman argues that social interaction is a kind of theatrical performance (1959: preface). With regard to this we can assert that the private room in a nursing home which we have seen in this article is the front stage, while the bathroom resembles more a backstage area. Not everybody enters the bathroom. By way of contrast, the private room is staged, as if it is meant to tell us something about its inhabitant: someone who enjoys paintings, who likes decorative elements, such as puppets or angel figurines. Most of us would guess that this particular resident is a woman, which in this case is correct. So these things also help with doing gender. However, the distinction between front and backstage is also blurred–by things: we see some institutionalized nursing things in the private room of the resident as well as the bathroom. Thus, the presentation of the resident's self is also a self that lives in a nursing context, that receives and/or is in need of care, of support. Yet this is a person that is not able or allowed to use certain things, such as disposable gloves. Things which are not owned or appropriated by them, which are used and controlled by others, by the staff of the nursing home.

Looking at another premise of Goffman's work, which is central to his conceptualization of a total institution, the institutionalizing effect of material objects becomes apparent: Everyday things which are needed for one's "identity kit" (Goffman, 1961, p. 27)–like clothes–are only available to a limited extent for a self-determined presentation of one's self. What we see is a certain kind of heteronomy which is mediated by the material and spatial arrangements of the nursing home: By taking a closer look at things and how they are arranged and used, we can reconstruct how the residents of a nursing home are subjected to the procedures and objectives of the institution. The material and spatial arrangements we saw point to certain kinds of ways of subjugation, in which a nursing home as a (moderate) total institution brings their residents to submit themselves to it. This leads to the residents of a nursing home themselves being created as a somehow institutionalized self. Applying a material studies perspective on Goffman's idea of a total institution demonstrates how things make for an institution as they help to adjust its members to its very functioning.

Coming back to my initial questions: Do things matter? And why should we even care about things? As we saw with regard to the way things are spatially arranged and used in the private rooms of residents of a nursing home in Germany, things do indeed matter. In this example, they matter by helping to create a "totalizing" environment. I would like to conclude by claiming that we should indeed care about things, as there are some effects that might be unintended and often overseen. Pointing to the way things can matter–be it positive or not–is of crucial importance, especially in the case of people living in nursing homes.

How this takes shape in the longer term should be subject to future research. In the light of an aging society (at least in Germany, where my research took place) and the increase in age-related forms of dementia which will lead to further cases of inpatient long-term care, future studies should take a more systematic look at the correlations between things and the construction of the self over a longer period of time. Part of this long-term research should be (1) to debug the advantages and limitations of researching how the presentation of the self can be mediated by things especially in the case of dementia and (2) to illuminate subversive strategies by residents to resist subjugating practices mediated by things. This means, future research should take a closer look at how people escape the material and spatial arrangements of a (moderate) total institution.

## AUTHOR CONTRIBUTIONS

The author confirms being the sole contributor of this work and has approved it for publication.

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BOOK REVIEW
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# Book Review: Alter(n) als Soziale und Kulturelle Praxis. Ordnungen – Beziehungen – Materialitäten

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**Keywords: book review, doing age, ethnography, culture studies, material culture studies**

**A Book Review on**

**Alter(n) als Soziale und Kulturelle Praxis. Ordnungen – Beziehungen – Materialitäten**

Cordula Endter and Sabine Kienitz (Bielefeld: Transcript), 2017, 368 pages.

Aging studies have made their praxeological turn. In the recently published anthology titled "*Aging as Social and Cultural Praxis. Orders – Relationships – Materiality*" aging is not analyzed as a biological process associated with deteriorating health, but rather as a social practice. This comprehensive volume, edited by Cordula Endter and Sabine Kienitz, theoretically grasped aging as shaped by, and performed within, a social and cultural order and as being interwoven within human and non-human (as things or architecture) relationships. Therewith, the scope of the book is to theoretically and empirically grasp, how humans and non-humans age. Thereby, this is identified as a question of *doing age*.

This volume emerged from an interdisciplinary conference held at the *Institute of Ethnology and Cultural Anthropology* at the University of Hamburg in 2015. The 22 esteemed authors provide perspectives on disciplines including ethnology, sociology of aging, cultural studies, discourse studies, historiography and gerontology. This volume is subdivided into three thematic subsections: aging with respect to orders, as a matter of relationships, and the material side of aging. The contributions of each subsection reflect perspectives of the different disciplines in order to present aging as multilayered and complex.

Such social-constructivist alignments of *doing age* correspond well with the series titled *Aging Studies,* published by *transcript*. However, unlike the series, the articles of this present anthology are primarily published in German. Notable exceptions include Amy Clotworthy, Kamilla Nortoft and Tiina Suopajärvi, all conducting ethnographical studies in Scandinavian countries, which are printed in English. While the first two researchers grapple with changing relationships in care contexts, the third raises questions on safety, accessibility, unpleasant places and changing sensory experiences in urban environments using an *ethnographic walks approach*. While this choice of German language might be convenient for the authors, it surely gets in the way of international recognition, which the volume definitely deserves.

Taking a closer look into the first subsection, *doing age* is portrayed as framed and directed by orders: Political institutionalizations such as retirement regulations and the reorganization and dismantling of the social state, are comprised of being productive, but less as determining the *doing age*. These factors are seen as interwoven with the hegemonic ideal of *successful aging* and its call for active self-management. For example Silke van Dyk and Tina Denninger focus on the practices related to the neoliberal discourses of activation and responsibilisation. Within a sociological perspective, these two authors deduce the feminization of old-age poverty. Equally the article by Irene Götz, Esther Gajek, Alexandra Rau und Petra Schweiger takes a feminist perspective

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on precarity in old age, by grasping the aging body as object of pejorative inscriptions. In turn the articles by Rebecca Niederhauser and Anna Richter address the ambivalence of derogatory inscriptions of old age, the failing recognition of the elderly's biographical achievements and in turn on a self-perception, which resists such categorizations. Moreover, an interesting and well written article is penned by Gerrit Herlyn, who examines *doing biography* in the setting of early Punk and Gothic subcultural affinities. Eventually, as a logical deduction of this subsection, the article of Harm Peer Zimmermann pleads for a de-thematization of aging: He suggests disempowering aging by referring to influential texts of the French philosophers Sartre, de Beauvoir and Améry.

The second subsection follows the footsteps of Bruno Latour and Julia Twigg. The authors here choose ethnographic methodologies to analyze the relationship changes caused by increasing physical and psychological vulnerability. For this purpose, they examined everyday life practice, lifestyles, and biographical projects. By referring to the hegemonic *anti-aging ideal*, Larissa Pfaller and Mark Schweda thematise the increasing bio-medicalization of, and responsibilisation for, age and aging. They exemplify not just the effects but also the margins for maneuver that the elderly develop in day to day practices and narrations. Furthermore in this subsection, Barbara Ratzenböck conducts *ethnographic walking interviews to* explore the media practices of older women. She identifies in which way media practices are gendered and shaped by class and cultural contexts.

Finally, in the last subsection the material side of aging is addressed. Five unique articles outline dialectic dynamics between things and humans in the aging process by asking questions as: How people age by applying things, e.g., wearing clothing? How things become relevant in aging processes? For instance Esther Gajek centers on the body as a space of social and cultural inscriptions. Based on the results of a student project, she reconstructs age-related motivations and gendered do-nots in dressing habits. Anamaria Depner and Carolin Kollewe, both following the material culture study, observe the effects of everyday objects, such as handbags in dementia care and Ambient Assisted Living (AAL) Technologies in in-house care settings. Last but not least, the editors of the anthology outline the complex interrelationship of aging and materiality by focusing on three factors: (1) the processes artifacts undergo whilst aging, using the example of plastics, (2) how clothing define the age of humans, due to the outdating of styles, and (3) how aging and its ideals change due to artifacts: AAL is shown to empower people with disabilities to live autonomously and independently but therewith those practices using AAL stabilize the ideals of such a *successful aging*.

In conclusion, this volume maps perfectly the topics that the European *cultural aging studies* are currently involved in. The overall underlying concept of age as *doing age* is highly convincing. Most authors committed to using an ethnographic methodology. However, some articles—such as that by Maria Keil on the cultural history of the nursing bed or that one by Anna Symanczyk on sound design for an older target group—offer a refreshing change by using a historiographic approach as well as media science typologies. The editors did well by selecting articles which reflect the interrelationship of discourses, performativity's and materiality's. This absolutely recommendable volume turns out well in opposition to that neoliberal project of responsibilisation for *successful aging*, while this same political project has pauperized old age through the reduction of fiscal expenditure.

## AUTHOR CONTRIBUTIONS

The author confirms being the sole contributor of this work and approved it for publication.

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