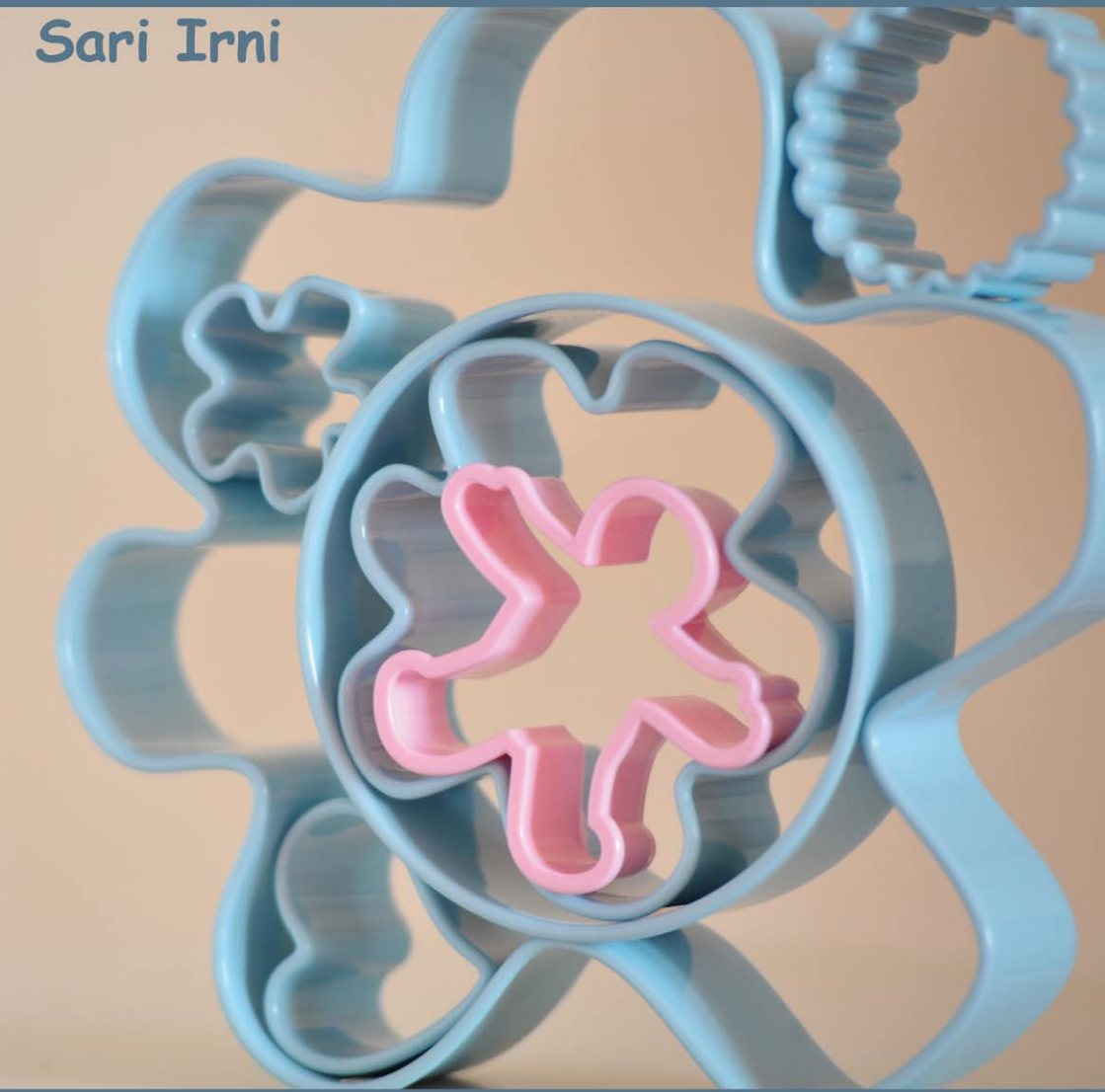
Ageing Apparatuses at Work

Transdisciplinary negotiations of sex, age and materiality

Sari Irni



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Sari Irni
In Turku, April 2010

①

Starting points

1.1 The problematisation of the ageing worker

'What is the matter with you?' is a nagging question, frequently asked in this study in relation to the figure of the ageing worker. This figure involves body-matter, categorisation, governmental power, media texts, gendered meanings, and national concern. Ageing populations have been on the agendas of the Organisation for Economic Cooperation and Development (OECD), the World Bank, the International Monetary Fund (IMF), and the European Union (EU) since the late 1980s; and from the 1990s, it has been argued that this demographic change is one of the central challenges for European social policy (Julkunen & Pärnänen 2005, 20). In Finland, in the beginning of the twenty-first century, there is also a concern about the ageing of the baby-boomer generation.[1] This concern has invoked the initiation of several governmental programmes, for

[1] Several ways exist to postulate the idea of the ageing of population in Finland. These include counting the increase of absolute numbers or percentual growth of the over 65-year-old population, or the changes in the percentage of over 65-year-olds of the whole population. The commonly used Statistics Finland prognosis suggests that while in the beginning of the twentieth century five percent of the population was over 65 years of age, in 2000 the percentage was 15, and in 2030 it will increase to 26,3 percent. The total amount of over 65-year-olds will, according to the prognosis, grow from 777 200 in the year 2000 to 1 389 100 in the year 2030. Nieminen: Väestön ikääntyminen on suhteellista. Tietoaika, updated May 21, 2003. Statistics Finland.
http://www.stat.fi/tup/tietoaika/tilaajat/ta_05_03_nieminen.html (accessed Jan 26, 2010).

example, the five-year *National Programme on Ageing Workers* (1998-2002), as well as changes in the pension system (Gould & Saurama 2004, 14-19, 25-27; Julkunen & Pärnänen 2005, 33-51). The latter include restrictions to so-called 'early exit paths' from employment as well as incentives for older workers to be retained in employment. These changes culminated in the pension reform, which became effective in 2005. The purposes of these actions have been to prevent early exit from the labour market, as well as to support the employment and work ability of senior workers. The subjects hailed[2] in this governmental discourse are called 'ageing workers', and are over 45 years of age (Julkunen 2003, 15). As this study argues, in practice the ageing worker is much more than a chronological figure.

This study began as research about cultural meanings of gender and ageing in waged work. During the course of the study, the focus sharpened on the figure of the ageing worker, as well as on discussions about materiality in feminist theory. This study does not take the existence of ageing workers as a starting point, but asks how ageing is *materialised* (Butler 1993; Barad 1998; 2003; 2007). I explore the materialisation of ageing workers in practices in work organisations, in public discussion, and in the research project itself. Seeing the ageing of population as a threat has evoked critical commentaries (Fleming 1999, 5; Kangas & Nikander 1999, 10-11; Parkkinen 2005; Street & Ginn 2001), but ageing and gender in the labour market has provoked surprisingly little discussion in feminist studies. Excellent studies and collections connect ageing and gender,[3] but ageing and waged work as a gendering issue, let

[2] About how discourses 'hail' their subjects, see Althusser 1984, 129-130; Butler 1990, 2, 1993, 121; Weedon 1989, 30-31; for age studies applications of this Althusserian concept, see Katz 1996, 11; Leinonen & Rantamaa 2001, 5.

[3] Ageing and gender are connected in the literature by providing general introductions to sociologically relevant themes (e.g. Arber & Ginn eds. 1995; Arber, Davidson & Ginn eds. 2003; Bernard & al eds. 2000; Botelho & Thane eds. 2001; Calasanti & Slevin 2001; Cruikshank 2003; Garner ed. 1999; Jamieson & al eds. 1997; Kangas & Nikander eds. 1999; Rosenthal ed. 1990; Wilson 2000), including cultural studies perspectives (e.g. Furman 1997; Gullette 1997, 2004; Iltanen 2007; Pearsall ed. 1997; Vakimo 2001, 2002; Walker ed. 2000; Woodward ed. 1999), the study of care (Twigg 2000; Tedre 2004; Walker ed. 2000), encountering dying bodies (Utriainen 2000), women's health (Gannon 1999), menopause (Komesaroff & al eds. 1997; Lock 1993; Roberts 2007), pension systems (Ginn, Street & Arber

alone an issue related to sexuality, has attracted little critical attention either from the viewpoint of age studies or from the viewpoint of the study of work.[4] In addition, even though connections between poststructuralism, feminism and age studies have been envisioned (Ray 1996), and the category 'middle age' has been thrown into discussion (Shweder 1998; Gullette 1998), thus far, the challenge of ageing in relation to waged work has mostly been taken for granted. Little attention has been paid to it as an effective, and gendering, apparatus within which ageing workers are managed and materialised.

The chronological definition of the ageing worker accompanies the ageing of the baby boomer generation, who, in Finland, are those people born in 1945-50,[5] the years immediately after World War Two. The Finnish age policies add to the concern within the EU of its ageing populations. These concerns of ageing, including the reforms and governmental programmes, can be situated within the reorientation of social policy – the so-called 'slimming of the state' – that began in Finland in the 1990s (Kovalainen 2004, 203; Julkunen & Pärnänen 2005; Julkunen 2001; Eräsaari 2002a). The point of departure for the research project that I participated in when I began this study was linked to the change in social policy research and governmental policies about ageing and work (see Julkunen 2003; Julkunen & Pärnänen 2005). The Finnish age policy focus has gradually shifted from scrutinising the reasons of early retirement to what would urge and enable seniors to be retained longer in waged work. Along with the prospect of the ageing baby boomer generation, the impetus for this shift included globalisation and the severe recession of the early 1990s. These developments increased unemployment in midlife and the use of early exit paths from waged work (Gould & Saurama 2004, 14-

eds. 2001), men's ageing as gendered (Hearn 2007; Hänninen 2006) and the neglect of older women in the feminist movement and feminist theory (Browne 1998; Krekula 2003; Macdonald with Rich 2001).

[4] Exceptions include Bernard & al 1995; Bernard 1998; Julkunen 2003; Korvajärvi 1999; Koski & Tedre 2009; Kosonen 2003; Kujala 2006; McMullin & Berger 2006; Rahikainen 2002, 2005, 2007; Tretheway 2001; Wilson 2001.

[5] Also years 1945-49, 1946-49 or even 1945-55 have been proposed in the literature, but I follow Antti Karisto's interpretation (Karisto 2005, 17-21).

19, 25-27; Julkunen 2003, 15-19; Julkunen & Pärnänen 2005, 33-51; Järnefelt 2003, 8-9; Rahikainen 2005, 170). A vast amount of research has argued in favour of the new policy, and has searched for means of implementation.[6] This research, comprising studies and reports, along with government policies, has scrutinised ageing workers in order to find answers to the costs and labour shortage expected to result from population ageing.

In this policy the ageing worker has been hailed to existence in a particular way. Historically, older age has been regarded as a problem in relation to waged work (Gullette 1998). In particular, women have been treated as being too old from as early as their thirties and forties, a situation which, in Finland, has hardly changed during the past century (Rahikainen 2002). Raija Julkunen and Anna Pärnänen however, suggest that a new 'age contract' is in negotiation. This term encompasses the governmental aim to prolong working careers beyond the established retirement age and ultimately, to change the course that allows a lengthy phase of life for adults free of waged work (Julkunen & Pärnänen 2005). In this policy, ageing workers have become problematised in a fairly new way: the characteristics and conditions of ageing workers are scrutinised in order to have an effect on their behaviour and status in the labour market, but this aim also includes reconsidering older age as an advantage in the labour market.

The present study is conducted within this research policy atmosphere, and opens up, I hope, some of its age matters for rethinking. However, my

[6] The viewpoints include for example, attaining background statistics in order to describe the 'ageing workers' (Ilmarinen 1999), analysing the use of early exit paths and evaluating the effects of the pension reform (Hytti 1998, 2002; Gould & Saurama 2004, 20-24; Järnefelt 2003; Nieminen & Forma 2005; Pelkonen 2005, 53-58; Rantala 2008; Tuominen ed. 2004), pondering the effect of working conditions to employee's thoughts about early retirement and will to be retained at work (Elovainio & al 2005; Hakanen & Perhoniemi 2008; Heilmann 2008; Pelkonen 2005; Sutinen & al 2005; Tikkanen 1994), exploring whether early retirement or retaining work is a choice that an employee can make (Horppu 2007), studying images related to employees' age and older employees' assets (Airila 2007a, 2007b; Eskola 2007; Tuomola & Airila 2007; Vaahtio 2002), and visioning age management that takes into account all age groups (Juuti 2001), as well as characteristics of an age friendly work place (Airila, Kauppinen & Eskola eds. 2007; Kauppinen 2007; Kauppinen & Haavio-Mannila 2007).

personal point of departure was in poststructuralist[7] feminism, rather than in the study of ageing and gender in waged work or in an interest in age policy per se. This created an interesting effect of being in an in-between state theoretically, which has had an influence on how this study became formed. The most crucial decision, certainly affected by my background, has been the gradual move towards what I call *feminist negotiations of materiality*, rather than towards a further discussion of waged work. Since my previous study (Charpentier 2001a), I have been interested in the profound importance of meaning-making for the formation of sex and the two-sex system. In the present study I continue this line of thought, but in relation to sex and ageing. During this research process, when I became acquainted with feminist theories of materiality and especially Karen Barad's (1996, 1998, 2000, 2003, 2007) thinking, they seemed to open up possibilities for conceptualising the importance of meaning-making *and* at the same time, accounting for the bodily processes and changes that have been so definitive in signifying what ageing means.

Hence, the question of the 'matter' of ageing workers is enacted in this study in several senses. Firstly, it stands for a critique of any claims to innocently discuss ageing workers, as if merely referring to a group of employees defined by chronological age. Secondly, I utilise feminist negotiations of materiality for understanding ageing in waged work. The matter of the ageing worker is hence, first and foremost, a question of what it entails to discuss ageing and gender as materialised in the context of waged work, rather than taking for granted the policy problematisation of ageing workers, or, further, that ageing workers can be said to exist in any unproblematic way. I problematise any such taken-for-grantedness, and do not assume that the persons hailed by this category are problematic. I

[7] The term 'poststructuralist' commonly refers to a variety of theoretical positions developed, for example, by Jacques Derrida, Michel Foucault, Jacques Lacan, and Judith Butler. Poststructuralist feminism in this sense analyses the formation of subjects within language and power/knowledge constellations, and is critical of the idea that the meaning of words can be tied to reality beyond language (Weedon 1989, 19-26). My earlier study of the Finnish lesbian and gay marriage debate was conducted from the perspective of a poststructuralist study of religion (Charpentier 2000, 2001a, 2001b).

analyse some of the government policies that assume such a category, as well as the claims in the research material that some ageing workers are more problematic than others. In addition to an analysis of ageing workers, I also take part in the negotiations of materiality within feminist theory. I do this through the discussion of what kind of rethinking Karen Barad's (2007) agential realist approach enables in accounting for bodies as also being biological entities, and what such accounting would mean in a social science research project that also remains, so to say, devoted to poststructuralist feminist approaches (e.g. Butler 1993) that stress the importance of meaning-making in the formation of bodies.

Another formative factor of this study involves the question of what a feminist or women's studies [8] perspective consists of. These contemplations have prompted me to suggest a feminist approach to ageing that utilises the debates on intersectionality (e.g. Calasanti & Slevin eds. 2006; Carbin & Tornhill 2004; de los Reyes, Molina & Mulinari 2003a, 2003b; de los Reyes & Mulinari 2005; Lykke 2005; Yuval-Davis 2005; Krekula 2007). An intersectional approach suggests that power asymmetries, including but not limited to gender and sexuality, are also matters related to age. With the debates on intersectionality, I ponder what such a claim entails in age studies research practice. I do not, however, understand intersectionality here in the usual way, that is, as an analysis of the intertwining of age and gender per se, or a gender sensitive reading of ageing. Instead, I take part in the feminist debates on the meaningfulness and the practical applicability of intersectionality. I propose an intersectional methodology that attempts more modestly, rather than to study all power asymmetries that are relevant in a

[8] I use the terms feminist studies and women's studies as synonyms. These terms refer to the complex of critical analysis of gender and sexuality, in which I also include the profeminist study of men and masculinities, and queerfeminist studies. This complex began to be institutionalised as a separate discipline called women's studies in Finnish universities during the 1980s, but only since the twenty-first century has it become possible to complete a doctoral degree in women's studies. This discipline in Finland is currently in the process of changing its name to gender studies. Both in the University of Jyväskylä, where I started this study, and also at my present affiliation Åbo Akademi, women's studies is situated within the Department of Social Sciences.

particular context (which is an impossible task), to refrain from invoking other power asymmetries when conceptualising affirmative later life or midlife. This approach suggests one answer to the dispute about how the compulsion to choose particular differences for analysis would not lead to problematically 'not choosing' (Carbin & Tornhill 2004, 113) some other relevant differences.

In the following subchapters of *Starting points*, I explain my research questions and materials, discuss the ethical issues that pertain to this study, and introduce the structure of the study.

1.2 Research questions

This study explores the ageing worker empirically from several viewpoints. I discuss ageing both from a working life course perspective and from a perspective that centres on work organisations. The third aspect is ageing in and around the labour market. This includes an analysis of how ageing and work is mediated (Blaagaard 2009) in the most broadly distributed Finnish newspaper and in the publicity of Finnish age policy. I understand the ageing worker as *materialised* within particular apparatuses (Barad 2007), rather than her or him being merely a human entity, an individual that is able or willing to take part in waged work. Of the apparatuses within which the ageing worker materialises, this study focuses mainly on gendering practices in work organisations, and to a lesser extent[9] on the research practices, the normalising power of sexuality that moulds working life courses, and racialised practices that partly define the contours of the discussion of the ageing population. My first research question is formulated in two parts, as follows:

[9] This means that they are discussed in one article each, instead of in several articles.

1 a) How is the ageing worker gendered? 1 b) In which ways are gender and its intertwining with other differences significant for the question of ageing in and around the labour market?

This two-part question is formulated broadly in order to explore different aspects of power that are significant for the question of ageing population, and especially, of ageing 'at work', in both senses of the term. It is important for this analysis to pay attention to the forms of power within which particular distinctions are made, which in the first place enable a certain entity, an ageing worker, to be perceived. The distinctions raised here include an analysis of the practices in work organisations within which a particular kind of gendered, emotional ageing worker materialises. I argue that this ageing female analysed in two articles is neither a stereotype, but neither is she a 'real woman', in the sense that this phenomenon would be restricted to the contours of an individual woman employee. Another distinction is made between 'Finnish' people, workers, and ageing people in contrast to migrants. I also explore the ageing worker from the viewpoint of how ageing is attempted to be resignified as positive, as an asset in the labour market.

During the last decades, within age studies, one of the crucial issues has been the questioning of the equation of ageing and a one-way biological process of deterioration. This has been an important project that has enabled multi-faceted research on ageing in different contexts. The powerful discourse of decline has been resisted, mostly because it risks stabilising the social meanings of ageing as negative (Andrews 1999, 309-311; Gullette 1997, 3-6; Vakimo 2001, 41). I suggest that even though age studies witness a move away from the all-encompassing importance of biology (e.g. Bytheway 2000; Bytheway & Johnson 1998; Cruikshank 2003; Gullette 1997, 2004; Maierhofer 2008; Nikander 2002; Nilsson 2008; Vakimo 2001; Woodward ed. 1999), this move is done by acknowledging the existence and importance – in the sense of un-deniability – of biological aspects of ageing. Even the most determined critics of taking old age or ageing for granted do not forget to state that, despite the cultural constructions, ageing involves real, biological, bodily aspects (all the

translations from Finnish and Swedish in this study are mine, if not otherwise stated):

'Nonetheless, our aging bodies matter greatly. No matter how clearly we understand the complex and interconnecting forces of social aging, we age in our individual bodies.' (Cruikshank 2003, ix.)

'But aging forces us to engage with physiology, not least because of the ultimate undeniability of death. Like pain it forces the reality of the body on to the analytic stage.' (Twigg 2004, 63.)

'The biological ageing of an individual is an automatic and continuous process; the social and cultural meanings given to it, instead, are negotiated in every-day interaction.' (Vakimo 2001, 37.)

'Old age has material dimensions, the consequences of actors both social and biological: bodies *do* age, even if at variable rates, just as groups categorize and apportion resources accordingly. (…) We need to consider the social construction of old age in conjunction with the aging of bodies (which, in a vexing irony, we understand only through social constructions).' (Calasanti & King 2005, 6, emphasis in original.)

'As Margaret Morganroth Gullette has astutely put it in *Declining to Decline: Cultural Combat and the Politics of the Midlife*, we are 'aged by culture' as surely as our bodies experience biological change and, she argues, more so.' (Woodward 1999, x, emphasis in original.)

'No matter how committed one is to the social constructionist approach, there comes a point when one has to face the reality in front of one's eyes and, indeed, the reality of the condition of one's much-used body.' (Bytheway 1995, 125.)

Although in age studies the critical rhetoric keeps the discourse of decline at arm's length, biological aspects of ageing are not questioned in a similar way to the debate that has proliferated in women's studies (see however, Gullette 1997, 3; 1998, 4-5; 2004).[10] Here I refer to the utilisation

[10] Gullette's formulation is one of the very few radical questionings of the importance of the biological in ageing; it is more radical than Woodward's more cautious reference in the above example, in which she includes the comment 'as surely as our bodies experience biological change'.

in women's studies of, for example, Judith Butler's (1990, 1993) and Elizabeth Grosz's (1994) work to give a primary status to culture in analysis, because, as the argument goes, matter is always already intertwined with meaning-making, and hence, the talk of biological bodies as such is not necessary or even possible. These developments have recently raised a range of critical comments, which form a body of work that has been termed 'new materialism' (e.g. Barad 1998, 2003, 2007; Birke & al 2004; Braidotti 2006; Davis, N 2009; Grosz 2005, Hird 2004a; Kontturi & Tiainen 2004; Parikka & Tiainen 2006; Tuin 2008a, 2008b; Valentine 2008). The concept of 'materialisation' (Butler 1993; Barad 1998), which is utilised and discussed in this study, is one of the central nodes in these discussions. Within age studies a parallel discussion, which at times converges (see Kontos 1999) with what I call feminist negotiations of materiality, proposes concepts such as biosociality (Katz 2008; see also Rabinow 1996), local biologies (Lock 1993; Kontos 1999), and cyborgs (Joyce & Mamo 2006; Siren 2002, 2003; see also Haraway 1991) which are brought to analyse the intertwining of biology, cultural meanings and technologies in the context of ageing (Katz & Marshall 2004; Kontos 1999; see also Bytheway & Johnson 1998; Gilleard & Higgs 2000; Iltanen & Topo 2007; Katz & Marshall 2003; Topo 2007).[11]

My study is situated on the verge of feminist studies and age studies, and I suggest that these differences in focusing on biological aspects of gender and ageing can be productive. The resistance of the 'denial' of biology in age studies especially alludes to that the notion of materialisation might not be as self-evidently productive in relation to older women (Kontos 1999) as it is for the women who have not lived long enough to recognise the difference of age in oneself, especially in the sense of being positioned by others as old.[12] Growing old is peculiar in

[11] See also Marja Jylhä's discussion about gerontology as a transdisciplinary field (Jylhä 2005). She speaks for perspectives that account for the historically specific and situated nature of ageing, including the exploration of meanings attached to ageing, and how also in the case of ageing 'the personal is political and the biological is social' (ibid 76). I understand my study to be one answer to such call.

[12] For an analysis of what such positioning can mean for women, see e.g. Kangas 1998.

comparison to some other forms of differentiation in that bodies change across time, and every-body comes to notice the difference, not only in others, but in oneself, if one lives long enough (Andrews 1999, 302-303). As Kylie Valentine notes when she evaluates one of the central books in the new materialist corpus of research (Braidotti 2006), not only this book but 'almost all similar books' move within 'a relatively narrow range of age and embodiment; or at least subjectivities outside this range are not seriously considered' (Valentine 2008, 363).[13] My second research question is inspired by these encountering points of feminist and age studies, and it involves discussing what it would mean to study materialisation in the context of gender and ageing in waged work. What does it mean to say that an ageing worker materialises, rather than assuming that the term refers to an individual of a certain chronological age? For the purposes of this study I understand that this entails the following three-aspect question, which I contemplate primarily from the perspective of ageing in work organisations, hence my second research question is as follows:

2) How can ageing be studied in work organisations by taking into account, first, material realities of ageing in the form of biological aspects of ageing, second, the realities of meaning making, and third, the gendering practices in work organisations that have all shaped what, in early twenty-first century Finland, is conceptualised and experienced as 'ageing'?

In the course of this critical approach, I have chosen to utilise Karen Barad's *agential realism* (Barad 1996, 1998, 2003, 2007) as my methodological starting point and interlocutor, for several reasons. First, she is one of the prominent discussants of the concept of 'materialisation', which is especially known from Judith Butler's (1993) work, and which has become extremely popular within feminist studies in social sciences and humanities. Within the new materialist corpus of research, Butler's term

[13] Similar critique has been posed against Donna Haraway, see Vincent 2003, 179. When I read the new materialist celebrations of 'the new' and 'the positive' and 'the unexpected' that this framework enables (for a clear formulation of these assets of this approach, see e.g. Parikka & Tiainen 2006), it seems clear to me that the new and unexpected is implicitly visioned to be something else than 'old age' – despite that ageing could obviously be seen as part of the process in which the bodily matter creates new and unexpected changes.

has, however, encountered severe criticism (Barad 1998, 90-93, 105-109; Davis, N 2009, 77-78). The second reason that I have chosen to develop Barad's agential realism is because reading her critique as part of the feminist negotiations of materiality enables a rethinking of what is at stake in these discussions: in whose terms, and what is considered 'material', when arguments are made. In particular, I discuss the arguments that Butler's concept of materialisation is 'limited' in that it accounts only for 'the construction of the surface of the human body' (Barad 1998, 107), and that 'ultimately the biological body is not the body that matters for Butler', which seems to result in that she 'shifts the division between nature and culture but does not dispense with it' (Davis, N 2009, 77). My interest in discussing this critique lies primarily in the implicit work of disciplinary boundaries and the effects of transdisciplinarity in the feminist negotiations of materiality, not in Butler's argument or in the aptness of these criticisms per se.

Barad's engagement with the notion of materialisation is not only a critique, but a development in order to be able to discuss how 'matter matters' (Barad 1998, 105-106). Her approach enables thinking through that which is conventionally termed 'ageing bodies'. My third research question is related to developing Barad's agential realist approach for utilisation in the study of ageing 'at work', again in the two senses of this term. This is a project that critically assumes the importance of also taking biological aspects into account in social science research. Rather than a method or a technique that can be merely applied, this is however, a discussion of the issues that I argue are important to consider, should one attempt to account for biological aspects of bodies.

The question here is not only how to critically utilise arguments about biology. A project that aims to account for materialisation of ageing is bound to what I call *politics of materiality*. This means that a fruitful account of materialisation involves discussing the ways in which distinctions of cultural and material are made, rather than only accounting for the intertwining of these 'spheres' (Franklin, Lury & Stacey 2000, 5-6). In this study the discussion of the biological aspects of ageing is thought of

as a transdisciplinary encounter. My purpose is to think critically through the arguments that social scientists should at least have 'biological frames' (Rotkirch 2004, 2005) in their research or otherwise account for 'materiality' from a natural scientific or biomedical perspective (Barad 1998; Birke 1999). I suggest that transdisciplinarity is an essential part of these discussions, and that partly the challenges brought with it, which could be called *transdisciplinary quagmires*, are only implicitly present in the feminist negotiations of materiality. Rather than wanting to strengthen the disciplinary borders that the science studies and technoscience scholars have already succeeded in questioning (e.g. Franklin 2007; Haraway 1991, 1997; Latour 1993, 2006; see also Kontturi & Tiainen 2004, 24), the point is to analyse how transdisciplinarity features in some of the texts that set themselves as critique of social scientists.

On the one hand, I subscribe to the argument by Barad (2007) and other thinkers in that the nature-culture distinction is hardly superseded if one stays strictly within the social or the cultural. From this point of view, I explore the project of taking the materialisation of 'matter'[14] into account in the study of the ageing worker. On the other hand, I focus critically on what this project would entail from a poststructuralist-informed perspective, and what some of the politics of materiality involved in the claim to account for the materialisation of matter could be. This leads to reformulating Barad's approach by thinking through a theme interview approach within social sciences. My third research question thus becomes:

3a) What are the politics of materiality – immersed in transdisciplinary encounters – involved in Barad's critique and in her rethinking of the concept of materialisation? 3b) What would an agential realist approach for social scientists[15] look like?

[14] My use of the inverted commas is related to the different conceptualisations of materiality in these critiques, sometimes materiality or matter pertains to, for example, the working of an ultrasonogram, sometimes to biological bodies, and sometimes to economic relations (see chapter 4). The different definitions of materiality are part of what I call the *transdisciplinary quagmires*.

[15] In this study when I refer to social scientists or social science settings, I have in mind studies that use methodologies such as interviews, ethnography, or text or conversation analysis, instead of, for example, laboratory experiments with *in vitro* cell lines. I want to

Karen Barad's work is utilised and referred to by a wide variety of scholars, and her work has arguably become part of the mainstream of contemporary feminist theory and science studies (see e.g. Ahmed 2008; Alaimo & Hekman 2008; Berg & Akrich 2004; Birke & al 2004; Gravagne 2009; Haraway 1997, 116-118; Herzig 2004; Hird 2004a, 2009; Kerin 1999; Kirby 2008; Law 2004; Ojanen 2006; Roy 2008; Valentine 2008). Agential realism is used to theorise, for example, fashion (Parkins 2008), documentary film (Hongisto 2005), feminist third wave generation (Tuin 2008a), and naturalist philosophy (Rouse 2004). Despite this, thorough engagements with her arguments are still scarce, and her work is seldom contested within feminist studies (see however, Ahmed 2008 and the following discussion Davis, N 2009; Tuin 2008b). In addition, I have not hitherto found discussion about what agential realism can contribute to the analysis of ageing bodies at work,[16] to interview studies, or to the utilisation of arguments about biological bodies in sociological studies. For these reasons, I have chosen to use a considerable amount of space to discuss her thinking in detail. Finally, the last reason why I chose to think through Barad's agential realism is because it is open to transdisciplinary encounters. A crucial challenge in transdisciplinary conversations is to utilise different disciplines without setting one of them as the norm or basis against which the other is evaluated. Approaches that regard, for example, biology as the basis of 'facts' that social scientists should take account of, or approaches that only criticise natural sciences or feminist social sciences from some viewpoint outside of them, do not fall into agential realism. 'What is needed are respectful engagements with different disciplinary practices, not coarsegrained portrayals that make caricatures of another discipline from some position outside it.' (Barad

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stress that the point is not to strengthen or maintain disciplinary borders or assume that people identified, for example, as sociologists would not ever find themselves conducting laboratory experiments (instead of observing or analysing them ethnographically). Instead I aim to analyse how disciplinary boundaries are implicitly at work in the feminist negotiations of materiality, and what these negotiations mean from a perspective of a 'non-laboratory' social scientist.

[16] See however, Gravagne 2009; an in-progress doctoral dissertation related to ageing that utilises Barad and other feminist science studies.

2007, 93) My study is also an experiment in how a transdisciplinary conversation can proceed.

1.3 Interviews, questionnaires and newspaper articles

This study utilises qualitative theme interviews, questionnaires and newspaper articles as research material. The first set of interviews, later called 'age interviews', was conducted within the research project *Age, Work and Gender – Management of Ageing in the Later Working Life*, and led by docent Raija Julkunen at the University of Jyväskylä in 2000-2002.[17] The project concentrated on women and men who were still employed despite the existence of several institutionalised early exit pathways. The interviewed participants consisted of twenty women and twenty men,[18] aged between 56 and 65 years, who worked in various positions in ten large work organisations. The organisations included a bank, a public services institution, a municipality, a public hospital, a food industry company, a transportation company, a metal industry company, a newspaper, a restaurant and a retail store.

First, the aim was to find employees of over 60 years of age, but since this was not possible in all the chosen organisations, the age limit was dropped to 58, and in one organisation (the bank) to 56 years of age. In addition, ten personnel managers and ten shop stewards were interviewed from the same organisations. Thus altogether four to seven persons were interviewed from each work organisation, depending on how many senior employees we were able to reach. The recorded qualitative theme

[17] In addition to Julkunen and I, other members of the project included Eeva Jokinen, Jouko Nätti, and Anna Pärnänen from the University of Jyväskylä, and Anna-Maija Lehto and Noora Kontiainen (then Järnefelt) from Statistics Finland. Jokinen was at the time, in addition to Julkunen, my supervisor, Pärnänen was initially Julkunen's research assistant, and then began to do a PhD herself, and Kontiainen was also a PhD student at the time.

[18] In one of the interviews, the tape-recording was unsuccessful, and hence I have only a very short transcription of this interview. Because of this, in some texts I have presented that I have only 39 interviews.

interviews with the 56-65 year-old employees were, on average, two to three hours in duration, and those with the personnel managers and shop stewards were one hour. In addition, various documents about the researched organisations were gathered, such as annual reports, information of the usage of early exit pathways, and gender and age distributions. For further details of how the interviews were conducted, and of the organisations, see Appendix I, and the previously published studies that utilise partly the same research material (Julkunen 2003, 47-60; Julkunen & Pärnänen 2005, 93-102).

The second set of interviews, later called sexual and gender minority interviews, were conducted within the project *Sexual and Gender Minorities in Working Life* during 2002-2003 (Lehtonen & Mustola 2004). In this project, two questionnaires were constructed, each for sexual minorities and gender minorities respectively.[19]The latter is subsequently called the transgender questionnaire. 'Sexual minorities' broadly meant people who either identified themselves as other than heterosexuals, such as bisexuals, gay men or lesbians; or, in their behaviour questioned the boundaries of heterosexuality. The term 'gender minorities' refers to people who do not identify with either pole of the gender binary of 'women or men', who have experienced or expected a sex reassignment, or who in some other way identified themselves as transgressing the gender binary. (Lehtonen & Mustola 2004, 21.)

The questionnaires were targeted to anyone who identified themselves within these groups and who participated in waged work, were entrepreneurs, or who had previously been involved in the labour market.

[19] See Lehtonen & Mustola eds. 2004. The people who took part in formulating and commenting the questionnaires are mentioned in Lehtonen & Mustola 2004, 24. The report, including the questionnaires, is available both in English and in Finnish in http://www.esr.fi/esr/fi/__yleiset/researchreport2b04.pdf [accessed Jan 25, 2009]. I came to take part in the project at a later stage, when the questionnaires were already planned. My contribution was only to read through the questionnaires a day before they were distributed, and to suggest that the questions about retirement (questions 83 and 84 in the sexual minorities questionnaire, and 98 and 99 in the transgender questionnaire) be maintained in the form, and propose the question of whether the person's job satisfaction or exhaustion is connected to sexual orientation or gender (question 85 in sexual minorities and 100 in the transgender questionnaire).

A snowball method was used in accessing the target groups. The result was 726 responses to the questionnaire for sexual minorities, and 108 to the transgender questionnaire. The questionnaires included a possibility for leaving one's contact details, if one was willing to participate in a face-to-face qualitative interview. In addition to the questionnaires, in the project, several sets of qualitative interviews were conducted. I concentrated on those over 45 years of age. Initially, my aim was to choose the same age limits as in the age study, but the number of participants would have been too low for those purposes. Of those who had left their contact details, I picked fourteen for interviewing: two who answered the transgender questionnaire and twelve who answered the sexual minorities questionnaire.[20] The choice of interviewees was made not only on the basis of belonging to a certain minority, but also to get participants with a variety of situations in the labour market, and in relation to how the participants felt they were treated as part of these minorities. The interviews lasted between one to two hours. For further details of the collection of the interviews and questionnaires, see Appendix I and the publication of the research project (Lehtonen & Mustola eds. 2004).

The third corpus of research material consists of approximately 750 newspaper articles, letters to the editor, columns, and editorials (hereafter, articles) from the daily newspaper *Helsingin Sanomat*, published between 1997 and 2007. In addition, I analysed articles from the bulletin published by the *National Programme on Ageing Workers* during 1998-2002, which totals fifteen issues altogether. The theme of the whole bulletin was ageing and work. For further details of this material, see Appendix I.

[20] The details are explained in the article II.

1.4 Ethics as accounting for differences and power

In this study, ethical issues have figured in several levels and in all phases of the research project: in choosing the focus, collecting and analysing research material, and in writing. I have written about issues and practices that I see as related to ethics in various places in this study, but in this chapter I collect these strands together in order to explain which issues I consider as pertaining to ethics in my research process. Crucially, the methodological approach I utilise and the very definition of rigorous research (Chapter 5) both involve ethics, in the sense that I understand *sensitivity to the workings of power* to be the most important part of what ethics in a research project is all about. Hence, I first chose the focus of my research in order that it would – at least – not be in contradiction to empowering the employees that participated in the research. In practice, this meant paying attention to gendering as well as heteronormative practices that produce difficult situations for the interviewed employees; and especially, analysing how meanings related to ageing can be part of these practices. Such a focus also means raising issues that may seem irrelevant to some, such as whiteness in the Finnish context (see Chapter 5.4). In feminist studies, a long-ongoing discussion exists about focuses of research in this sense, i.e. whether a critical analysis of power is fruitful, or whether feminist research should rather focus on cartographing becomings and affirmative potentials (e.g. Braidotti 1994, 2002, 1-10). In my study, the latter is included as a discussion about work experience and its relation to ageing (Chapter 6.1), even though my study as a whole is written more in the critical vein, with the thought that, in many instances, what is affirmative for some is not affirmative for all, and that ethics is about paying attention to this difference.

It is clear that methodology and epistemology cannot be separated from ethics, and none of these can be separated from power. Kathleen Lennon and Margaret Whitford have chosen to begin their book on epistemology with a citation from Donna Haraway's 'Cyborg Manifesto'; here I quote the lines that I partly paraphrased above: 'Some differences are playful; some

are poles of world historical systems of domination. 'Epistemology' is about knowing the difference.' (Haraway 1991, 161; Lennon & Whitford eds. 1994, v.) In my reading, what is crucial in a feminist approach is exactly the focus on power and differences, even when trying to find affirmative perspectives. Hence, I have first chosen to utilise an intersectional methodology in this study, and second, I have interpreted that part of the intersectional methodology is trying to check that when an affirmative difference (such as affirmative old age) is being formulated, it is not done by invoking another power relation (Chapter 5.5).

Collecting research material also involves ethical questions. In conducting interviews, my aim was to work in an empathetic way that would help to question the power asymmetry between the researcher as subject and the interviewee as an object, according to the feminist interview tradition (see Oinas 2004). My strategy involved among other things, actively positioning myself as a novice in relation to the interviewee as an experienced employee (article IV, 60-61; Ronkainen 1989). Article IV involves a critical analysis of conducting the interviews, from the viewpoint of analysing how differences in the participants' situations in their work organisations as well as cultural meanings related to ageing, became part of the fabric of the interview. This analysis that I continue in Chapter 5, includes how I became intertwined with the ageist meaning-making that I was consciously trying to avoid. In addition, my gender performance involved me in particular meaning-making in that the 'affinity' that I achieve with an interviewee and that eases the interview atmosphere, involves heterosexual assumptions (Chapter 5.7). Hence differences and power work constantly, even during the moments when an atmosphere in the interview seems to be warm and empathetic (about emotionality and power in feminist research methodology, see Blee 1998; Wasserfall 1993).

In these cases, it may be that outsides are produced that enable the affinity, that is, that the moments of connection are enabled by implicit constructions of unnamed differences, such as 'our' difference from non-heterosexual women in the above-mentioned interview case. In addition,

striving towards an empathetic and warm interview atmosphere by the researcher may involve deceit as, for example, I complied to play along the heterosexual assumptions that were made of myself in order to achieve the affinity, and ended up being part of such a construction of heterosexual we-ness. This was partly a result of politeness in not wanting to question the interviewee('s assumptions), and partly real affinity, as differences exist in myself as well,[21] and this situation brought one aspect of me to the front, and made it easy or more comfortable to silence other aspects that did not fit into the situation and might have contradicted the affinity (about comfortability, see Ahmed 2004, 147-155). In this way, differences are constantly intertwined, and making a connection or seemingly reducing objectification in an interview may involve producing outsides of others, at whose expense the connection is formed, and these outsides are sometimes within the researcher herself.

In my understanding, ethics is then not only the attempt to collect research material ethically (e.g. to get the so-called informed consent from participants, and to not harm participants when collecting research material), but – during the research process – to constantly analyse power and its workings in the interview situations as well as in what is derived from these interviews in the analysis. In this way, the collection of research material and its analysis is woven into a process that cannot in any phase be separated from research ethics. Along with this, I have paid attention to how differences work in the analysed research material (see Chapter 5). Hence, I analyse the utterances of the participants in relation to their positions in their work organisations (see Appendix II). This has to do with ethics, in that analysing talk as 'situated' helps to see how power and differences enable or facilitate certain utterances and experiences about ageing (see also Chapter 6.1), rather than interpreting these utterances as pertaining merely to the individual participant, for example, as individual experiences or attitudes.

[21] See Braidotti's (1994) three levels of differences: between women and men, between women, and within individual women, my idea about differences within myself resembles the latter.

The phase of writing, which is of course intertwined with analysis, also involves several ethical questions. One of the most obvious procedure in social sciences is to change names of people, places and the like, in order to prevent the recognition of participants (Alasuutari 2005, 20). In article II, I have also not mentioned the exact chronological age of participants, but rather a more broad definition (of age 46 to 50; of age 51 to 55, et cetera), and have pondered carefully how to tell the occupation of the participant, because of the very small circles of sexual and gender minorities in Finland that the article discusses, which makes it more likely that the participants are recognisable. In relation to telling the reader the person's occupation – this issue has also been relevant when I have written about the age interviews – I have balanced between giving the reader enough and relevant information in order to understand what the person's work is about, and not giving too much information, which would, in some cases, result in recognising the participant.

Conscientiousness and accuracy in making interpretations and publishing results is often mentioned as a cornerstone of research ethics (Pietarinen 2002). In my study, this has included an attempt to conduct 'acceptably accurate' translations of the interview citations (about translations in this study, see Appendix III), and keeping in mind that different transcribing systems enable different results of analyses (see Appendix II), and also give different impressions of participants. In relation to writing, it has also been suggested that one aspect of research ethics is not to 'feast on comical impressions' (Alasuutari 2005, 20) that citations of speech in dialect can entail, as well as citing speech without removing expletives – such as the repetition of 'you know' ('niinku'). In this case, I have balanced between polishing speech in order to make it easier to read – by omitting unnecessary repetition and expletives – and being inspired by conversation analysis in that specific details of speech can be very important for the interpretation (articles III and IV). Conscientiousness and accuracy have to do with what I understand as 'rigorous research'. Instead of referring to objectivity, I regard rigorous research with the help of the feminist scholarly tradition, as constant

sensitivity to differences and power in all phases of the research (Chapter 5.5).

This pertains to power when other people's stories and lives are interpreted and analysed. As Caroline Ramazanoğlu and Janet Holland aptly summarise:

'All social researchers (…) can exercise power by turning people's lives into authoritative texts: by hearing some things and ignoring or excluding others; by constituting 'others' as particular sorts of research subject; or by ruling some issues as extraneous to 'proper' knowledge.' (Ramazanoğlu with Holland 2002, 113; referring to Smith 1999.)

In the present research, I have attempted to hear from an intersectional perspective, that is, by deciding to write about issues which have not got very much attention in the mainstream discussions about ageing and work, such as comments related to troublesome ageing women, working life stories that tell about heteronormativity, and public discussions that racialise the issue of population ageing. Such an approach has not materialised without ethical challenges. For example, am I participating in a problematisation of ageing women by raising a discussion about troublesome ageing women? I have attempted to avoid reiterating such figurations about midlife women without carefully contextualising them into the apparatuses that enable their existence, but I have also tried to avoid idealising the research participants according to the positive stereotypes, that is, as self-evidently wise and experienced employees. At the very least, the differences that I have been able to discuss have not been easy to choose, and my own situatedness in terms of these differences varies. This also implies that my abilities to experientially understand what it means to be treated as, for example, an 'ageing' woman in a Finnish workplace, is more difficult than to understand what it means in practice to evaluate whether to be open in a workplace about one's close relations (see article II and Chapter 6.1). I have also somewhat resisted openly situating myself in the publications of this study, both because of my own sake, since the power relations in academia are not that different

from other work organisations, and because of the slight discomfort that I feel when I read texts in which I think that reflection has turned into rather concentrating to the researcher self. Overall in this study and in the articles, I have preferred an attempt to account for the workings of power and the intersections of different forms of power, in which I am also implicated, without in each case writing about my own feelings or reflections that pertain to my different positionings.

1.5 The structure of the study

In the following chapters, I explore more thoroughly the theoretic-methodological decisions and contemplations related to the study. In Chapter 2, *Theorising ageing, gender and sexuality in waged work*, I discuss the previous studies on ageing and work that have most inspired my study. The five subchapters each raise one aspect of how I rethink the mainstream corpus of research in this field. Firstly, I am inspired by how age studies scholars have theorised *multi-faceted age*, including aspects such as chronological, biological, personal, and social age. My main argument here is that, even though seeing age as multi-faceted has been extremely useful – I develop this approach in my study as well – these differentiations are also at risk of retaining the aspects of age as separate spheres. In this study, I explore how especially the biological and the social could be seen as intertwined in relation to ageing. Secondly, in the chapter *Gendering age,* I argue that an analysis that sees ageing itself as gendered, rather than gender being a question of the ageing of 'women and men' is most fruitful. In addition, I argue for a concept of gendering that sees it as posthumanist performativity (Barad 2003), rather than as merely human practices.

In the chapter *Questioning binary gender,* I criticise the understanding of gender as implicitly pertaining only to heterosexual and white 'women and men' in most of the studies of ageing and work. I argue here for sensitivity

towards other constellations of gender, including a focus on heteronormativity and transgender issues, as well as for taking account of racialisation. In this chapter, I also discuss how I understand power in this study, as both related to official and unofficial hierarchies in the workplace, and as meaning-making that constitutes practices, people, and workplace hierarchies; as well as constituting the problematic understanding of gender as 'women and men'. In *Choosing menopause*, I discuss the gendered formations of the study field of ageing and work, and argue for the importance of studying menopause in relation to ageing and working life. This argument also explains my choice of taking menopause as one of the central illustrative examples in my discussion of materiality. In the next chapter, I raise the question of *resistance*, and the lack of attention to it in the studies of ageing and work. I argue that a shift of focus towards resistance would provide needed questioning and 'cracks' to the present social policy problematisation of ageing workers.

In Chapter 3, *Ageing 'at work'*, I present the key arguments that I make in articles I-VI, which are part of this doctoral dissertation. On the basis of the separately published articles, firstly, I argue that a crucial question for feminist age studies is: what is, and what is not, regarded as a sign of 'ageing', and what are the consequences of such understandings for the arguments posed about age, bodies and gender? Secondly, I suggest that heteronormativity is an important, but hitherto neglected issue that pertains to ageing at work, namely, as it moulds working life courses and hence may even have an effect on early retirement and economic conditions in life after paid work. I also argue for the benefits of connecting queer studies and age studies approaches in conceptualising a life course perspective to heteronormativity. Thirdly, by focusing on menopause at work, I argue for an agential realist approach that accounts for apparatuses of ageing, instead of discussing menopause as a bodily condition or a change of life that is only related to individual women. Fourthly, I pay attention to who can, with confidence, settle into the position of the ageing worker offered by the present social policy discourses, and I also focus on research on ageing at work. I argue that

gendering practices considerably mould the conditions of ageing in work organisations, and that they also protect some employees from the negative connotations related to ageing. Fifthly, I argue that racialisation is intertwined in the public debate and policy discussion about the ageing population, and more specifically, about the ageing workers. Sixthly, I illustrate, with three case studies, the ways in which the phenomenon of 'cranky old women' materialises in work organisations.

In Chapter 4, *Negotiating materiality*, I situate my study into what I call 'feminist negotiations of materiality'. In the chapter *Approaching materialisation,* I take the concept of materialisation (Butler 1993) and its later challenges as a starting point, in order to point out three ways in which materiality is understood within contemporary feminist theory. I argue for an analysis of materiality that takes into account how transdisciplinarity figures within feminist studies, that is, rather than a focus on 'new materialism', an analysis of feminist transdisciplinary negotiations of materiality. In *Matter as base – matter kicks back*, I discuss the challenges in understanding 'the biological' in these transdisciplinary negotiations from several perspectives. I analyse the critiques that involve Judith Butler's thinking, and explore how a natural scientific perspective is enacted in these critiques. I point out the difference between regarding biological matter as a 'base', and accounting for the agency of materiality. In addition, I discuss the relationship of statistical arguments to how biological bodies are understood, and to the enactments of binary gender. In the chapter *Agential realism as an anti-foundationalist approach*, I argue that Karen Barad's (2007) agential realism provides one possibility to account for biological matter without assuming nature as a 'base'. More specifically, I argue that agential realism is an anti-foundationalist approach that can explain what performativity entails in accounting for biological bodies from the perspective of natural science. For this task, I also explore the central agential realist concepts such as phenomena, apparatuses and agential cuts.

In Chapter 5, *Rigorous research and the materiality of research practices*, I discuss what I mean by a 'feminist' approach in my study, and how it

pertains to the notion of rigorous research that I commit to. For this task, I discuss the strand of feminist theory that goes with the name of intersectionality, and I continue to discuss the agential realist approach by setting it in motion with my interview research. By discussing agential realism, I also explore what a focus on materiality can mean in an interview study. In the chapter *Ambiguous apparatuses*, I discuss the question of objectivity in relation to Barad's (1998, 2007) suggestion that there are no inherent limits to research apparatuses and also, in relation to the overall feminist suggestions to account for power and differences. I also explore the meaning and implications of Barad's claim that 'the condition of possibility for objectivity is therefore not absolute exteriority but agential separability' (Barad 2007, 184). I demonstrate the ambiguousness of research apparatuses by taking an example from my own interviews, and argue that instead of striving towards unambiguous accounts of research apparatuses, as Barad suggests, the notion of ambiguous apparatuses leads more fruitfully to remembering the profound implications of power in research processes. This perspective has implications for how rigorous research can be understood, since objectivity cannot be guaranteed with the help of unambiguous communication. I argue that rigorous research could, instead, be formulated with the help of feminist analyses of power and differences.

Hence, in the chapter *Feminism as an intersectional approach*, I discuss intersectionality as the crucial theoretical approach that is posed in order to account for power and differences. I explore the term's two different genealogies and the tensions between the two different interpretations of the intersectional approach that are related to these genealogical accounts. In *Intersectionality, materiality, and the compulsion to choose*, I more thoroughly discuss these tensions and challenges in conducting an intersectional approach. Especially, I argue that these challenges are related to assumptions about discoursivity and materiality in previous intersectional approaches; and to the problematic of deciding which differences are relevant to analyse, and of acquiring enough expertise in order to be able to analyse several differences at once. I especially argue

against the possibility of analysing a 'full range of dimensions of a full range of categories' (McCall 2005, 1781), and hence, I argue *for* the compulsion to choose some differences over others. However, I also argue against dropping the notion of intersectionality (cf. Davis K 2009) despite these challenges, because it would too easily lead to ignoring the critiques posed by postcolonial feminists. In *Accounting for (ir)relevant differences*, I discuss the attempt to answer to these challenges by claiming to concentrate on differences that are 'relevant' in a particular context. I problematise the notion of relevance, and suggest instead, the importance of accounting for differences that are deemed irrelevant, such as whiteness in the Finnish context.

In the chapter *Sensitivity to differences as rigorous research*, I utilise the ambiguity that, for example, Kathy Davis (2009) sees as a reason to drop the notion of intersectionality, as part of my understanding of rigorous research. For this task, I propose one way to deal with the multi-faceted differences, which I argue is more fruitful than claiming to analyse all relevant differences, or claiming that it is legitimate to ignore some forms of power because 'it is not possible to analyse everything'. That is, I propose sensitivity to the other differences, which are not chosen as the main focus of analysis. Such sensitivity consists of avoiding to invoke other differences in a harmful way when analysing the differences that comprise the focus of the research, as well as of paying critical attention to such invoking in one's own research material.

In the following two chapters, I discuss the relationship of 'text' to 'materiality' and the assumed ways of 'access' to both of them in Barad's argumentation and in interview studies. In *The power of language, or, sinking in transdisciplinary quagmires* I start from a discussion about Barad's question: 'What compels the belief that we have a direct access to cultural representations and their content that we lack toward the things represented?' (Barad 2007, 132). I argue that, here, the proper target of criticism consists of natural science representations rather than poststructurally oriented social scientists. I also suggest that, among other things, what causes challenges in understanding across disciplinary

borders is the materialisation of theoretical concepts in different scientific practices. In *Accessing the materiality of interviews* I problematise the notion of access and suggest that the study of interviews is not essentially an analysis of (transcribed) texts, representations or talk. Instead, it consists of a 'purification process' (Latour 1987; Oudshoorn 1994) after which it only appears as if the question is of text at hand rather than materiality. In addition, I suggest several ways in which the materiality of interviews can be accounted for.

In Chapter 6, *Making moves, making trouble, making age*, I raise further discussions regarding a few key issues brought up in my empirical research. In the chapter *Moving experience*, I start from the fact that the notion of 'experience' is both a key concept in feminist studies, including feminist age studies, and the most important affirmative notion related to senior workers. I argue that it is fruitful to knit together the feminist theoretical tradition of thinking through experience and the notion of work experience and the so-called 'life experience' that are regarded in Finnish ageing policy, and in the public discussion, as assets of older workers. I suggest that looking at experience-as-an-asset in working life – not only from the perspective of age, but also gender, 'race'/ethnicity[22] and sexuality – helps to formulate an affirmative figuration of experienced workers. In such a figuration, experience and ageing are not coupled in any self evident way, which, rather than being an affirmative figuration, assumes a trajectory of cumulative experience. Instead of such a trajectory of experience that also has a connotation of older workers as 'getting into a rut' and becoming inflexible and stagnated, I propose the notion of 'moving experience'. This notion takes account of power relations that form

[22] This concept is a translation of the Swedish term 'ras'/etnicitet, which is used by postcolonial feminists in order to make the racialised differentiations immersed in the Swedish society visible. By using this term, I argue that, also in the Finnish context, bodies are differentiated according to 'Finnishness' and 'foreignness', and the former is coupled with assumptions of whiteness. At the same time, in the mainstream studies and public discussions, the concept of ethnicity is preferred, and coupled with assumptions about a different 'culture' of migrants, which however, helps to make racism invisible (Sawyer 2006, 188, 233; see also de los Reyes, Molina & Mulinari 2003a, 2003b; de los Reyes & Mulinari 2005; specifically of the Finnish context, see Chapter 5.4).

experiences, and it points towards the acknowledgement, in working life, of awareness of how age, gender, sexuality and 'race'/ethnicity mould assumptions about who is an experienced and skilful employee, as well as how confronting these power relations can even have an effect on the work skills themselves.

In the chapter *Troublesome ageing women,* I further discuss this phenomenon which emerged in the research material. I situate 'the troublesome ageing woman' into the apparatuses of work organisations that enable 'her' existence. I suggest that informal distribution of work, as well as the question of who can raise difficult issues at the workplace, help to open up the concrete practices that connect ageing and gender to regarding some employees as more troublesome than others. I also discuss the broader economic and medical changes and discourses that I argue have an effect on the formation of such a problematic figuration of midlife women. In the chapter *Menopause and the practices of individualisation*, I discuss the significance of individualisation of ageing to the practices in work organisations. I continue to use menopause as an example, and argue that the challenge is, with the help of age studies and science studies, to see 'menopausal women' and 'ageing workers' as not only pertaining to individual bodies but also as products of material-discoursive apparatuses that extend far beyond the biological processes termed as 'menopause' or 'ageing'.

In Chapter 7, *Naturalcultural forces and social sciences*, I move on to negotiate the transdisciplinary condition of accounting for what I call ageing apparatuses at work. An agential realist reading of ontology and epistemology has implications for what research results can be said to be about, and this in turn has repercussions as to how natural scientific arguments can (and cannot) be useful in social scientific endeavours. In this study I argue that, from an agential realist perspective, natural scientific arguments about reality are not descriptions of a determinate ontology. Instead anything that 'is' needs to be understood as indeterminate, and hence any 'part of reality' that research accounts for, needs to be understood as a phenomenon, an entity cut from the apparatus

of its production only by contingent agential cuts that, in turn, are dependent on the research apparatus. In Chapter 7, I argue that because of this, it does not suffice to read studies in, for example, biomedical sciences, and simply use their results to explain the phenomena, such as bodies and emotions in work organisations, which are studied by social scientists. In the chapter *Accounting for naturalcultural forces,* I develop this line of thought by discussing when arguments about biological bodies or other natural scientific contentions can be fruitful for a social scientific endeavour, and in which way such arguments can be understood as contributing to social scientific research. Included in the latter task, I also discuss another related approach: a claim that sees natural scientific arguments as 'frames' for social scientific research (Rotkirch 2004, 2005).

Agential realism also conflicts with (the claims about) reductionism and the differentiation between primary and secondary qualities of the studied 'entities'. In the chapter *From reductionism to multiple apparatuses,* I concentrate on rethinking reductionism and ponder on what the differentiation between primary and secondary qualities does to analysis, by again using the study of menopause at work as my example. Here, my point is also to shift the *place* of natural scientific products in social scientific research apparatuses. The chapter *Transdisciplinary encounters and the politics of materiality* moves the point of the argument from social scientific research endeavours back to the feminist negotiations of materiality. In this concluding chapter, I comment on Barad's place in contemporary feminist theory, and conclude what differences exist between Barad's agential realism and my version of this approach, which is designed for research in social sciences.

②

Theorising ageing, gender and sexuality in waged work

A great deal of the research on ageing in waged work utilises the policy problematisation of ageing population to justify the importance of the study. However, these studies and reports also include resistance to the policy perspectives, resistance to ageism, as well as a commitment to the view that if older workers are expected to retain, then the work conditions need to change and adapt. In the following, I conduct a brief overview, by concentrating on studies that account for gender and other differences and studies that offer critical insights to the present problematisation of the ageing worker. This is not aimed to be an all-embracing review, but is conducted in order to explain which perspectives have most inspired this study, and how my study rethinks some of these approaches.

2.1 Multi-faceted age

One attempt to question the problematisation of ageing in the studies of age and work has been to focus on age in general, rather than only on ageing workers or senior citizens. Examples of this attempt include the taking into account of younger age groups in the analysis (e.g. Airila,

Kauppinen & Eskola eds. 2007),[23] as well as formulating age studies as a life course perspective, 'a sociology of age', or a study of intergenerational relationships and encounters between the study of childhood and old age, in which no particular age group becomes solely the focus of problematisation (Lallukka 2000; Roberts 2006; Sankari & Jyrkämä eds. 2001; see also Jyrkämä 2007, 106). The concept of *age studies* used in this study is part of the critical attempt to question the problematisation of later life as a governmental form of power as well, because it suggests the profound significance of meaning-making in the formation of ageing bodies (Gullette 1998, 4; 2004).[24]

The attempts to resist ageism and vision a better worklife include studying stereotypes, images and characteristics related to older workers; but also to younger workers (Airila 2007a, 2007b; Ilmarinen & Mertanen 2005, 50-57; Julkunen 2003; Julkunen & Pärnänen 2005, 131-142; Juuti

[23] The youngest age groups in the labour market are also a target of the policies that problematise the ageing population: the attempts to solve the alleged challenge of ageing include the lengthening of working careers from both ends. Hence, for example, the ageing policies parallel with concerns about long studying times in Finnish universities, which are feared to postpone the move of young people to waged work.

[24] Gullette (2004) has reserved the term 'age studies' for such critical research projects, but I use it as an umbrella term for all studies that concentrate on the analysis of age and ageing. However, most of the studies that I refer to include somewhat a critical approach, or at least I read these studies from such a perspective, even if they would not strictly fall into Gullette's definition. The difference between the biological and the social is embodied in what the 'age studies disciplines' are called, especially in the terms 'social gerontology' and '(bio)gerontology'. To use the term 'age studies' instead of social gerontology helps me in not giving the impression that I deal purely with the social. I also use the term 'age studies' in order to avoid creating terminological inclusions and exclusions between cultural gerontology, critical gerontology and social gerontology. Sometimes these distinctions produce problematic power asymmetries and lack of appreciation to other scholars' work (see observations by Karisto 2007, 277). My study is situated in between these age studies fields: on the one hand, the study of ageing at waged work would seem part of social gerontology, although my focus is not on later life but midlife. My study does not fall into the sphere of cultural gerontology, if the latter is understood as a strand of cultural studies that focuses on cultural products, such as movies, literature or advertisements. On the other hand, if focus on meaning-making and critical analysis of formations of power (in which cultural and critical gerontology overlap) are understood as definitive for cultural gerontology, my study fits within the definition. (About different understandings of cultural gerontology, see Vakimo 2003b.) I utilise the term 'age studies' to connect my work, especially to those who in Finland and elsewhere identify as cultural gerontologists as well as to those who are gathered in and around the Finnish university discipline of social gerontology, many of whom also participate in the cultural gerontology conferences (see Jyrkämä 2007; Karisto 2007; Vakimo 2003b).

2001; Karisalmi & Seitsamo 2003; Redman & Snape 2002; Rissanen 2005, 57-59, 72-73; Ruoholinna 2006; Uotinen 1995; Vaahtio 2002). According to this literature, younger workers are seen as adaptable to new technology, energetic, and well-schooled, but not as committed, reliable, hard-working and experienced as the older workers. In parts of the literature, certain hesitation exists in relation to the status of these images. On the one hand, they are referred to as stereotypes, but on the other hand, in some cases, they seem to be taken to describe the real characteristics of workers in a certain chronological age.[25] In addition, these images have seldom been studied as gendered. The scarce analysis that accounts for gender suggests for example, that younger men are assumed as arrogant and young women as too unsure of themselves, and that older men see ageing more negatively than older women, as bodily deterioration, while older women stress the importance of experience (Airila 2007a, 55-56). As Auli Airila notes, the challenge in analysing such accounts is that the characteristics of the *work* might as well be part of how ageing is understood. In the above-mentioned case, the gender differences may be a result of the different working conditions of the studied women and men: it is more likely that *fire*men would conceptualise ageing through bodily changes, rather than women who work in teaching or nursing, and likewise, that experience would be more readily intelligible as an asset in the latter professions (ibid). In my study, I analyse one set of gendered images, namely the utterances in the research interviews of ageing women as 'troublesome'. However, I take this analysis beyond claiming that these utterances are stereotypes, and analyse them as products within gendering practices in work organisations (articles III & VI). I suggest that the 'troublesome ageing woman' that some of the research participants cite is a product of gendering apparatuses that include not only women's bodies but also the multi-faceted practices and materialities within which these bodies become intelligible as ageing and as gendered.

[25] For example, Airila (2007c, 26) has named a summary box as 'Studies on the characteristics of an aged worker', and Ilmarinen and Mertanen (2005) present the characteristics as a description of older workers.

Life course perspectives that are relevant for the focus on ageing and work are mostly enacted by scholars of the political economy of ageing. These scholars have suggested that 'power relations and resources in later life are shaped by people's earlier location within the social structure of their class position' (McMullin 2000, 522). According to Julia McMullin, in the primary focus on the significance of class, the political economy of ageing seldom accounts for gender or other differences as power asymmetries; a notable exception being the work inspired by Joan Acker on gendered division of labour throughout the life course (ibid, 523; see Estes 1991; 1999). I suggest that one fruitful perspective to ageing at work is to study it as a 'life course process' (Irwin 1999, 712; see also Kujala 2006; Rahikainen 2005), instead of regarding ageing in the labour market as merely a matter of the chronological years after 45, 50, or 55, as it is often done. Part of my study is designed to open up a perspective to this issue that accounts for both gender and sexuality (article II). I argue for a 'working life course' approach that is able to look at how, in this case, heteronormativity[26] as a form of power moulds the twists and turns of the working life course.[27] Hence the situations of the midlife employees are not comprehensible merely by scrutinising age differences, such as generational differences in education, ageing as a physical or cognitive process, or age discrimination in the labour market. I instead regard gender and sexuality as forms of power that participate in the processes that mould working life courses and that may also contribute to so-called 'early retirement'.

[26] In queer studies, the term 'heteronormativity' has come to replace several alternatives, Adrienne Rich's compulsory heterosexuality (Rich 1980), Monique Wittig's heterosexual contract (Wittig 1992, 40-43), Judith Butler's heterosexual hegemony (1990, 151n6) and Eve Kosofsky Sedgwick's heterosexism (1990, 31-32). The exact first emergence of the term heteronormativity is debatable, but it has been located to the beginning of the 1990s in texts by Rosemary Hennessy and Chrys Ingraham and Michael Warner. The term indicates a form of power that normalises, institutionalises and legitimates reproductive heterosexuality as the norm (Rossi 2006, 20-21; see also Warner 1993.) Importantly, it also includes an understanding that heterosexuality can be both normative and non-normative (Rossi 2006, 24), and that norm in this sense does not equal law or rule, but citational practices that performatively produce gender as well as resistance to the normative binary gender and heterosexuality (ibid 22, Butler 2004, 52).

[27] See Wilson 2001 about the importance of analysing ageing in terms of power relations, and accounting for difference and diversity.

In addition to the life course perspective, within age studies at least two approaches enable the problematisation of what in fact we mean when we discuss ageing in the labour market. These perspectives help to shift the view beyond the assumption that studies concerning ageing workers simply refer to a group of people, defined either by chronological age, years of birth (the baby boomer generation), or both. One of the approaches that explore how age and ageing become significant in specific contexts utilises discoursive, narrative or rhetorical analysis.[28] With these approaches it can be asked, for example, in which sense age is uttered as meaningful at work, and what the way of argumentation tells about ageing at work. Auli Airila raises two perspectives through which age was especially made meaningful in interviews of Finnish fire fighters, nurses and teachers. These were talk of health as well as talk of the experience of older workers. In relation to the former, older age was seen as a disadvantage, while experience was seen as a strength (Airila 2007b, 142-147).

According to Airila, the links between older age and, on the one hand, the diminishing of health, and on the other hand, gained experience, were uttered as if self-clarities, obvious truths that need no further grounding (ibid, 149-150). To me, her results further suggest that a normalising power is at work, which grounds certain issues, such as health problems and accumulated experience, as self-evident truths about older workers. In my study I focus especially on the notion of experience and its relation to older workers. Experience is reiterated by older workers themselves as a crucial strength in comparison to younger colleagues (e.g. Julkunen 2003; Julkunen & Pärnänen 2005, 139; Letvak 2003). This notion of experience has also been utilised as the slogan of the *National Programme on Ageing Workers*. It does not seem to need further study to suggest that a person, that is, an ageing worker, who assumedly has long work experience can be

[28] In ageing studies in general, discoursive, rhetorical and narrative analyses have become more common (e.g. Aapola 1999, 2002; Feldman 1999; Jolanki 2004; Jolanki, Jylhä & Hervonen 2000; Jones 2006; Katz & Green 2002; Nikander 1995, 2000, 2002; Nilsson 2008; Ray 1996; Vakimo 2001, 2003a), and a few studies also exist in relation to ageing in working life (Ainsworth 2002; Airila 2007b; Riach 2007; Tretheway 2001).

said to be more experienced at work than someone who just started. However, just because the connection of older workers and experience appears at first sight so straightforward, I am tempted to discuss the issue further. I do this by taking on board the perspectives of sexuality and 'race'/ethnicity and ask how experience would look different if these forms of power were accounted for (article V, to a lesser extent also article II). Critical scholars have argued that, because of technological advancement, experience is not necessarily of use in the turn-of-the-century labour market (Gullette 1997, 200; Julkunen & Pärnänen 2005, 141-142; Kelan 2008, 1191; Kosonen 2003, 221-222; Sennett 2006, 94). Another critical position suggests that replacing the negative stereotypes with the more positive characterisation of older workers as experienced does not escape the problem of categorisation itself, that is, the limiting of the possible positions of older workers within the labour market (Riach 2007, 1719). I further suggest a rethinking of the concept of experience in the labour market. This rethinking aims to maintain the value in experience, but to dislocate the stagnation that seems to be involved when just another, albeit positive, stereotype related to older age is created. The rethinking is conducted by setting in motion the relation of ageing and experience, by focusing on the power that forms experiences, and the power that moulds who is considered experienced in the labour market.

Auli Airila also notes that despite her interview questions which did not suggest talk of any specific age, her interviewees understood the questions as pertaining to older age, rather than interpreting age as a neutral signifier that would refer to any age of a person (Airila 2007b, 143). This is not surprising, if the talk is interpreted in relation to the present discourse that has effectively problematised, generally the ageing population, and specifically the ageing worker (Charpentier & Järnefelt 2002; Powell & Biggs 2000, 5-6; Riach 2007). What is central in discoursive, narrative or rhetorical approaches is the assumption that utterances about ageing do not exist as isolated, but have a specific context of utterance, which has an effect on how they can be interpreted (Jolanki 2004; Jones 2006; Nikander 2002; Nilsson 2008; Vakimo 2003a). In this study, I purport to account for these contexts on several levels: the context of the interview, the broader

research context, as well as practices in work organisations (especially article IV). The ageing worker is hence not a stable referent, neither biological nor cultural, but materialised in differing ways according to specific contextual practices. This is the second sense in which age is 'at work' in this study. The ultimate aim is to move beyond the idea of a context *of* ageing itself: the agential realist approach utilised here suggests that the ageing worker is a product within specific apparatuses, with the result that the boundary between an ageing body and its context is blurred.

Another approach, that questions any simple link between the chronological age of workers to what is the actual significance of age, consists of differentiating between various aspects of age. Peter Laslett (1996) is one of the scholars known for their attempts to question the importance of chronological age as *the* age of the person, by pointing out that in social relations many, sometimes conflicting ages are at work. Laslett proposes a distinction between chronological, personal, social, subjective, and biological ages. Personal age means that moment in life course where the person feels she or he presently belongs. Social age is the one in which the person is positioned from outside, by friends, employers or relatives; and subjective age is that which stays constant in the succession of events and changes in other ages, in other words it seems that subjective age equals a 'self'. Laslett also distinguishes biological age from chronological age, by suggesting that 'individuals of the same chronological age differ, sometimes considerably, in bodily development or decline' (ibid, 35); and that when chronological age advances, the differences between individuals increase (Laslett 1996, 34-37).

Such a 'proliferation of ages' in age theory has raised a lively debate: How many aspects of age can be differentiated, which aspects should be counted as relevant in a particular context, and what is the nature of these aspects, is under constant challenge (e.g. Aapola 2002; Iltanen 2007, 10; Kauppinen 2007; Lallukka 2003; Marin 1996; Ojala & Poikela 2002, 26; Rantamaa 2001; Tikka 1994; Uotinen 2005, 9-13, 20-21; Vaahtio 2002). The analysed aspects of age have proliferated to include for example,

moral age (whether the person is satisfied to her or his age), youth age (the difference between chronological and experienced age), and labour market age (Kauppinen 2007, 26). The labour market age formulated by Eeva-Leena Vaahtio (2002) is developed specifically for the study of age in waged work. Based on her research on age in recruitment practices, Vaahtio suggests that the age that matters in recruitment is not only chronological, but composed of various issues that can be called as aspects of age. Together, these aspects compose what she calls the labour market age (Vaahtio 2002). In this study, I utilise and further develop Vaahtio's conceptualisation of the labour market age. I suggest the need to bring gender as well as the normalising power of sexuality into this conceptualisation (article II).

The strength of the 'proliferation of ages' approach is the questioning of ageing as a uniform, chronological process. It enables accounting for the complexity of age, and at its best, it has facilitated exploring how social, historical and biological issues interact in the processes in which age matters. It also enables accounting for the contradictory ways in which age *within* these aspects is formed. For example, the multi-facetedness of the biological age shows in that people can 'describe their arteries as old but their eyes as young' (Uotinen 2005, 11; see also Jylhä 1994), and the social age in that a person can – at the same time – be categorised as 'a middle-aged mother and a young researcher' (Uotinen 2005, 12). However, while striving to describe the complexity of age, this approach requires analytical distinctions between among others, the biological and the social; and in some cases also 'the self' is assumed as separate from the available resources for meaning-making.[29] Thus this approach is one, albeit more complex version of what in feminist studies has been criticised as the sex/gender distinction. This view involves a risk that, for example, the biological remains compartmentalised into its own sphere, assumed to be distinguishable from the social and historical processes of meaning-making (see Butler 1990, 1993; Heinämaa 1996, 110-129; Oinas 2008,

[29] For a useful discussion that acknowledges that the 'subjective age' is not separate from the social and cultural context, see Uotinen 2005, especially pp. 14, 25, 27-28.

105-107; Pulkkinen 2000b, 47-51). Because of these challenges, I chose to concentrate on the concept of materialisation to account for the processes in which age becomes meaningful (see Chapter 4.1), even though I also utilise the proliferation of ages approach.

2.2 Gendering age

A further inspiration for my study in the previous analyses of ageing and work is the different conceptualisations of gender. Despite that many of the numerous studies of ageing and work do not account for it, gender has relevance in several ways. The studies that account for gender suggest, for example, that women have experienced slightly more age discrimination compared to men (Kouvonen 1999, 46-47), that for women and men, a couple relationship and children differently influence the probability of retaining in waged work (Järnefelt 2003, 47-50), and that women and men experience their ageing bodies differently, in that women talk about looks and men about physical performance (Julkunen 2003, 90-106; Kauppinen 2007, 22-23; Kujala 2006, 128-129). Moreover, gender differences in participating in waged work across the life course are significant for income during later life. Pension systems have different effects for women's and men's retirement income, which usually means a disadvantage for women. This is because of the linkage of pension income to salary, and because women's care responsibilities reflect on their working life courses differently than on men's (Calasanti & Slevin 2001, 107-120; Ginn, Street & Arber eds. 2001; Richardson 1999; Wilson 2000, 90-95).[30]

[30] An analysis of the gender effects of the Finnish pension reform of 2005 suggests that it helps to secure equality between the sexes, and hence that it was a successful reform (Tuominen 2002). However, if the different types of working life courses of women and men are accounted for, the above-mentioned challenges seem to be involved in the new pension system as well.

In the studies related to ageing and work, if gender is accounted for, it is most often enacted as a binary comparison between women and men. Hence, most of the studies of ageing at work discuss 'ageing' as if it would be a non-gendered issue. In these cases, gender figures as gender differences in the questions that concern 'women and men' (Krekula 2007, 160; McMullin 2000, 523). However, studies also exist that theorise ageing *through* gender, which can be called intersectional analyses (Calasanti & Slevin eds. 2006; King 2006; Krekula 2007; McMullin 2000; Slevin 2006; Zajicek & al 2006). Such studies have been conducted for example, on how age discrimination or ageism in the labour market is gendered (Korvajärvi 1999; McMullin & Berger 2006); and how an analysis of pension income (Ginn, Daly & Street 2001, 3-6), the concept of retirement (Richardson 1999) or notions of 'apocalyptic demography' (Street & Ginn 2001) change when women's unpaid labour and different working life courses are accounted for; and how gender makes a difference in the 'lived experience' of ageing (Kangas 1998; Russell 2007; Slevin 2006). I have been inspired by this theorisation of gender in my utilisation of the concept of gendering practices (especially Korvajärvi 1998, 1999; Kinnunen & Korvajärvi 1996). This concept is related to other similar conceptualisations, such as gendered practices (Rantalaiho & Heiskanen eds. 1997), practicing of gender (Martin 2003, 2006), gender practices (Poggio 2006), doing difference (West & Fenstermaker 2002), 'gender as a verb' (Fitzsimons 2002) and organisations as inequality regimes (Acker 2006). These conceptualisations have been developed for analysing gender not only as something people are assumed to *be* (e.g. 'women' or men'), but as something that is *done* within work organisations. That is, the analysis focuses on *gendering practices*. This approach has inspired the empirical analyses throughout this study (especially articles II, III, IV, VI). Hence I analyse how a variety of practices, such as informal distribution of work, raising difficult issues at the workplace and wage disparities, serve to shape the situation that is then at risk of being explained by ageing.

I understand gendering practices as a form of performativity (Korvajärvi 1998, 31-32). Hence, gendering means that '(i)n the drama of everyday life actors are constituted as viable subjects who take part in

their own becoming, as they become situationally and collectively materialized in a social context, an interaction situation' (Oinas 2008, 111). I however, continue by interpreting performativity following Karen Barad's post-humanist performativity (Barad 2003, 2007). Hence gender performativity consists of a broader array of enactments than only human acts. The gendering practices within which an 'ageing woman' materialises include, for example, the specific ways in which technologies are involved in the work process (see also Koivunen 2006, 5) and the workplace hierarchies that might be reproduced and embodied by the details of work spaces (article VI, Chapters 4.3, 6.2 and 6.3).

2.3 Questioning binary gender

A further significant characteristic of most of the research on ageing and gender in waged work is the attachment to the binary conception of gender that figures gender as 'women and men', that is, as two opposite genders. If gender is taken into account, it is mostly conceptualised through this binary, without paying attention to how this binary conception implicitly involves an assumption of the heterosexual relation of these opposites (Butler 1990, 6-7, 151n6). One aspect of this challenge is that (hetero)sexuality – such as (hetero)sexual practices, harassment, and (hetero)sexuality as part of working subjects – is seldom connected to the analysis of older workers (see however, Jones & Chandler 2007, 157-158). Another task is to understand sexuality not only as (hetero)sexual relations and practices, but to account for how 'heterosexual saturation' (Berlant & Warner 1998) is a form of power that produces an appearance of naturalness and normality, which links heterosexual practices with normality, the common and the natural, while other sexualities appear

deviant (Butler 1990, 1993; Foucault 1990; Pulkkinen 2000b, 47-49; Rossi 2006).[31]

The conception of power in this study is hence two-fold: On the one hand, power in the work organisations consists of the official hierarchies within the organisations, that is, the responsibilities as well as the power of the management to decide about work tasks and to influence the subordinates in various ways. On the other hand, power does not entail relations between 'transcendent individuals' (Pulkkinen 2000a, 84) in the workplace. These individuals are instead products of the above-mentioned normalising and naturalising apparatuses. The employees are not only subjected to power, but they are also recognised as certain types of aged and gendered subjects through multi-faceted practices within the work organisations (see Butler 1993, 1-2; Foucault 1990, 92-96). In this sense, power is not only marked by official hierarchies and the possession of power, but as the meaning-making that is used for example, in conceptualising a work task or occupation implicitly or explicitly as 'men's work' (Kelan 2008; Komulainen 2005; Silius 1992; Stobbe 2005; Weston 1998, 106-107; article VI). Another example consists of expectations of an appropriate way of dressing at a certain age (articles II and VI). Power in this sense is not equal to, but *constitutes* the practices and hierarchies in work organisations. The gendering practices are hence a form of power that moulds what appears as an effect of ageing in work organisations. In addition to the gendering of age, such normalising power is analysed in this study as heteronormativity and racialisation (articles II and V).

Heteronormativity as a form of power moulds not only possibilities for identification, but also the acceptance or non-acceptance of various sexual practices. From the point of view of the labour market, the question of heteronormativity concerns for example, how the connections between work and home become refigured when heteronormativity is taken into

[31] Donna Haraway (1991, 244n4) has argued for 'the Death of the Clinic'; in other words that the Foucauldian conceptualisation of normalising power would be outdated. In this instance, I instead follow Margrit Shildrick (2004) who argues in relation to the case of genetics that normalising and regulatory forms of power are alive and well. I suggest that this pertains to the case of ageing as well.

account (Dunne 1999). Some scholars have seen the initial feminist contribution to the analysis of waged work to be the questioning of the boundaries of home and work, and the point of how especially women have to combine work at the workplace and at home. This focus on combining also questions the notion of work as a separate sphere from the rest of life (Anttonen 1997; Ginn, Street & Arber 2001; Hochschild 1997; Jokinen 2005; Sutela 1999). From the perspective of midlife employees, the combining of home and work has been discussed, including care responsibilities for older relatives and grandchildren alongside waged work (Eräsaari 2002b; Rosenfeld 2007; Zajicek & al 2006; Zechner 2007, 59). Questioning work and home as separate spheres enables seeing how gendered patterns of the every-day, including house work, also mould the practices of waged work (Jokinen 2005). Another viewpoint to the blurring of the boundaries questions the assumption of the heterosexual worker (Hall 1989; Kuosmanen 2002; Valentine 1993). The latter perspective further suggests that the relations of work and home are not only questions related to the care of children or older relatives, or even domestic work patterns in waged work. It is only the heterosexual saturation (Berlant & Warner 1998; see also about heterosexual assumptions, Lehtonen & al eds. 1997) that dissipates from view the various strategies that many non-heterosexuals have to conduct daily in the form of negotiating the working self in relation to the life outside work (Heikkinen 2002; Kuosmanen 2002 and other articles in Lehtonen ed. 2002; Lehtonen & Mustola eds. 2004). In this sense, the relations of work and home are continuously present in most workplaces and other work contacts. This is the aspect that in this study continues the feminist perspective of combining home and work, rather than the focus on women's domestic work and care responsibilities alongside waged work (see article II).

Yet another challenge that can be posed to the binary conceptualisation of gender involves the study of gender performances required at work. Within age studies the gendered normativities of dressing and other body-techniques in older age have been convincingly cartographed. An

important aspect consists of the ambiguous expectations in that especially white Western women do not want to look like 'mutton dressed as lamb' (Ballard & al 2005, 180-181; Calasanti & Slevin 2001, 64-64; Cruikshank 2003, 146-150; Dinnerstein & Weitz 1994; Fairhurst 1998; Furman 1997, 103-116; Hurd 2000; Iltanen 2007, 124-126; Kangas, Oittinen & Topo 1990; Nikander 1999, 35-36; Vakimo 2001, 230-232; Wray 2007). In relation to work, the studies of aesthetic and service labour suggest that racialised and age-related requirements for gender performances exist that depend on the work context (Dean 2005; Dellinger & Williams 1997; Jones & Chandler 2007, 158-159; Julkunen 2003, 100-106; Weller 2007). For example, women actors are expected to change from leading roles to character roles when they begin to look like 35 to 40-year-olds, while for men, leading roles are open for much longer (Dean 2005, 770). Recruitment is a crucial situation in which such requirements are at play, as gender and age-related assumptions intertwine in the expectations of desired qualities of job seekers (McMullin & Berger 2006, 217-220; Weller 2007, 427-430, see also Vaahtio 2002). Less attention has been given to what these requirements for gender performativity mean for persons who for various reasons cannot perform conventional heterosexual femaleness or maleness, that is, who do not perform binary gender (Crawley 2002). I suggest that the requirements for appearance not only differ according to the work context and between women and men, but these – sometimes only implicit – heterosexual gender requirements are part of a broader heteronormativity related to ageing. Only a handful of the previous studies on gender, sexuality and ageing name the object of research critically as *hetero*sexuality (e.g. Calasanti & King 2005; Katz & Marshall 2004; Ronkainen 1994), instead of assuming it implicitly as part of a focus on gender and sexuality, that is 'women and men' and their relationships.

Lesbian, gay and queer approaches to work have also explored sexualities and gender performances that question the gender binary. These studies suggest that in specific work contexts, other gender performances can also be commodified (Adkins 2000). Lesbian, gay and queer studies perspectives have also begun to scrutinise older members of sexual minorities, or the meaning of heteronormativity for ageing (Fullmer

& al 1999; Heaphy & al 2003; Jacobson 1995; Jones & Nystrom 2002; Slevin 2006; Ward & al 2005), but the focus on heteronormativity and age, ageing or life course in relation to *work* has been scarce (see however, Friskopp & Silverstein 1995, 171-172). In this study, I concentrate on heteronormativity and gender performances in relation to age in the article II. I suggest that age-related requirements of binary gender do not only concern work that has specific aesthetic aspects, such as service work or acting. In many, but not all, labour market contexts, a binary gender performance is expected, although there is not necessarily an aesthetic aspect to that work. Still, a gender performance that transgresses the boundaries of binary gender can also be commodified to suit the needs of a company.

The analysis of 'race'/ethnicity and racialisation within labour markets also involves challenges in relation to age. The racialisation of labour markets has also been convincingly shown in the Nordic countries (Ahmad 2004; de los Reyes 2000; Forsander 2002; Forsander & Alitolppa-Niitamo 2000; Knocke 1991; Paananen 1999)[32] and Nordic companies that extend beyond the Nordic sphere (Mulinari & Räthzel 2009), but very few studies or reports focus on age at work from the perspective of racialisation. A handful of studies exist that link 'race' or ethnicity, global inequalities, gender and ageing (e.g. Brodin 2005; Novikova 2005; Wilson 2000; Wray 2003; Zechner 2007),[33] but these seldom focus on the labour market or work organisations, or working life courses (see however, Dean 2005, 769-770; King 2006, 53-56; Wilson 2000, 88-89; Zajicek & al 2006). In this study, I explore racialisation in relation to age and work by analysing how assumptions about ethnicity and 'race' creep into the debate on ageing population, and how nationality, racialisation and gender are intertwined in the assumptions concerning ageing workers (article V).

[32] The Finnish research however, seldom names racialisation but discusses for example, employers' negative attitudes or the sociocultural dimensions of the labour market, see article V, 181.

[33] About ethnic minority elders and migrated older people in Finland, see Sarvimäki 2002. Sarvimäki also aptly notes the need to study the ethnic majority, instead of only minorities or migrated people, from the perspective of ethnicity (2003, 208).

2.4 Choosing menopause

In order to study the materialisation of ageing as posthumanist performativity, I need to also conceptualise how the so-called biological aspects of ageing are involved. The research interviews on which my study is based are multi-faceted, and they would have enabled a range of focuses on the bodily aspects of ageing. For example, I could have continued my previous analysis of ageing and time pressure (Charpentier & Järnefelt 2002; Charpentier 2002, see also Järnefelt & Lehto 2002) by more thoroughly discussing in which sense the utterances about stress and tiredness are aspects brought about by ageing, and in which sense they might be produced within a broader apparatus, including the practices of work organisations.[34] Another possibility would have been to focus on the cognitive[35] aspects of ageing in relation to older age and learning in the context of work organisations. Some employees in their fifties and sixties utter anxiety and feel unsure about learning to use new technologies, and these feelings are chiefly interpreted as being the result of generational differences (Julkunen 2003, 168-173; see also Rinne & Jauhiainen 2006). That is, they are related to the fast developing technologies that separate generations in terms of whether they have been grown and educated with technologies, or whether their work has profoundly changed in their midlife because of new technologies. From the perspective taken in this study, it could be asked whether there is more at stake than some aspect of age (the generational difference). It could be asked whether the anxiety-producing apparatus includes for example, the stereotypical views mentioned above that suggest that younger workers manage technology better, including the genderedness of these views (Korvajärvi 1999) and the space and conditions given in the workplace for using the technologies (see Sankari 2004, 83). Such conditions could involve enough technological support and time at the disposal of the employee (ibid). Thus, several

[34] See Wainwright and Calnan 2002 for an excellent example of a related endeavour, which however, does not discuss age.

[35] Here I take it that the cognitive abilities related to the discussion about learning are also bodily issues, rather than a question related to a mind separated from a body.

possibilities exist for discussing explanations and accounts related to ageing as products within apparatuses that extend beyond the individual bodily ageing or the generational difference.

In the research interviews the links from learning and tiredness to ageing are made in a seemingly non-gendered way. However, a third issue related to ageing bodies is more explicitly gendered: the utterances about women's menopause (see article III). Menopause was an issue that we did not consider, or at least, which none of the project members proposed to be included as a theme, when we planned the interviews in our research project on work, age and gender. On the one hand, this is significant because gender was among the focuses of the research project. On the other hand, it is quite understandable, because all of the participants were older than fifty. It would be fairly reasonable to think that menopause would not be an issue for them, and therefore that it would not be necessary to ask questions about it. In addition, as several feminist scholars have suggested, menopause is often passed with few difficulties, and for some women, it is not a significant matter at all (Kangas 1997, 162; Martin 1989, 173). Still, women's menopause was mentioned in some of the interviews, although it was never one of the most frequently discussed issues. The latter is not surprising, because we did not specifically enquire about it. That menopause came up in some of the interviews enticed me into thinking about it more closely. Although the participants were past the age of menopause, it would not have been unreasonable to enquire whether it had had any previous significance for the participants – I asked about the work history of the participants anyway. In addition, when I enquired about how the participants viewed others of similar age, I could have included a question about whether the other older employees' menopause has significance in the workplace.

I have reflected later on why I did not think at all about menopause when I first thought about ageing and gender in relation to waged work (that is, reasons that go beyond the fact that because of my age, then 26, I could not use my own or my mostly same-age friends' experiences in considering which subjects could concern senior employees). I have come

to the conclusion that my inconsideration of menopause was two-fold. First, menopause seems to be a question related to health and/or to women's bodily ageing, rather than a question concerning the labour market and work organisations. Second, my inconsideration stems from the way in which ageing and gender are formed as subjects of research in the studies of waged work. I suggested above that the link between ageing and gender is often made through issues that concern both women and men, such as retirement or age discrimination. In addition, some of the gender perspectives on ageing seem to have a starting point in younger women's situations in relation to waged work. I interpret that this is, at least partly, the inspiration behind discussing midlife women and work from the point of view of connecting work and home; in this case, not work and childcare, but work and care of older relatives, spouse or grandchildren (Eräsaari 2002b; Rosenfeld 2007; Zajicek & al 2006). In a sense, then, the starting point for the study of gender and ageing in waged work has been framed by issues that concern men as well, or which also concern younger women. This is why I chose to focus on menopause and other comments in the interviews that specifically concerned ageing women, albeit these issues were not often discussed in the interviews but rather mentioned here and there, sometimes in subordinate clauses (articles III, VI).[36]

Menopause is an issue that concerns women in midlife,[37] and since the research agendas have been constructed from the point of view of other than midlife women, it is understandable why it has not seemed to be a relevant subject in relation to ageing in waged work. In addition, menopause has been framed as a medical condition, pertaining to hormonal bodies (Oudshoorn 1994; Roberts 2007). The mainstream of menopause studies belong to medical sciences or sociology of health, and discuss menopause as a question of ageing female bodies, that is, as a

[36] The other subjects of discussion, which we explicitly asked about, are analysed elsewhere (Charpentier & Järnefelt 2002; Julkunen 2003; Julkunen & Pärnänen 2005; Pärnänen 2009).
[37] This does not mean that male menopause would not have been advertised as an important and potentially harmful phase constituted by testosterone deficiency (Vainionpää 2006), but menopause in these research interviews concerned only women. In addition, menopause is an issue that only later became a male phenomenon.

question of women's health. As feminist scholars have argued, the biomedical focus has narrowed most studies in that they have not taken into account the context of the 'menopausal body' (Chirawatkul & Manderson 1994; Kangas 1997; Kaufert 1994; Lock 1994; Rostosky & Travis 1996; Woods 1994). I suggest that because of this, menopause appears as a question of individual women's bodily states, rather than as an issue that concerns work organisations. Hence, menopause in waged work is an important question from a women's studies perspective not only because it concerns midlife women, but because seeing menopause as an issue pertaining to ageing at work *questions the gendered formations of the field of the study of ageing and work*.

A handful of previous studies mention menopause at work, but it is rarely the focus of the study. For example, disputes at work may involve gender differences in that men explain these disputes by women's menopause or emotionality (Gwartney-Gibbs & Lach 1994, 625-626, 632). Menopause can be used as a symbolic marker of an unsuccessful end of a career, as in the nickname 'Menopause Gulch' of a workplace 'where the old washed-up dealers wound up' in a casino work context (Jones & Chandler 2007, 158). When menopause is focussed on, working life tends to be viewed first, as a homogeneous whole (Reynolds 1999) that has not accepted women's reproductive bodies (Morris & Symonds 2004). Alternatively, work is accessed merely by the question of whether the woman participates in waged work, and whether the participation is part-time or full-time (Boulet & al 1994). In addition, a few studies discuss the effects of women's class position on the experience of menopausal symptoms (see Martin 1989, 170; Punyahotra & al 1997, 6-7). These studies also indicate that tough work situations affect the experiencing of these symptoms, especially hot flushes. Such situations include physically hard work (Punyahotra & al 1997), as well as meetings, presentations or other challenging moments when the women need to make a good impression of their work (Martin 1989, 170; Reynolds 1999). As I note in the article III, these perspectives seldom focus on gendering practices in

specific work organisations, or the broader economic conditions that mould these practices, which I discuss in the article.

In addition, I suggest that menopause deserves a theoretical discussion that moves beyond my research interviews. In other words, I take it as a theoretical challenge to *think through menopause* some of the questions that I see as pressing in the feminist discussions about materiality. I take menopause as an *example,* when I discuss one possibility of what it could mean methodologically to take into account biological arguments of bodies in a social science research endeavour. My hope is that the agential realist methodology, which I develop with the help of Karen Barad's agential realism, could inspire broader discussions about the stakes at hand if arguments about biological bodies are to be taken into account within social science research.

2.5 Resistance

The usual characteristic of the research on ageing in waged work is a social policy link to the ageing of population. As I have suggested, this research can be seen as part of the problematisation of ageing, which draws from the ageing of the baby boomer generation. As I have also hinted at, a problematisation of a particular issue is not neutral, but consists of material-discoursive practices (Barad 2007) that enable certain political moves as well as study focuses, and restrict or silence others (Katz 1996; Powell & Biggs 2000). The above-mentioned perspectives, that are only discussed in a limited way within the studies of ageing and work, can be more or less subsumed within this social policy perspective; for example, by arguing that accounting for differences and power is essential if the aim of later retirement age is to be achieved. In contrast, a focus on *resistance* seems to inherently question the policy discourse.

Resistance and strive towards change has been a central focus within feminist studies (see Koivunen & Liljeström eds. 1996), but much less so within the study of ageing in the labour market (see however, Kujala 2006,

180). The focus on *agency* is regarded as important for age studies (Iltanen & Topo 2007; Jyrkämä 2007, 106; Karisto 2004, 19; Tulle ed. 2004). The discussion about resistance in my study is one attempt to account for agency, in this case in relation to midlife employees and ageing in waged work. In Finland, the recent years have witnessed various types of activism and public protests that concern the need to redefine later life and, especially, care practices related to it.[38] In addition, public as well as scientific discussions about a change in Finnish working life towards the 'worse' have proliferated. This discussion gained momentum particularly after the publication of Juha Siltala's (2004) study *Työelämän huonontumisen lyhyt historia* (A Short History of the Degradation of Working Life). Turning to the 'worse' is referred to in terms of globalisation and other structural and technological changes that have resulted in intensification of work, increase of requirements for effectiveness, the pace of change, insecurity and strain on the employees (Siltala 2004).[39]

The above-mentioned considerations of 'age friendly' workplaces and practices also arise from this context, and focus on practices that could, on the one hand, make waged work copeful for all, regardless of age; and on

[38] Different activist groups that aim to empower minorities in later life have included for example, the Daisy Ladies, who concentrated on older migrant women, Mummolaakso ('Granvalley') for lesbian women, FinBears for older gay men. In addition several activists, initiatives and petitions have concentrated on the critique of the Finnish health sector from the view point of care of older people. For example, professor in medicine Sirkka Kivelä has been a prominent activist in public and has argued against the abundant use of medication in old age, as well as nurse Laila Koskela who initiated activism that succeeded in a remarkable recruitment of additional nurses within a care home in Tampere, a city north of the capital Helsinki. In addition, compared to discussion of other subjects, letters to the editor in newspapers can be said to abound with discussion about care practices and social political reforms related to old age.

[39] For analyses of what these changes mean for older employees, see Julkunen 2003 and Julkunen & Pärnänen 2005; for an analysis of the increase of time pressure, see Järnefelt & Lehto 2002; for an analysis of the increase of part-time work and the age structure of part-time workers, see Hulkko & Pärnänen 2006; for a critical approach that questions the unanimous movement towards the worse, see Julkunen 2008; for a suggestion that, at least from women's perspective, the question was rather of a temporary movement towards *better* conditions in the labour market during the middle of the twentieth century, which was followed by a return to conditions similar to the beginning of the century, see Rahikainen 2007.

the other hand, promote longer careers. Inspired by Nancy Fraser and the feminist debate on equality versus difference, Julkunen and Pärnänen (2005) raise the question of whether age policies should concentrate on equality or difference. This choice would entail aiming to treat older workers just like everyone else (equality), or formulating policies that focus on older workers (the positive difference of older workers). For example, such policy could consist of trying to enhance the possibility of utilising the experience gained during the working life course (see also Andrews 1999). The writers, however, point out that not everyone wants to be singled out on the basis of age, and that employees can feel this as not only relieving but also as degrading (Julkunen & Pärnänen 2005, 260-262).

The possibilities or actualised resistance of the employees themselves has seldom been raised in the study of older workers. It has been argued that the above-mentioned changes in the labour market, accompanied by a neoliberalist discourse of individualisation, of the decrease of solidarity and increase of insecurity, have resulted in employees only able to resist through their bodily states – that 'only the body can go on strike' (Julkunen & Pärnänen 2005, 110; Siltala 2004; Virkki 2004; see also Järnefelt & Lehto 2002; Niemelä & Kalliola 2008, 245-247). Because ageing has become a matter of individual disciplinary body-work, which rests on one's own attitude and deeds (Julkunen 2003, 258; Katz 2001), the question of resistance is all the more pressing. In this context, is the only possibility to resist the marks of *ageing* – by attempting to stay youthful – in order to fulfil the requirements of the toughened labour market?

The question of resistance figures in this study in two ways. In the empirical analyses I pay attention to how gendering practices coincide with women's agency and resistance (especially articles III and VI). In addition, I analyse the discussion that involves resistance of ageism (article I). It has been argued that critiques of ageism sometimes end up in an ageist way to deny old age (Andrews 1999; Calasanti & King 2005), as well as, contrarily, that the best way to combat ageism is to question old age as a starting point for a study (Bytheway 2000). Moreover, it has been argued that the critique of 'denial' assumes a 'reality' of old age (Jones 2006). These discussions involve the attempt to conceptualise what affirmative

ageing would mean. Inspired by these controversies, I ponder the challenges in supporting notions of affirmative old age or midlife; especially when ageism is resisted, which other forms of power are invoked? This is part of my methodological considerations, and is connected to suggesting an intersectional approach as a feminist perspective to ageing (see Chapter 5).

③

Ageing 'at work' – the key arguments of the articles

3.1 That which is recognised as 'ageing'

In article I, in English, *Ageing, a Postmodern Approach, and Differences,* I discuss the contradiction between *constructionist thinking* that questions the existence of 'old age' (Bytheway 1995, 2000), and *its critics* who argue that constructionist approaches deny old age. In addition, constructionism is argued to be at risk of leading to ever stronger differentiation between bodily ageing and an ageless mind. (Andrews 1999; Gibson 2000; Rantamaa 2001, 88n3.) The differentiation between bodily ageing and ageless mind is especially seen in the concepts of 'mask of ageing' (Featherstone & Hepworth 1989; Hepworth 1991; Biggs 1997) and 'the ageless self' (Kaufman 1986, see also Thompson & al 1990). Analysing a debate in the journal *Ageing & Society* between these positions, helps to formulate an approach that does not assume a difference between mind and body, does not deny ageing as a bodily process, and holds on to questioning the existence of old age as a referent in a reality independent of meaning-making and other practices. Moreover, this approach should be able to account for differences that mould the processes of ageing.

Sharon Kaufman's study (1986) gives a point of entry to the *Ageing & Society* debate between the constructionists and their critics. The

constructionist side of the debate stresses the experience of continuity of self in the talk of Kaufman's interviewees, rather than interpreting that they make a difference between mind and body. This leads to the question of why one should identify with the particular construct that is 'old' (Bytheway 2000). However, the other side of the debate interprets that a difference is made between an ageless self and an ageing body in Kaufman's study, as well as in several other constructionist conceptualisations of age. These critics argue that the constructionist approach entails denigration of old age, which is imbued in the notion of agelessness. According to this critique, questioning the existence of 'old age' in reality and questioning the need to identify with such a construct also has the effect of neglecting the experience and psychological growth that growing old brings (Andrews 1999; Gibson 2000). I suggest that this position, in its aim to rethink old age as affirmative rather than questioning its reality, succeeds in accounting for differences in that ageing is gendered and that this has consequences for what it means in practice for women to resist the identification as old (e.g. Andrews 1999; Kangas & al 1990; Karppinen 1999; Kosonen 2003; Nikander 1999; Rantamaa 1999; Sontag 1997). Inspired by this position, I argue that the question is not only whether a person *wants* to identify as old, but about the processes and conditions that set age-related requirements and assumptions according to gender and affect what it means to be categorised as old by others. However, even this perspective includes an implicit heterosexual assumption, often involved in theorising age and gender, that sees a power asymmetry merely between older women and men. I suggest that a broader issue is at stake, of the intertwining of age to the requirements for binary, and heterosexual, gender performances.

In addition, despite its ability to account for gender, I interpret that this perspective stabilises the meanings of ageing by its critique of the denial of old age. It is also at risk of posing normative notions of what is affirmative in ageing. In order to resist the stabilisation, I ask: what is then denied, if ageing or old age is denied? I suggest that Kaufman's text as well, as the arguments about denial, get trapped within prominent conceptualisations of age, in which particular changes are recognised as ageing, especially

those that involve bodily changes (or the accumulation of experience), and others not. The other changes in, and aspects of, the person's life then become excluded from the analysis, or termed as signs of 'agelessness'. I argue that an anti-foundationalist approach to ageing does not require the denial of bodily changes. Accounting for bodily transformations, illnesses or disabilities in one's analysis does not require the stabilisation of *ageing* to a particular meaning; such aspects need not be grouped and equated with the sign 'ageing' (Bytheway 1995, 125). Moreover, if ageing is conceptualised independently of bodily changes, this may result in altering the fear of old age to the fear of disability (Kennedy & Minkler 1999, 101).[40] I argue that a crucial question for feminist age studies then becomes: *what is and what is not recognised as 'ageing'* within particular constellations of power, and how the conceptualisations of ageing serve to produce and maintain other differences, such as the power asymmetry between old age and disability.

3.2 Heteronormativity moulding working life courses

Article II, in English, *Heteronormativity and Working Life Course in the Stories of People over the Age of 45,*[41] was set in motion by the pondering of what ageing consists of, anyway, in the labour market context. If ageing is not equalled to a process of deterioration in an individual body, or to the accumulation of experience, could it be approached by asking what happens during the person's working life course? The notion of 'working life course' is a fruitful term to analyse paths to and from paid work,

[40] See also Oldman 2002 and Jönson & Taghizadeh Larsson 2009 about the need to think ageing through disability studies, and vice versa.

[41] See English translation at http://www.mol.fi/esr/fi/ yleiset/researchreport2b04.pdf [accessed March 25, 2009]. The translation includes an inaccuracy, on p. 116 it reads '*means-tested* labour market subsidy', when the correct translation should be 'earnings-related'. When referring to this article in the following I give page numbers to both the Finnish version (article II, which is part of this doctoral study) and to the English translation, by referring to 'Charpentier 2004'.

including twists and turns, changes of occupation, workplace or country, instead of assuming a career, a linear trajectory towards better positions and salaries.[42] Inspired by the concepts of 'lifetime of multiple oppressions' (Browne 1998) and 'vulnerable life courses' (Gunnarsson 2002), I suggest that heteronormativity is a form of power that has moulded the situations of those who are, in the governmental discourse, termed as 'ageing workers'.

First, I argue that from an age studies perspective, heteronormativity can be rethought as a *normalisation of a life course* that involves first finding a job and a heterosexual couple relationship, then building a family and having children, and finally, grandchildren. For this task, I argue for a rethinking of the age studies concepts of timing (Marin 2001, 37) and social age. These concepts refer to expectations related to life courses. The former refers to the timing of events, in particular chronological age, and the latter to where the person is situated in terms of a normative continuum of social positions, such as whether the person is single, or 'settled', as in married with children (Vaahtio 2002).[43] I argue that normativity does not relate to the timing of life events as such, but to the combination of expectations of timing and the heterosexual assumptions of the life course. I also suggest that in the labour market, job seekers are not evaluated on the basis of the construct of 'social age' as such, as Vaahtio (2002) proposes. Like the expectations of timing, the normativity related to evaluations based on social age includes heterosexual assumptions of the life course. Hence, the evaluation of job seekers according to which stage they are in the life course is not only related to whether the job seeker is already settled and therefore 'mature' (Vaahtio 2002). These criteria are also heteronormative, in the expectation of a heterosexual couple relationship and children at a certain age as a sign of maturity.

Second, I suggest that expectations related to the life course as well as presumptions of gender performances are aspects of heteronormativity that mould working life courses in a variety of ways. Age-related

[42] Critique of the notion of a career model of life within age studies, see Walker 2000.
[43] For a broader definition of social age(ing), see Jyrkämä 1995, 2001; Rantamaa 2001.

requirements for binary gender performativity do not only concern work with specific aesthetic aspects, such as service work or acting. For example, a workplace atmosphere that includes denigrating jokes about gays or transgender people, or which does not allow a gender performance that suits a person's gender identification, encourages changing jobs. When employees are recruited, promoted and regularised, heteronormative expectations of the life course, as well as of gender performances, are at play. I argue that these expectations come into play when employees' or job seekers' competence and reliability are evaluated. The expectation of an adult appearance, which also varies in different work contexts, is tied with presumptions related to gender performativity. The gendered expectations not only refer to differences in expectations for women and men, as several previous studies have suggested (e.g. Andrews 1999; Kangas 1998; Kangas & al 1990; Rantamaa 1999; Kosonen 2003; Nikander 1999; Sontag 1997). In addition, they serve to maintain a gender binary, that is, an employee is expected to look like 'a man' *or* 'a woman', and continuously adhere to the same gender. The research material includes stories of people who have changed not only their workplace but profession, or even ended in disability pension for reasons intertwined with heteronormativity. I argue that by moulding working life courses, heteronormativity may also have an effect on the economic conditions of later life; as in Finland, the earnings-related pension is the most important way to guarantee a proper income in later life. I suggest that heteronormativity does not determine working life courses, but it is a crucial form of power that may have an effect on some of its twists and turns, and which continues to have an effect long after resigning from waged work.

3.3 From individualised menopause to ageing apparatuses

In article III, in English, *Anger as a Symptom of Menopause: On the Individualisation of Menopause in Working Life*, I take as my starting point the comments related to menopause in the age interviews. I develop an agential realist (Barad 1996, 1998, 2003) approach to menopause in work organisations, by taking one organisation, a bank, as an example. I analyse the utterances about menopause from three perspectives: as part of the sequence of the interview talk, as in relation to the organisational context that can be sketched with the help of all the interviews and other research material from the bank, and as with previous research on the banking sector. I connect research that problematises the notion of natural menopause (Kwok 1996; Sybylla 1997) and research that develops alternative perspectives to the biology of menopause (Derry 2002; Lock 1993) to the agential realist suggestion to account for how 'matter matters' (Barad 1998, 2003). I then utilise this perspective to question the idea of menopause as a phenomenon that resides within the contours of individual women's bodies. I suggest that instead of being a biological, bodily phenomenon that may also cause symptoms in work situations, menopause is not inherent to women's bodies, but instead, materialises within apparatuses that include gendering practices in work organisations, women's sensations within specific work situations, and biomedical accounts about menopause.

The article also relates to the earlier feminist discussions about anger as a force of change (see Martin 1989, 133-138), as well as to the age studies rethinking of the ideal of 'wise old age' towards 'wise anger' (Woodward 2003). These perspectives suggest the fruitfulness of formulating more affirmative readings of midlife women's anger than the explanations related solely to menopause. I hence discuss the conditions of midlife women's agency as part of the processes in which menopause materialises. I argue that limits exist, to what extent midlife women employees can mobilise their anger to enact changes in their work organisations. I suggest that there is a risk that, within the ageing apparatuses from which the so-

called 'menopausal women' materialise, women's anger is individualised by assuming it to be a symptom of menopause, rather than a relevant response to the work conditions.

3.4 Research apparatuses, gendering practices, and the ageing worker

Article IV, in English *Defence and Confidence: The "Ageing Worker" within Research Process and Gendering Practices in Work Organisations,* is a critique towards any innocent discussion of ageing workers within age policy and public discussion. The article starts from what I first termed an unsuccessful interview, in which I was neither able to put forward the feminist ideal of an empathetic encounter between women based on similar experiences, nor the age studies ideal of an encounter between a novice and an experienced employee.[44] I, however, move on to account for emotional atmospheres of the interviews as signs of power at work (Wasserfall 1993, Blee 1998; see also Ahmed 2004). From this point of view, even if an interview atmosphere is warm, it does not mean that power would not be an issue. I grab the emotional atmospheres by analysing gendered speech styles of the participants, which I name as defensive and confident, and which do not depend only on the gender of the participant. The first style indicates that the participant answered to the questions as if interpreting that I question the person's competence and capability to work because of age. The latter style consists of answers that emanate confidence about the participant's position and of older age as an asset at work. I analyse these speech styles as products of an

[44] About feminist interviewing, also including critique of the understanding of feminist interviews as empathetic encounters between women, see Campbell 1998; DeVault 1990; Ikonen & Ojala 2005; Kasper 1994; Maynard & Purvis eds. 1994; Oakley 1981; Oinas 2004; Phoenix 1994; Reinharz 1992; Ronkainen 1989; Wichroski 1996. About age, see Heikkinen 2005; Lumme-Sandt 2005 and Ronkainen 1989, who focus on interviewing people in later life; Helavirta 2007 focuses on children.

apparatus that includes the research process, especially the letter of invitation that positions the addressees as ageing workers, and the interview questions. Hence, in this article, by using my own research as an example, I illustrate how research processes are also part of the apparatuses within which ageing workers materialise. In addition, I include in this apparatus the contemporary public discourse related to ageing, the position of the employee at her or his work organisation, and the gendering practices that participate in composing what ageing means, and for whom, in a particular work organisation.

I argue that gendering practices in work organisations protect some of the employees from the narrative of decline, while in some work contexts this becomes the dominant meaning of ageing. The word 'ageing' is a performative in the sense that it carries meanings from various contexts outside of the interview to the interview talk. Hence, what the word 'ageing' performs in a particular interview may differ greatly from other interviews, and it is not determinable by the intentions of the speakers or the wording of the interviewer's questions. The ageing worker is hence far from a descriptive term, but rather a product of these material-discoursive apparatuses that extend beyond the interview interaction. Hence a rethinking of ageing in the labour market to the positive, attempted for example, by the *National Programme on Ageing Workers*, would require accounting for the differing effects of power that mould who is considered an experienced worker, whose capabilities on the contrary are questioned because of ageing, and who can answer with confidence and pride when hailed as an ageing worker.

3.5 Nation, 'race' and ethnicity within the problematisation of ageing

In article V, *Experience Is a National Asset: A Postcolonial Reading of Ageing in the Labour Market*, I scrutinise how nationality, 'race'/ethnicity and gender are intertwined in the assumptions concerning the so-called

ageing workers. I study the bulletin of the *Finnish National Programme on Ageing Workers,* as well as newspaper articles, including letters to the editor, in order to map how the problematisation of the ageing population appears if considered from a postcolonial feminist perspective. I suggest that ageism is mobilised in arguing against the restrictive migration policies of the EU, that the attempts to rethink ageing as an asset at times resort to a celebration of 'hardworking Finns', and that migrants are framed as an answer to the ageing of Finns, for example, by being assumed to serve the Finnish baby-boomers when this generation grows old. In addition, the resistance to the slimming of the welfare state at the sight of population ageing is formulated through a nationalist we-ness, a defence of 'our older generation' and 'our old people', especially the veterans of World War II (cf. Nilsson 2008). The article continues with a contrapuntal reading (Said 1993, 66-67; Savolainen 2001, 178-179) that asks how experience, the assumed asset of older workers, works within labour market practices. Here, I utilise previous studies to argue that racialisation of the labour market is a form of power that moulds the conditions of age-as-an-asset. This is because education and work experience count in different ways in the labour market, depending on where they are acquired, and whether, for example, a job seeker lives up to the gatekeeper's idea of a qualified worker, which often includes the expectation of white Finnishness. In addition, notions of women's experience are, on the one hand, connected to assumptions of gendered skills and characterisations of women as bearers of both children and cultural traditions (see also Tuori 2009a). On the other hand, the asset of older women is not seen in these gendered skills per se, but in that the responsibility of caring for small children is supposed to have ended. In the end, I suggest the importance of posing further postcolonial feminist challenges to the notions of, and policies related to, the 'ageing Europe'.

3.6 Gendering practices and the materialisation of 'cranky old women'

In article VI, *Cranky Old Women? Irritation, Resistance and Gendering Practices in Work Organizations,* I analyse the claims in the age interviews that older women become troublesome in various ways, such as difficult, bitter, cranky or tense, in their workplaces. A seeming contradiction exists, in that both women and men tell about becoming angry about injustices and mistreatment, but it is only women whose *ageing* is claimed to bring along such emotionality. I do not assume that the figure of the 'cranky old woman' is a mere stereotype, but neither do I take it as a true depiction of midlife women. Instead, I turn to ask: which apparatuses enable that such a figure might be materialised? I analyse gendering practices in three work organisations: a hospital, a food factory, and a metal factory; and I argue that, in a variety of ways, these organisational contexts produce the conditions in which women on the one hand become angry, and on the other, are (or are not) able to raise criticism and act on injustices. I suggest that the Western medical imagery, that includes excessive emotionality and morbidity of women, becomes part of the gendering practices in work organisations, and that this apparatus enables women's emotionality, critique and conduct to be made intelligible by individual bodily phenomena, that is, individualised as an effect of women's ageing.

④

Negotiating materiality

4.1 Approaching materialisation

No simple reference point for the term 'materiality' exists within feminist studies. This term is under considerable negotiation and rethinking. The critique of the sex-gender distinction has crucially formed the feminist discussions of materiality during the past two decades. Feminists used the sex-gender distinction as a theoretical device to criticise the use of women's biology to explain women's position in society (see Heinämaa 1996, 110-129). The central concept utilised in this study, materialisation, is known from Judith Butler's book *Bodies That Matter*, and especially from the citation below.[45] Along with, for example, Elizabeth Grosz's (1994) and Moira Gatens' (1996) works, this concept is one of the most known and debated critiques of the sex/gender distinction within the social sciences and humanities. The citation refers to the problematic interpretations of constructionism, in which construction is understood as deterministic or denying the existence of material reality:

'What I would propose in place of these conceptions of construction is a return to the notion of matter, not as a site or surface, but as *a process of materialization that*

[45] See e.g. Barad 1998, 90; Honkanen 2004, 143-144; Kerin 1999, 95; Kontos 1999, 681; Roberts 2007, 9.

stabilizes over time to produce the effect of boundary, fixity and surface we call matter.' (Butler 1993, 9, emphasis in original.)

Butler's notion of materialisation has arguably become one crucial node in the feminist negotiations of materiality. This concept has been criticised, or proposed to be broadened or changed, from at least three directions. One of these directions is the claimed need to account for the materiality of materialist feminists, that is, the economic restrictions and conditions, or concrete practices (Ebert 1996, 31, 48). This critique stems from the negotiations between materialist and poststructuralist feminisms. Critics such as Teresa Ebert see the latter to operate only with 'resignification' or discourse (ibid, 122), which they understand as text or talk rather than materiality. This reading results in that the discoursive is seen as opposed to materiality, and the latter is seen as more real, objective or important.[46] Other readings however, see Butler's work as compatible with a materialist feminist approach (Hennessy 1993, 88, 95; Rahman & Witz 2003, 254-258; Ramazanoğlu & Holland 1999, 388-389), and specifically with the analysis of practices in work organisations (Korvajärvi 1998, 31-32; Martin 2003, 352-353).

Secondly, the notion of materialisation is criticised for only succeeding to focus on the surface of bodies, the psychic identifications that mould the morphology, rather than accounting for the process of materialisation that includes biological bodies (Barad 1998, 107; Honkasalo 2004, 317; Kerin 1999, 93; for a related critique of Grosz 1994, see Birke 1999, 2). Other critics further argue that, in Butler's conceptualisation, the biological body 'disappears as a phenomenon that is possible or even worthy of investigation' (Kontos 1999, 683; see also Davis, N 2009, 78; Kirby 1997, 93, 100). A related critique suggests that Butler succeeds in articulating the dynamism of matter, but centres on human bodies to the extent that her

[46] See Martha Gimenez's (2000) work for an analysis of the differing understandings of materiality within materialist feminisms. The terms 'material basis' and 'material consequences', in which the term 'material' often appears in this strand of feminism, have a variety of meanings. Material refers not only to the sphere of the economic, but the word is also used to denote qualities such as real, objective, influential or important (Gimenez 2000; see also Rahman & Witz 2003).

thinking perpetuates the distinction between human body matter and other materialities (Cheah 1996, 118-120). Thirdly, hence, the concept of materialisation is argued to need rethinking in order to account for technologies and enactments other than human agency and discourse (Barad 1998; 2007; Kerin 1999; Roberts 2007, 8-14; see also Grosz 2005, 189-190).

The latter two types of critique are related to the transdisciplinary feminist negotiations of materiality, in which social scientist feminists are criticised for neglecting biological aspects of bodies and the agency of materiality; and of assuming the stability of biology (e.g. Barad 1998, 107-109; Birke 1999, 21-22; Grosz 2005, 45-47; Kerin 1999, 98-99; Kirby 1997, 108; Roberts 2007, 93). In this study I utilise the concept of materialisation by taking these three perspectives into account. Firstly, in my case, the matter of materialist feminists inspires an analysis of gendering practices in work organisations. Secondly, I discuss what is at stake in accounting for biological aspects of bodies in the case of ageing at work. And thirdly, on the one hand I analyse gendering practices in work organisations as part of the process in which ageing bodies materialise, but on the other hand, I question these bodies as determined entities distinguishable from other forms of matter. Karen Barad's agential realist approach discusses and further develops the concept of materialisation in a useful way that enables accounting for these aspects of materiality.

Barad is schooled in physics, and she is especially inspired by quantum physics and Niels Bohr's interpretation of it. Barad's central contribution for the physicist audience is to argue for a novel interpretation of the foundational issues in quantum physics, which she accomplishes by discussing Bohr and his controversies with Werner Heisenberg and Albert Einstein (Barad 2007).[47] Even although Barad's book (ibid) is primarily

[47] Niels Bohr, along with Werner Heisenberg, is known as a central figure in the formulation of the most broadly supported interpretation of the foundational issues in quantum mechanics, the Copenhagen Interpretation. However, according to Barad, the implications of Bohr's thinking are not limited to the specificities of the Copenhagen Interpretation but could more fruitfully be regarded 'as a general framework within which the new physics was to be justified as an objective description of nature' (Folse cited in Barad 2000, 251n8).

directed to physicists, her work can be read as part of the transdisciplinary feminist negotiations of materiality, and hence, in relation to a feminist studies genealogy. In this sense, her theoretical perspective is for a large part inspired by Donna Haraway,[48] in addition to the physicists that she discusses. For example, Barad's concepts of apparatuses of bodily production and diffraction were previously discussed by Haraway (1991, 1997). Barad (1996, 1998, 2003, 2007) does not explicitly confront Haraway by discussing differences in their theoretical perspectives. This suggests that Haraway has not only been a great inspiration for her, but that she does not see essential theoretical differences in their thinking, despite that their subjects of study obviously differ. An exception is a footnote, which Barad does not explain any further, and in which she suggests that 'Haraway doesn't seem to go as far in making the ontological points I want to emphasise here' (Barad 2007, 470-471n45).

For an understanding of Barad's posthumanist performativity as well as the type of (agential) realism that she proposes, her argument about ontology is however, crucial. It also helps to counteract some of the criticism that is posed to Haraway (Currier 2003, 323-324; Kirby 1997, 147; Pulkkinen 2000a, 147-150). This critique suggests that Haraway has not succeeded in questioning the binaries such as sex/gender, human/technology, and culture/nature; in Currier's words: 'In proposing the cyborg as hybrid, Haraway reiterates precisely the categorical demarcation of human and machine she is attempting to dissolve' (Currier 2003, 323). A detailed discussion of Haraway goes beyond the tasks of this study, but I suggest that her thinking can be read otherwise, and it can be utilised exactly in dissolving some of these boundaries (see Latour 2006, 82; Lykke 2000, 2-4; Roberts 2007, 76-77; Rojola 2000, 145-148; 2005, 205; Roy 2008, 146; for an age studies example, see Siren 2003). This is how I read her legacy in Barad's agential realism. That Barad goes further than Haraway in explicating her ontological assumptions, enables this reading, and it also helps to reformulate some of the issues that are also at

[48] Other sources of inspiration within feminist theory include Sandra Harding, Helen Longino and Evelyn Fox Keller (Barad 1996, 165).

stake in the critique of Haraway. I develop this point during this study, and return to it in the final chapter *Transdisciplinary encounters and the politics of materiality*.

Some of the critics of Haraway, as well as of Butler, propose Deleuzian feminism for imagining unpredictable futures (Currier 2003), politics of surprise (Grosz 2005, 2), or materialism of the flesh (Braidotti 2002, 5). 'New materialism' has recently become a popular notion within feminist studies (Ahmed 2008; Hird 2004a; Kontturi 2010; Tiainen 2007; Tuin 2008a, 2008b). Some scholars even propose it as a general name for the present feminist developments related to materiality (Tuin 2008b). The notion of new materialism has also been criticised because, it is argued, it is by no means new within feminism to ask critical questions about women's biology (Ahmed 2008).[49] Iris van der Tuin has answered to the critique by suggesting that the prefix 'new' is legitimised because these studies, including her own, are an heir of materialist feminism and the second wave feminist epistemologies, especially standpoint feminism, which are rethought through Deleuzian thinking (Tuin 2008b). For Tuin, new materialism coincides, or even marks, a third wave generation of feminists (ibid; Tuin 2009).[50] Like the proponents of Deleuzian feminism, I am fascinated by 'the matters, flows, forces and intensities of the corporeal' that 'link and connect with other flows' in a process in which 'the forces and materials of the technological and different bodily and technological multiplicities are elaborated' (Currier 2003, 331). Some of the strengths suggested in Deleuzian feminism, for example: unpredictability, indeterminate ontology, the flow, and the questioning of the notion of context (ibid, 328), are strikingly similar to and, in my vision,

[49] The content of new materialist analyses is, however, broader than women's biology (cf. Ahmed 2008). For example, see Kontturi's anaysis of how human and non-human layers of an artists' work intertwine in 'the work of the work of art' (Kontturi 2010), and Tiainen's (2007) on music and singing. See also Kontturi & Tiainen 2004.

[50] For a critique of Tuin's (2009) notion of generationality, see Hemmings (2009). As Hemmings suggests, Tuin's argument about new materialism as the third generation of feminism is at risk to reproduce, albeit in somewhat differing form, the problematics of the previous 'Oedipal models' of feminist theory, with its own geographical and epistemological outsides. In addition, it is 'unlikely that a specific epistemological formation should provide the key to the unknown future of feminist theory' (ibid 37).

can also be achieved with the agential realist approach. This is not surprising in the sense that also Deleuze and Guattari have been inspired by natural sciences in their writing.[51] However, the science studies approaches, including Barad's agential realism, go beyond offering 'alternative conceptual horizons', which are named as the strength of the Deleuzian-inspired approach (Currier 2003, 337). Agential realism is developed rigorously in relation to specific physics practices and questions (Kerin 1999, 94; see Barad 2007). These concrete settings make it possible to conduct transdisciplinary conversation while translating the approach into social science practice. Because of the rigorousness of the approach, it also enables acquiring some of the feelings of fascination and excitement about these scientific practices (see Kirby 2008, 5). For these reasons, I have chosen to think through agential realism rather than the scientifically less detailed[52] and more imaginative Deleuzian feminist alternative. Hence my study is not situated within the contours of the proposed new materialism, but rather, within what I call *feminist transdisciplinary negotiations of materiality*.

For the transdisciplinary feminist theory, Barad's central contribution lies in her rethinking of Butler's versions of materialisation and performativity. However, I argue that this is not a contribution in the sense that it would make Butler's concepts redundant – contrary to how the new materialist critique has been utilised in the debate (e.g. Davis, N 2009, 77-78). The reading of Barad also helps to reinterpret some of her critique as well as the critique posed against her (see Ahmed 2008). This reading suggests that what I call transdisciplinary quagmires are implicitly at work in these negotiations. They, as well as particular assumptions about materiality, enable the proposing of certain lines of argument and the silencing of others, and hence shape the terms of the contemporary feminist negotiations of materiality.

[51] See for example, their references to Michel Serres' work on physics in Deleuze & Guattari 2004.

[52] Watson 1998, 24, 30. Watson reads Deleuze and Guattari's work through more detailed arguments about neurobiology. See also a similar comment about the lack of details in Grosz (2005) and Braidotti (2006), who are both inspired by Deleuze (Roberts 2007, 15).

4.2 Matter as base – matter kicks back

The first issue that needs negotiation when an agential realist perspective is formed is the understanding of the nature of nature. This pertains to how arguments about biological bodies can be understood. Within feminist studies, it has long been established that processes of power, of naming, focusing and practicing science have contributed to how 'sex' has become a 'truth', and that scientific practices related to sex and sexuality are imbued with the social and the cultural (e.g. Fausto-Sterling 2003; Franklin 2007; Haraway 1992, 1996; Longino & Doell 1996; Lloyd 1996; Oudshoorn 1994; Roberts 2007). Scientific descriptions of sex are already storied (Martin 1996; Keller 1996) and hence, in scientific texts we are not given the singular truth of bodies that exist out there, but a particular version of female and male bodies and their differences, which is named 'sex'. Thus sex is a social and political question – a politics inherent in every scientific endeavour of what gets named, and how.[53] As in feminist studies, age studies scholars have pointed out processes that contribute to materialisation of ageing bodies. For example, Sonja Iltanen and Päivi Topo have analysed patient clothes and technologies utilised with people with dementia. According to them, the question of how material conditions constitute ageing becomes specifically acute in the 'fourth age', when care is needed in every-day life, and that power asymmetries are produced in complex intra-actions[54] between residents of care homes, their relatives, the health care personnel, the technologies, and their designers (Iltanen & Topo 2007; Topo 2007). As a result, there is no intelligible or natural

[53] By implication, in my study the terms 'sex' and 'gender' are understood synonymously. Maybe it is not only that 'this construct called sex is as culturally constructed as gender; indeed perhaps it was always already gender (Butler 1990, 7), but *also* the other way around, in that gender is part of the 'repertoire of biological matter' (Wilson 2004, 13), and hence 'the distinction between sex and gender turns out to be no distinction at all' (Butler 1990, 8). See also Appendix III.

[54] Intra-action is Karen Barad's term through which I interpret Iltanen and Topos's studies. The term was coined by her instead of int*er*active in order to stress the ontological inseparability of the intra-acting 'parties' (Barad 2003, 815). See Chapter 2.3 for more explanation.

ageing body to be distinguished from these enactments.[55] Bill Bytheway and Julia Johnson (1998) have analysed standardised ways of drawing an old person, which serve to set standards for how an old person is recognised. Bryan Turner (1995) has commented on the impact of standardised photography on the same issue, and Chris Gilleard and Paul Higgs (2000) have scrutinised body techniques, such as cosmetic surgery, that work to unnaturalise any idea of a 'fact' of ageing (see also Twigg 2004, 63). Katz and Marshall (2003) have pointed out the interrelations of scientific developments to the understanding of what a body is, and hence to the understanding of ageing.

That various practices mould ageing body matter is hence well established. What has not been as well established, however, is the status of 'the living processes of something' (Birke 2000, 597n1), human biology as an example. As Birke (2000, 597n1) notes, firstly, the term 'biology' is ambiguous in that it refers to the living processes but also to a subject of study called biology. By the notion 'biological' I refer to the so-called living processes, and by the notion 'arguments about biology' or 'biological arguments about bodies', I refer to the biological scientists' and others' (intra-active) conceptualisations about these processes. Some writers have been critical of using the term 'biological bodies' in this way. For example, Steven Rose argues that this type of conceptualisation would 'use the name of the science, *biology*, to replace its field of study – life itself and the processes which sustain it' (Rose 2005, 5, emphasis in original). Therefore, he 'talk[s] about life, living processes and living systems, and restrict[s] the use of the word biology to its proper limits, the *study* of these processes and systems" (ibid, 20n2, emphasis in original). I recognise the problematic in using the term 'biological' bodies, but for my purposes the term 'living processes' is equally problematic: it – to an extent –

[55] In the cases that Topo analyses, the technologies can be seen as 'actants' (see definition in Chapter 2.3), the properties and working (or not working) of which are ultimately questions about life and death of the persons with dementia (Topo 2007, 222, 225). The use and design of these technologies raise difficult ethical questions, as they may, for example, simultaneously increase possibilities for agency, surveillance, and risk of institutionalisation, if the agency of the client/patient/main user is at all accounted for (Topo 2007, see also Iltanen & Topo 2007).

essentialises or naturalises 'life' to something that can be distinguished from practices, technologies and other materialities, and the non-living, as well as meanings given to 'it', such as the meanings given by biological sciences. The analysis by Margaret Lock of brain-dead bodies aptly illustrates the shifting and problematic boundaries between what is living and what is not (Lock 2003), and hence the problematic of 'in reality' distinguishing living processes as a proper reference point. To me, the terms 'biological bodies', or more broadly, 'biological matter', already acknowledge the scientific meanings without which these living processes are difficult to conceptualise. In this study, I am not concerned with living processes or life itself as if these would be distinguishable from their above-mentioned others, but the point is especially to understand these processes as materialised, in the very process in which they are ontologically inseparable from the apparatuses within which they are perceived.

In addition to the ontological inseparability of living processes and the practices in which they are conceptualised, attention here needs to be paid to that the biological, in social sciences, has more or less been regarded as problematic in relation to change. As natural scientist feminists have suggested, the distrust of biological arguments about bodies within feminist social sciences is partly perpetuated by a deterministic and stable understanding of biology *within social sciences*, and this false understanding serves to maintain the distinction between the sociocultural and the biological (Birke 1999, 20, 31). From this perspective, the critique that, for example, Haraway (1991; 1992) assumes that '(n)ature is the basis and more permanent, and culture is shallow and ever-changing' (Pulkkinen 2000a, 149) might be a result of a social scientist reading in which such a conception of a stable nature is assumed, rather than an adequate account of Haraway's work. This issue exemplifies a broader social science feminist approach to nature (see also Roberts 2007, 93). The critique stems from Haraway's claim of the limits set by nature to its descriptions; interpreted by the critique that 'the process of construction in question is free only to a certain degree' and that the

process of construction 'is essentially limited by the reality that is being mapped' (ibid, 149). However, two distinct issues are conflated in this critique. It is a different argument to claim that nature is 'the basis and more permanent' (ibid), and to suggest that 'the world kicks back' (Barad 2007, 215) when it is assessed.

Related to this, Jacinta Kerin asks whether different forms of matter (such as the ones that have been named as a cell, a multicellular organism or a rock) make any difference in how they are interpreted and conceptualised (Kerin 1999, 93, see also Barad 1998, 91, 107). This question is significant to natural scientists' methodologies and identities, but according to her, it cannot be asked within Butler's approach to materialisation. Kerin interprets that according to Butler, any natural science text that suggests that the particular argument about biological matter is more apt than another, appears as uncritical and inapt from a Butlerian framework (Kerin 1999, 93-94). Hence, her approach would ultimately make the natural science endeavour of studying, for example biological matter, as redundant. Crucial in Haraway's suggestion of the restrictions posed by nature to its constructions is a claim to a non-human *agency,* rather than a suggestion of the existence of nature 'as such', a stable referent out there that sets limits to cultural inscriptions by its mere existence (Barad 1998, 104-105; 2003, 822; 2007, 212-215; Honkanen 2004, 147-149; Kerin 1999, 99; Kontos 1999, 682; Kontturi 2010; Roberts 2007, 22-24; Väätäinen 2003). Such agency is analysed in this corpus of research, for example, as the materialisation of dance discourse on the conditions of the physical capabilities of dancers (Väätäinen 2003, 36-37), or conceptualised as 'biology as provocation to the social' (Roberts 2007, 23) and 'enactment of iterative changes to particular practices' (Barad 2003, 827), including enactments by various creatures and technologies in intra-action with human body matter.

I suggest that an interpretation that Butler's concept of materialisation would question the meaningfulness of natural science research is far-fetched. The fragment that most clearly helps analysing her notion of materialisation in relation to these claims is the following, in which she answers to some other critics who misread her as a linguist idealist:

'… it seems that when the constructivist is construed as a linguist idealist, the constructivist refutes the reality of bodies, the relevance of science, the alleged facts of birth, aging, illness, and death. The critic might also suspect the constructivist of a certain somatophobia and seek assurances that this abstracted theorist will admit that there are, minimally, sexually differentiated parts, activities, capacities, hormonal and chromosomal differences that can be conceded without reference to construction. Although at this moment I want to offer an absolute reassurance to my interlocutor, some anxiety prevails. To 'concede' the undeniability of 'sex' or its 'materiality' is always to concede some version of 'sex', some version of 'materiality'. Is the discourse in and through which that concession occurs – and, yes, that concession invariably does occur – not itself formative of the very phenomenon that it concedes? To claim that discourse is formative is not to claim that it originates, causes, or exhaustively composes that which it concedes; rather, it is to claim that there is no reference to a pure body which is not at the same time a further formation of that body.' (Butler 1993, 10.)

Even though Butler denies that her project questions the relevance of natural science, she can be interpreted, as Kontos, Kerin and several others do, that her notion of materialisation discards arguments about a body 'as it is'. The crucial question is whether this should be understood as a suggestion that arguments about biological bodies in general cannot be made within this approach, or that the challenge is primarily in the differentiating and naming of a part of a body, for example, as a mark of sex. Contrary to Kerin and Kontos, I utilise the latter interpretation. From this perspective, arguments about hormones, chromosomes and other actants within the biological and biomedical sphere are relevant within this approach, but a body or its parts cannot be merely *described* (see also Cadwallader 2009, 293; Roberts 2007, 9, 92). According to Butler, any reference to what is conventionally conceptualised as biology 'is always to some degree performative' (Butler 1993, 11).

The contribution of Butler's approach is hence in the rethinking of referentiality as performativity (ibid), rather than in the questioning of the relevance of natural scientific arguments about bodies. This raises the practical question of what it entails to think of referentiality as performativity (Kerin 1999, 97-98; see also Roberts 2007, 9). The

relevance of this question to my study lies in that, if arguments about biological bodies are utilised in social sciences *while* the profound significance of meaning-making to conceptualisations of biological bodies is taken seriously, what does this mean in practice? (See also Birke 2000.) The critique posed by, for example, Kontos and Kerin, concerns the usefulness of Butler's approach in natural science research and age studies that wishes to acknowledge the biological aspect of ageing; and this critique is apt in the sense that Butler leaves unclear what performativity would entail in such a research practice. Here the transdisciplinarity of these feminist negotiations, however, seems to play into the discussion. If the feminist field of study were not transdisciplinary, it would hardly appear intelligible that a social scientist should be able to explicate what a particular concept would mean if it were applied in a natural science context. Transdisciplinarity seems to sometimes work within the feminist negotiations of materiality, as an implicit expectation of a universal applicability of theoretical concepts within (the transdisciplinary field of) women's studies.

The story continues, however, with Butler conducting a reading of a natural scientist's work. In her critique of a publication related to gene research by David Page and his colleagues, (Butler 1990, 106-111) she suggests that in this study prevails 'a refusal from the outset to consider that these individuals [participants in Page's research] implicitly challenge the descriptive force of the available categories of sex' (Butler 1990, 109). While the critique of this particular researcher might be apt,[56] it also

[56] See Anne Fausto-Sterling's more detailed and nuanced (e.g. without the terms 'never' and 'always' used by Butler that Janne Kurki (2008) criticises) reading of the work by Page and colleagues, to which Butler refers (Fausto-Sterling 1989, 326-329). My point here concerns only arguments about biological processes and the relevance of statistics in making such arguments, and I do not attempt to make an argument about Page's research or its criticism per se. The crucial point in Butler's argument, which the critique by Kurki that I discuss below seems to miss, is: '(I)t is unclear why we should agree at the outset that these are XX-males and XY-females, when it is precisely the designation of male and female that is under question and that is implicitly already decided by the recourse to external genitalia' (Butler 1990, 108). Here the critique concerns that Page and his colleagues argue to have found a sequence of Y chromosome that, 'by its presence or absence', determines 'the sex of an individual' (cited in Fausto-Sterling 1989, 327). These scholars equate 'the sex' in their study to external genitals, rather than to the multi-faceted processes that stretch beyond these visible organs, and hence, according to Fausto-Sterling, 'what does the notion of a sex-determining gene mean?'

involves a risk to equate an argument related to biology (a research result) to natural scientists' perception of living matter, including a dismissal of statistical argumentation that utilises binary categories. This risk is involved in the following sentence by Butler, severely criticised by Janne Kurki (2008, 51-52) in his review of the Finnish translation of *Gender Trouble*: 'One might argue that the discontinuities in these instances cannot be resolved through recourse to a single determinant and that sex, as a category that comprises a variety of elements, functions, and chromosomal and hormonal dimensions, no longer operates within the binary framework that we take for granted' (Butler 1990, 109-110). Kurki rejects Butler's analysis altogether, because he seems to interpret that this sentence is a suggestion that binary categories are not at all relevant in arguments about bodies, which in turn dismisses the relevance of (binary) statistical accounts for biomedical practices. Crucial from the biomedical perspective that Kurki represents, is the need to find generalisations, achieved by statistics, in order to be able to construct meaningful practices of care. This is exemplified by the following argument about the importance of statistics:

'If a girl does not start menstruating by the age of 16, an investigation is needed. This is because according to probability humans are differentiated between men and women, and in Finland women begin to menstruate on average on the age of 13. However, if this person happens to have 46XY chromosomes, with a rare form

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is left unclear. 'Is maleness decided on the basis of external genital structure?' (ibid 329.) That is, for example, does such a gene qualify for a gene that determines the sex of males, which is found in persons that have external genitalia definable as belonging to a male, but who have no sperm production? In which sense is this person definable as 'male', especially, if the whole argument about sex as a binary category is bound to the notion of reproduction? This is relevant, because another naming of these persons might have questioned the results of the study; in this case they would no longer have been results of finding a gene that determines the development of 'a male'. In my reading, the latter was implicated in Butler's text, and missed by Kurki. The critique of Page and his colleagues by Fausto-Sterling does not dismiss the attempts to explain sexual differentiation, but she argues that 'Page and coworkers chose to leave some of the messy facts out of their account, which makes the story look much cleaner than it actually is' (ibid). As a corrective, Fausto-Sterling suggests the need to 'develop an account of sexual differentiation which permits the existence of intermediate states' (ibid). Fausto-Sterling's argument does not dismiss statistical accounts, nor does it confuse accounts about biology with the 'messiness' of living matter, which were the main concerns in Kurki's critique of Butler.

of a male hormone receptor, because of which the male hormone effect does not appear, and if testicles are found in the abdominal cavity, they are removed. This procedure is conducted not because a philosophical binary categorisation so determines, but because the remaining of testicles in the abdominal cavity is associated with a risk of malignant development, in other words this person is in higher risk of getting cancer if the testicles are not removed.'(Kurki 2008, 53.)

These several arguments concerning biological bodies are based on statistics, but this does not mean that the biomedical scientist is arguing for a truth about a binary gender (Kurki 2008, 50-53).[57] In other words, what may – for a social scientist – appear as a neglect of the multi-faceted bodily compositions that question any biological legacy of gender, appears – from the perspective of the medical scientist – as a question of legitimate research practice, and a need to find justified bases for the development of biomedical technologies and practices.[58] This does not mean that biomedical researchers would base their studies on a belief in binary gender situated in reality (ibid). Biomedical practices of defining, for example, the best possible care of a specific person, are far from working with generalisable bodies or single truths. Rather, in many cases biomedical practice involves challenging negotiations with several generalisations that give contradictory clues of possible treatment, in addition to the other factors that are at stake, such as the patient's wishes, scarce resources, or time pressure at work. In this sense biomedical practice is messy, and physicians are acutely aware of the multi-faceted bodily compositions of their patients (Honkasalo 2008, 86; Persson & Newman 2006, 1593-1594). Hence Butler's point that sex is 'a category that comprises a variety of elements, functions, and chromosomal and hormonal dimensions', and that it 'no longer operates within the binary framework' (Butler 1990, 109-110) is not news to biomedical scientists

[57] Kurki seems to implicitly argue for a sex/gender distinction in the sense that, for him, the need of both egg and sperm in human reproduction constructs an undeniable fact of sex, while the social aspect, including feelings, desires and identifications, can be understood as contingent, and not necessitating any conceptualisation of a binary. It is clear, from what I have written above, that I do not share the argument for the sex/gender distinction.

[58] See however, Fausto-Sterling's suggestion that arguments about biology need to include not only statistical generalisations but also the variability within individuals (Fausto-Sterling 2003, especially p. 126).

and physicians. Another side of the coin is, however, the power imbued in diagnostic practices and in the forming of medical knowledge (Ahlbeck-Rehn 2006; Oinas 2001, 92-104; Uimonen 1999; Werner & Malterud 2003). An example of the workings of such power is that a physician's confusion may in practice appear as psychologising the patient's pain (Lillrank 2003). Another example concerns the intersex condition that Kurki above describes, CAIS (complete androgen insensitivity syndrome), and the way in which cancer risk related to different tissues is conceptualised according to the binary distinction of sex: the risk of cancer in testicles in these intersex conditions is estimated to be from two or three percent to at least five percent. At the same time, however, the risk of breast cancer is closer to ten percent, but no suggestions exist to remove women's breasts as a preventive procedure just because of this risk (Laakso 2007, 52, 52n58). On the contrary, the removal of breasts, for example, of transgender people whose gender identity contradicts with these body parts, is an endeavour that is hard to achieve. This concerns especially those whose gender identity is situated outside of the binary opposites of woman and man, and for whom mastectomy would mean achieving coherence of body and identity *outside* of this binary, rather than affirming coherence between body and identity within the boundaries of either female or male (Irni 2010). In this sense, then, even though statistics and binary conceptualisations do not require that biomedical scientists would accept that these binaries exist in reality, the composition of such statistics and the accompanying practices of care are to a great extent accomplished in intra-action with these binary conceptualisations of sex.

As I suggested above, several critics have pointed to the challenges in the notion of materialisation from the viewpoint of natural sciences. This controversy culminates in what can be meant by a claim that arguments about biological bodies are performative (see also Roberts 2007, 9-10). If this claim does not question the meaningfulness of natural science, and acknowledges the existence of hormones and other biological actants, as Butler suggests, but still attempts to question references to biological aspects of bodies as such, then what would this mean in natural scientific

practice? By implication, what does it mean for the utilisation of the arguments about biological bodies based on these practices by social scientists? If studies of human biology do not suggest an existence of a gender binary 'in reality' (Fausto-Sterling 2000; Oudshoorn 1994) – even if statistical accounts that utilise such a binary might in some cases be justifiable – and if 'matter' is understood as an agent in the process in which biological arguments are produced, how would performativity be rethought? For this task I now turn to discuss Karen Barad's agential realism. It provides an anti-foundationalist, performative approach for accounting for biological aspects of bodies.

4.3 Agential realism as an anti-foundationalist approach

Karen Barad's agential realism provides an account of both ontology and epistemology.[59] In this chapter I discuss her approach as anti-foundational, and explain the key concepts related to this approach. Barad's is a realist (even though, 'agential' realist, which is crucial) approach, in the sense that it requires that the researcher also takes a stand on which scientific experiments or arguments concerning (agential) reality are more plausible than others. The approach works towards providing accounts of agential realities. The trick in this approach, which makes it interesting for poststructuralist-inclined feminists, is that it is formulated without actually believing in a reality of objects independent of the scientist's conceptualisations. In other words, from a feminist perspective, agential realism is a Butlerian approach of contingent foundations[60] for (agential) realists. This seems at first sight to be a contradiction in terms, since Butler's approach can be read to be against

[59] Barad calls agential realism an 'epistemological-ontological-ethical' approach (Barad 2007, 26). Later, I discuss the aspect of ethics, as well as the notion of objectivity entailed in Barad's approach.

[60] For an interpretation of Butler in this sense see e.g. Pulkkinen 2000a, 165-171; 2000b, 47-53; 2002.

epistemology – the reasoning of the conditions on which 'S knows that P' – in other words, against thinking in which the known is assumed to exist independently of the knower. A key issue in Butler's approach, which differentiates it from epistemology in the above-mentioned sense, is what Tuija Pulkkinen has called 'postmodern thinking':

'A modern thinker is motivated by a strive to discover the authentic basis of reality, the basic core, whereas a postmodern thinker focuses her attention on the formed nature of phenomena and that practice and power are crucial in the formation of beings and reality.' (Pulkkinen 2002, 3.)

This is the crucial contribution often accredited to Michel Foucault[61] that I suggest is maintained in agential realism. As Foucault points out, '(w)e must not think that by saying yes to sex, one says no to power' (1990, 157). Foucault suggests that the will to know sex is the central source of its existence, rather than claiming an independent existence or inner truth to it (Foucault 1990, 151-159).[62] As numerous feminist and other scholars have pointed out and demonstrated in their studies, the fruitfulness of Foucault's analyses is not related to his historical arguments per se, but to the approach (e.g. Ahlbeck-Rehn 2006, 23-24; Oksala 2002, 144-147; Pulkkinen 2000a, 81-82; Sorainen 2005, 19; Sybylla 1997, 202-203; Tuhkanen 2006, 60-61; Uimonen 1999, 13-18; Yesilova 2009, 209-212). Central in this approach is to see workings of power in instances and entities that, at a certain point of time, have seemed natural, such as in the

[61] A crucial difference exists, however, between Butler, who is the central inspiration in Pulkkinen's notion of the postmodern, and Foucault. On the one hand, according to Butler, Foucault does not go far enough in acknowledging the power at work in forming bodies. In Pulkkinen's terms, Foucault 'ontologises' pleasure; a move which is questioned by Butler (Butler 1990, 94-96; 1999; Pulkkinen 1999, 64; Pulkkinen 2000a, 82, 89). On the other hand, Butler is criticised of her critique of Foucault, while Foucault is credited for leaving a space for the theorisation of bodily resistance, rather than resistance that is located in the psyche (Oksala 2004, 101-102, 105-106). This is then an alternative interpretation of the implications of Foucault's notion of pleasure.

[62] The purpose of this study is not to argue for or against Foucault's reading of history. His arguments have been criticised for an inadequate approach and interpretation of historical sources especially in relation to gender (McNay 1992, 76-79).

formation of the nuclear family (Yesilova 2009), hysteria (Uimonen 1999) or menopause (Sybylla 1997).

In Pulkkinen's sense, Barad is also a 'postmodern' thinker, even though she negotiates such a view into an agential realist approach that makes the project intelligible within natural science research. A central concept in agential realism is *apparatus*, which, according to Barad, is a combination of Foucault's and Niels Bohr's thinking. A certain phenomenon, such as a research result that enables an argument about a(n agential) reality, does not exist in a determinate reality, but is formed within a specific apparatus. The apparatus includes not only the research apparatus, the technical devices by which the result is acquired (as Bohr would have it), but a broader understanding of the ultimate impossibility of a strict definition of its limits. Hence the production of research results needs to be understood in that natural factors intra-act with the scientific community and its power relations, including the funding mechanisms and research interests of those in powerful positions. Also included are the resources for meaning-making that are available at a particular moment in history, and the exclusions and power relations by which they are formed (Barad 1998, 98-103).

From this perspective, what seems to be an object discovered or described by research, is a *phenomenon*. The notion of phenomenon in agential realism is not an heir of the discussions about philosophical phenomenology, and it does not refer to 'the way things-in-themselves appear' (Barad 2007, 412n30). The term is used in natural sciences to refer to 'that which is observed, what we take to be real' (2007, 412n30). However, in agential realism this term is used in a particular way, suggesting that the phenomenon exists only within a certain apparatus, and is hence not an independent object. This was the central rethinking of the notion of phenomenon by Bohr, explicated and interpreted by Barad: measured properties refer to phenomena, and not to independent reality (2007, 197). Barad suggests that the ontological commitments of Bohr are left unclear in his texts, and that explicating these commitments – the proposition of an indeterminate reality – enables a profound rethinking of central disputes about quantum physics.

The crucial point, which differs from the Newtonian world view, is that, according to agential realism, no determinate objects with certain properties exist before the measurement, and that it depends on the measuring apparatus what the properties, and hence the 'object' turns out to be like. Hence nature is – in agential realism – assumed indeterminate. Barad's central example concerns the 'wave-particle duality paradox'. The example that is most familiar to non-physicists is assumedly the so-called wave-particle duality of light, that is, the challenge posed by, that in particular settings, light appears as electromagnetic waves, and in other settings, it expresses particle-like behaviour. In addition, since an experiment by the American physicists Clinton Davisson and Lester Germer in 1927, it has been suggested that electrons, that is, particles, can form an interference pattern (Barad 2007, 83-84).[63] Particles and waves are in principle mutually incompatible, because they are differently situated within space; a definite position can be measured of a particle, which cannot for waves. In addition, waves overlap when they meet, and combine to produce a composite wave. If two crests meet, the result is a larger wave, but if a crest and trough meet, they neutralise each other and produce a smaller wave. These combined waveforms produce what the physicists call the diffraction (interference)[64] pattern. Particles do not by definition overlap, and hence they are not supposed to produce an interference pattern. Instead they collide, and disturb each other's paths when they meet (ibid, 74-80). This is why the perception of an interference pattern produced by electrons, that is, particles, caused physicists a great challenge, likewise the result that light in some settings seems to consist of particles, and in other settings, waves.

[63] Clinton Davisson earned the Nobel Prize in Physics in 1937 for this result, together with George Paget Thomson, who suggested the same phenomenon roughly at the same time. http://en.wikipedia.org/wiki/Clinton_Davisson [accessed April 21, 2009].

[64] Barad uses the terms interchangeably, even though some physicists distinguish them. When they are distinguished, diffraction refers to the bending of waves and interference to the pattern that appears when they overlap. Barad suggests that differentiating between these terms is not necessary, because the physics in both of these 'is the same: *both result from the superposition of waves*' (Barad 2007, 80, emphasis in original).

An agential realist suggestion is that the inspected matter, for example, an electron, is not an entity with fixed characteristics, but rather a phenomenon. Whether an electron expresses particle-like or wave-like behaviour is dependent on the properties of the measurement apparatus. Therefore an electron whose properties are measured by a device set to measure wave-like qualities is a different phenomenon from the electron perceived by an apparatus that measures particle-like behaviour (Barad 2007, 100-106). Wave and particle are hence 'concepts that refer to different mutually exclusive *phenomena*, and not to independent physical objects' (Barad 1998, 97, emphasis in original). This understanding then involves the materiality of *concepts*, in that they materialise within specific apparatuses. In this sense concepts are material, and they work and emerge within apparatuses, rather than consisting of 'language' only or describing reality. The wave-particle challenge exemplifies the logic of Barad's argument that phenomena are materialised within particular apparatuses; and are not entities in themselves, which have properties that are then merely measured. This configuration gives a fact a particular meaning: anything that is understood as a fact is a product of apparatuses, including power relations (see also Stengers 2000). Barad argues that the challenges in measuring the properties that an entity is assumed to have are due to the indeterminacy of nature. Physicists' nature in this sense consists of what could be called intra-active movement, which is only 'frozen' and the properties of the measured entity determined within a particular research setting. According to Barad, contrary to what the majority of physicists think, the measurement challenges of quantum phenomena are not due to disturbance in the measurements, that is, to the inability of researchers to find a certain answer to the nature of reality. Hence the question is not of epistemological uncertainty, as Werner Heisenberg, another important designer of the Copenhagen interpretation of quantum mechanics, would have had it, but of *indeterminacy* of nature (Barad 2007, 301-305).[65]

[65] Barad's suggestion for the contemporary physicists concerns the crucial difference between Heisenberg's notion of uncertainty, and the indeterminacy of nature implied in Bohr's argumentation. This is related to the difference in Bohr's and Heisenberg's interpretations of

For Barad, the description of the phenomenon requires an account of the *apparatus* of its production, within which particular *agential cuts*[66] are made that enable the individuation of this phenomenon. This means that it is not possible to describe a pre-given reality as such, but only an *agential reality*. It is only the agential cuts made within a certain apparatus that make something look like a determinate entity separate from its environment. In my social science research setting, an example of agential cuts is that, in work organisations, particular entities namely 'troublesome ageing women', are perceived (articles III, VI). I argue that gendering practices in work organisations are part of ageing apparatuses, and that such entities are perceivable and exist only within these apparatuses. Perceiving such an emotional woman, necessitates that agential cuts are made that, so to say, cut out of the picture the practices and materialities that extend beyond the woman's body and that for their part enable these emotions. Instead, in such perceptions, emotionality is located *in* women's ageing bodies. These cuts are *agential* in the sense that they are *made* in particular processes and practices, and not existent in a pre-determined reality. With the term agential, ethics also becomes an inseparable part of the agential realist approach: if reality is indeterminate, the researcher has particular responsibility in making agential cuts in all phases of the research, in delimiting the subject and focus of the study, in choosing materials and methods, and in interpreting the research material, which all result in that particular agential reality emerges from the research process.

Any notion of an apparatus is also itself a phenomenon, hence these concepts overlap (Barad 2007, 389). In addition, phenomena are 'basic

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one of the core formulas within quantum mechanics, known as the 'uncertainty relation'. According to Barad, Bohr's interpretation should 'be understood as a principle in its own right, which I label the 'indeterminacy principle'' (Barad 2007, 295). Barad's rethinking of the foundations of quantum mechanics involves discarding the notion of uncertainty and replacing it with the notion of indeterminacy. The uncertainty relation should, according to Barad's discussion, be reinterpreted as a mathematical expression of Bohr's complementarity, and hence as an expression of the indeterminacy principle, rather than of Heisenberg's uncertainty principle (ibid 295-310).

[66] Agential cuts mean ontological separations, which however, are not stable (Barad 2007, 174-175). In an indeterminate ontology, such cuts are products of the process of 'iterative materialization', and hence 'possibilities do not sit still' (ibid 177).

units of existence' (ibid, 333), not only something that laboratory measurements refer to (see also ibid, 335, 338). Barad does not specify what she means by the term 'basic units of existence', but in my interpretation, this term indicates that anything that is perceived as some kind of individuation, thing, unity, aggregate, or totality, is a phenomenon in the agential realist sense, including the 'troublesome ageing women'. Barad's understanding of phenomena has, in my reading, similarities both to Haraway's notion of a figure[67] and to Bruno Latour's understading of actants and 'black boxes' (Latour 1987) in the actor-network theory:

'I use 'actor,' 'agent,' or 'actant' without making any assumptions about who they may be and what properties they are endowed with. Much more general than 'character' or 'dramatis persona,' they have the key feature of being autonomous figures. Apart from this, they can be anything – individual ('Peter') or collective ('the crowd'), figurative (anthropomorphic or zoomorphic) or nonfigurative ('fate').' (Latour 1993, 252n11.)

For Barad, however, phenomena are never autonomous, but can only appear as if they are [68] because of agential cuts within a specific apparatus. In this sense the notion of phenomenon becomes closer to Latour's concept of 'black box', meaning an issue that, after lengthy disputes and actions, became a scientific 'fact' (Latour 1987; see Chapter 7.1). In agential realist terminology, these disputes can be understood as apparatuses of science, which extend from experimental apparatuses in particular studies to the lengthy procedures captured by Latour's term, which involve several researchers, research projects and debates in scientific journals, as well as actors other than scientists. Phenomenon, however, is a broader concept than Latour's box, in the sense that the apparatus can involve practically anything; hence phenomena are not only products of scientific apparatuses, but for example, products of ageing apparatuses in working life. Similarities to Deleuze's 'assemblage' (see

[67] In the article VI, I have used Donna Haraway's term 'figure' (see article VI, note 2 for explanation).
[68] For example, it may appear that a 'troublesome ageing woman' is an individual, a bodily being.

Currier 2003, 337n3; Deleuze & Guattari 2004) could also be explored, but this goes beyond my study. A *phenomenon* in my interpretation is something that is perceived or conceptualised (not necessarily by humans), something that seems to, for someone and in some sense, exist. In this sense, an ageing worker is a phenomenon, as well as old age. The apparatuses within which these phenomena materialise differ, as well as the material-discoursive configurations within these apparatuses. Some of these 'units of existence' are perceived as material, such as bodily beings, and others as concepts or life stages (old age). In addition, if actors or actants are understood as phenomena, rather than autonomous as Latour proposes, then the understanding of agency also shifts; this perspective entails an understanding of agency as a product of certain apparatuses. In this sense, Barad's concept of a phenomenon captures history and *power* that is enabling and also restricting (Butler 1993; Foucault 1990) – acting, actors and agency are hence conditioned but not determined by configurations of power. In my study, this enables seeing 'women', exemplified by the 'troublesome ageing women' who emerged in the interviews, not as *individuals*, but as phenomena within particular apparatuses that include not only bodies, but practices and materialities in work organisations.

Although most of Barad's examples concern quantum physics, she also takes an example from the discussion about abortion in the United States. This example further indicates that it is not only research results that can be conceptualised as phenomena within her approach. In addition, the example includes the critique of Butler's concept of materialisation (Barad 1998; 2007, 189-222). According to Barad, the debate about the rights of the foetus, for example, in the United States, has been partly enabled by the development of the three-dimensional ultrasound technology. The abortion debate, medical technologies related to reproduction, as well as the imagery of the foetus, have been widely discussed within feminist studies (e.g. Duden 1993; Franklin, Lury & Stacey 2000; Haraway 1997; Petchesky 1987; Silius 1996; Turunen 1996). The ways in which the foetus is presented in popular images, exemplified by Lennart Nilsson's much-

circulated photographs that were first published in 1965 in *Life* magazine, have enabled the foetus to become a symbol of life itself, the counterpart of the image of the Blue Planet that emerged roughly at the same time (Franklin, Lury & Stacey 2000, 33-36; Haraway 1997; Duden 1993, 51, 110; Petchesky 1987).[69] The popular imagery not only makes the foetus appear as a child, but also as a detached individual in space, which leaves the mother out of the image, as a mere background (Franklin, Lury & Stacey 2000, 33-36; see also Duden 1993, 7, 11, 14, 100, 110; Petchesky 1987).

As Barad notes, the development of the ultrasound technology enabled the production of detailed images of the foetus's face, which reminds the viewer of a photograph. In these images, the foetus looks more like a child than in the two-dimensional pictures, which are, in Finland for example, taken routinely during pregnancies. Hence the ultrasound technology has vitally contributed to the individuation of the foetus. However, as Barad notes, the ultrasound technology is not the same as snapping a picture with a camera. Its use requires learning and technique from the part of its user, before the person learns to produce pictures according to the requirements of the scientific community. In this process the materiality of the body and its intra-action with the technology is crucial, which is not nearly as evident in the process of snapping a picture with, for example, a film camera. Barad hence argues that the foetus could be conceptualised as a 'phenomenon' in the agential realist sense (Barad 1998, 100-101).

It is only the *agential cuts* made within a certain apparatus that make something look like an entity separate from its environment; in other words, for example, an individual, or a child *in* a womb. In turn, the discussion of the rights of the foetus, which have seen the mother as a mere maternal environment to the child, as they have proceeded in the US,

[69] Sarah Franklin, Celia Lury and Jackie Stacey interpret one famous image by Nilsson: 'The foetus is shown (…) suspended in the glowing amniotic orb that radiates the promise of new life, set against a starry background, as if connecting it to the forces of the universe. Together, the image of the foetus and the blue planet comprise icons of the inner and outer space.' (Franklin, Lury & Stacey 2000, 35, see also Duden 1993, 11, 14.)

have been enabled by this logic of individuation.[70] From an agential realist perspective, instead of being a 'picture of a child', or moreover, of 'life', this picture refers to a phenomenon. Because of this, an account of this phenomenon would require an account of the apparatus of its production, which then includes at least the woman, her womb, the foetus, the ultrasound technology, the forms of power within which this technology is used, and the economic conditions and other power asymmetries that affect pregnancies in different ways (Barad 1998, 114-117; 2007, 218). This perspective alters not only the abortion debate, but what can be argued of biological 'realities', and provides a critical stance towards claims of individuals 'in' any environment, not only in the womb. This is the way in which I understand the ageing worker in this study – not ontologically as an individual, but as a phenomenon that materialises within specific practices of work organisations and age policy.

The ultrasound technology and the enactments involved in its use have also been constitutive in how the foetus – as an agent that has rights – has been materialised (Barad 1998, 113; Petchesky 1987). This is the reason why Barad argues that Butler's account about the materialisation of a 'girl', which bypasses the ultrasound technology and its work in gendering the foetus by a short mention in parentheses,[71] results in the need to rethink her notion of materialisation. As a spin-off from Butler's parentheses, Barad suggests that the material restrictions and the material aspects of the agencies of observation should be accounted for, since these have broad-ranging consequences, as the abortion debate suggests, in comparison to the gendering that is conducted after birth. The material enactments, exemplified by the ultrasound technology, are a crucial part of the intra-activity within which sex materialises (Barad 1998, 92-93). In my

[70] The cultural process of making the pictures of foetuses into public images – accompanied with moral stories of how they should be interpreted – also guided seeing, and contributed to the individuation before the time of the three-dimensional ultrasound technology (Petchesky 1987).

[71] Butler writes: 'Consider the medical interpellation which (the recent emergence of the sonogram notwithstanding) shifts an infant from an 'it' to a 'she' or a 'he,' and in that naming, the girl is 'girled', brought into the domain of language and kinship through the interpellation of gender' (Butler 1993, 7, cited in Barad 1998, 92).

study, the notion of material enactments enabled me to notice materialities that I otherwise would not have included in the ageing apparatuses. For example, because of the notion of posthumanist performativity – which includes material enactments – I started to see stairs, boxes and work rooms as part of the apparatuses within which the emotional women emerged. It is quite usual to analyse technology, such as computers, as part of an analysis of gender or ageing at workplaces and other every-day situations (Sankari 2004; Vehviläinen 2004). Another related approach is to focus on spaces, such as architecture in work places and other institutions where gender is produced (Eräsaari 1995; Holland & al 2007). The difference in agential realist approach is that, in the definition of materiality, I did not take 'technology' or 'space' as concepts that would, beforehand, guide where to find 'matter'. In my interpretation, both of these perspectives, for example, would have ignored boxes as materialities that become part of the ageing apparatuses in that – in a particular work setting – women have to carry them, which angers them (article VI).

The acting that forms the apparatuses is, in agential realist terms, conceptualised as *intra-activity*. This term is more fruitful than int*er*activity because the notion of 'intra' denotes the ontological inseparability of the intra-acting 'parties' as determinate entities (Barad 2003, 815). Instead of determinate entities, these parties are moulded, moved and constituted in the intra-active processes. This concerns both concepts whose meanings are not determined in advance, but only within particular situations (as in performativity theory) and of various materialities. For example, I argue that in the interview situations, 'ageing' as a term is moulded not only in talk, that is, not only in interaction between the interviewee and the interviewer, but within apparatuses that extend to the gendering practices in work organisations (article IV). Again, the troublesome ageing woman – an assumed bodily being – is another example where I argue that it is not so that women int*er*act with workmates in work organisations, but that the very existence of an ageing woman is enabled in these intra-actions that include bodily processes, technologies, practices and meaning-making, and that vary according to the organisations.

I suggest that, for Barad, intra-actions are synonymous to material-discoursive practices. Hence, the former stresses the inseparability of the acting parties, while the latter emphasises the inseparability of matter and meaning in this acting. By sometimes keeping these terms separate in her writing, [72] she emphasises the manifold of (inherently inseparable) practices involved. The notion of intra-activity pertains to agency; that is, both to responsibility as well as to agents. It stresses the responsibility of, for example, researchers in how they account for their research apparatuses that enable the arguments of particular agential realities (see also Gravagne 2009). Hence, the term *agential* serves to remind one of the nature of the arguments concerning reality as always arguments about phenomena, produced within particular apparatuses by particular agents (both humans and non-humans), and not as accounts of a determinate reality per se.

In agential realism, the conceptualisation of agency and agents is not human-centred. In this sense, this approach is part of the broader feminist negotiations of materiality in which feminists operating in social sciences and humanities are charged with neglecting biological aspects of bodies or other natural scientific arguments (Birke 1999, 2; Squier 2004, 46; Wilson 2004, 13). Barad refers to her version of performativity that also accounts for other than human enactments as 'posthumanist performativity' (see the title in Barad 2003). Performativity in agential realism is not (only) an account of speech acts in the conceptualisation of matter or bodily gender performativity, such as dressing. Instead, performativity in this sense entails ongoing intra-actions, reconfigurations of the world, including what Barad calls 'enactments', including speech acts and bodily performativity (Barad 2003, 2007, 214). From this perspective, Butler's point concerning biology and performativity, that an account of biology is always performative (Butler 1993, 11), would be reformulated in the following way. The more common understanding of performativity refers to speech

[72] For example, in the latter part of the following quote: 'Recall that apparatuses are themselves phenomena – the result of intra-actions of material-discursive practices' (Barad 2007, 389).

acts or other gender performativity, in which specific contexts give meaning to these acts and, hence, in which their significance becomes realised (that is, become a certain reality) (Butler 1990, 134-141; 1993, 13-15; Derrida 1977, see also Austin 1975). Barad's post-humanist performativity not only concerns speech acts or other human acts that serve to performatively produce gender; instead, various forms of matter enact as part of the apparatus within which conceptualisations about biology are coined (2003, 809; 2007, 214-215). In addition to research apparatuses, bodies are moulded into intra-actions within gendering and ageing apparatuses that consist not only of human acts, but of heaviness or lightness of boxes, spaces such as stairs and front- and backrooms – which may make a difference in relation to experiencing stress or weariness, machines that may work unpredictably and that need experienced bodies to deal with them, and bodily processes that intra-act with medications in variable ways.

For Barad, 'apparatuses are specific material-discursive practices' (Barad 2007, 335), and in addition, 'discursive practices are not speech acts', but instead, they 'are specific material configurings of the world through which determinations of boundaries, properties and meanings are differentially enacted' (ibid). Hence, performativity can be understood as intra-actions (Barad 2003), and the producing of a research result (and hence, an argument about an agential reality) as a specific type of intra-action (Barad 1996, 1998). On the one hand, posthumanist performativity refers to apparatuses such as practices in work organisations within which ageing workers emerge. On the other hand, a research process can also be understood as posthumanist performativity at work. In the case of biomedical sciences, the enactments of biological matter, in their intra-actions with the agencies of observation within specific apparatuses, are part of the post-humanist performative process within which arguments about biology are coined. I suggest that, through this conceptualisation of performativity, the process of materialisation can be understood as not

only human practices, but a material-discoursive process which accounts for how 'matter comes to matter' (Barad 1998, 89; 2003, 817-818).[73]

In my study, I utilise both the insights of the theories of performativity that do not account for matter in Barad's sense (Butler 1993; Derrida 1977) as well as posthumanist performativity. I hence do not regard these as antitheses to each other; but rather, the crucial question is whether materiality is accounted for in the research practice and in which sense.[74] In the following I further argue that interview research can benefit from posthumanist performativity, but, in addition, that social and political science insights challenge aspects of Barad's agential realism. I further suggest modifications, especially to the notion of objectivity within agential realism, and I also critically assess Barad's discussion of representationalism. Here, on the one hand, I utilise transdisciplinarity by discussing which aspects of agential realism proposed by Barad are related to the specific context of quantum physics. On the other hand, I further

[73] Anne Fausto-Sterling, who is a biologist, proposes – for biologists – the utilisation of Butler's concept of performativity. Her proposal somewhat resembles the account given by Barad: Fausto-Sterling suggests that 'sexed brains' could be explored as a result of a performative process rather than by regarding them as a stable fact (Fausto-Sterling 2003, 126).

[74] However, some crucial differences are enacted in Barad's move. As Mikko Tuhkanen suggests, theoretical encounters are hardly mutually respectful dialogues – or merely applications of another's thinking – but rather transformations that, 'when opening new realities, [they] destroy others' (Tuhkanen 2005, 7). As a result of such a transformation, Barad's posthumanist performativity, in its open-endedness, resembles more of the Deleuzian 'actualisation of the virtual' than, for example, Tuhkanen's reading of Butler's performativity (ibid 8-9). This is despite that Barad herself does not work with Deleuze's conceptualisations of the possible and the virtual, and hence her notion of the 'possible' cannot be read from the framework of that distinction (Barad 2007, 436n80). See Barad's explanation of what is at stake in posthumanist performativity:

'The world *is* intra-activity in its differential mattering […] The world is a dynamic process of intra-activity [which] does not take place in space and time but in the making of spacetime itself. The world is an ongoing open process of mattering through which 'mattering' itself acquires meaning and form in the realization of different agential possibilities. Temporality and spatiality emerge in this processual historicity. Relations of exteriority, connectivity, and exclusion are reconfigured. The changing topologies of the world entail an ongoing reworking of the very nature of dynamics.' (Barad 2003, 817-818, emphasis in original.)

I follow this understanding of performativity even when I concentrate on analysing speech acts. And, because of this transformation of performativity in Barad's hands, I also allow myself to utilise a (slightly Deleuze-inspired) point by Braidotti in the reworking of posthumanist performativity for the needs of my study (see Chapter 5.1).

argue that transdisciplinary quagmires are part of the feminist negotiations of materiality.

⑤

Rigorous research and the materiality of research practices

5.1. Ambiguous apparatuses

Scientific objectivity has been a mutable concept, but most accounts of objectivity are formulated against some form of subjectivity. Aperspectival objectivity, the ideal of a featureless observer, and mechanical objectivity that assumes 'automated or mechanized procedures' as the guarantors of scientific knowledge, have become to dominate Western scientific inquiries (Roy 2008, 141). As Donna Haraway suggests, 'the rhetoric of the modest witness, the 'naked way of writing,' unadorned, factual, compelling' through which only 'the facts shine through, unclouded by the flourishes of any human author' (Haraway 1997, 26) dates back to the 17th century, to the practices of Robert Boyle, known as one of the founders of chemistry and of experimental research. His practices in relation to the construction and demonstration of the air-pump were crucial in the formation of the material (making of the air-pump), literary (how the makings of the pump were distributed to those not present), and social technologies (conventions of experimentalists in dealing with knowledge claims) that together enabled the idea that a scientist is only a modest witness of how

nature operates. Boyle constructed an open laboratory in which witnesses were allowed to see how '(i)t is not I who say this, it is the machine' (Shapin & Schaffer 1985, 77; Haraway 1997, 25). For witnesses, an independent status was required, which excluded women and most men from being able to gain the status of a witness. Contrary to Shapin's (1994) suggestion, this was not a mere question of exclusion (who was allowed to be present and who was not), but gender was constituted in the very practices of what was considered legitimate knowledge production, a legitimate scientific practice (Haraway 1997, 26-27).

In the 17th century, experimentation began to attract the glory of revealing the facts of nature, and the scientist's practices disappeared under the guise of the mere witnessing of these facts. As Haraway formulates, '(s)ince Boyle's time, only those who could disappear 'modestly' could really witness with authority rather than gawk curiously' (Haraway 1997, 25). Feminist scholars have formulated several alternative conceptualisations of objectivity. The most broadly circulated feminist reformulations include Donna Haraway's 'situated knowledges' (Haraway 1991) and Sandra Harding's 'strong objectivity' (Harding 1993). Harding suggests that science cannot escape politics, beliefs, communities and ideologies as part of producing knowledge, and that the social location of the researcher has effects on the knowledge produced. From this perspective, feminist empiricism that believes in objectivity in the sense of doing better science – by following more strictly the rule of denying the intrusion of political biases – is not strong enough in encountering biases that are broadly shared by the scientific community. Strong objectivity argues instead that specific action should be taken in, for example, choosing the starting points of the study from the lives of those oppressed. Since value-neutral research does not exist, the task is to consciously focus on countering oppression (Harding 1993; see also Ronkainen 2000). This perspective was later developed, for example, by suggesting that a marginalised social location does not necessarily help to produce better, but different knowledge (Roy 2008). Donna Haraway also emphasises the location of the knower, which pertains to the ability to 'see', and questions the fantasy of an objective gaze, or, seeing from nowhere (Haraway 1991,

see also Keller 1983; Lauretis 1999). She re-appropriates the modest witness by re-inscribing it with Sandra Harding's strong objectivity and Deborah Heath's term 'modest interventions'. Modest witness in this sense is not one that acts as if disappearing behind the facts of nature, but one that scrutinises the effects of power and difference in all stages of the research process, and attempts to make even a modest difference in the world (Haraway 1997, 36).

Agential realism is situated in this strand of feminist thinking that attempts to account for the conditions of possibility for knowledge, imbued with gendering and racialising practices, as well as practices that differentiate human and nature as the condition for knowledge (Barad 2007, 161-168; see also Roy 2008). The focus on power relations in both the research process and the work organisations that I study is a crucial aspect in my research. In this approach, objectivity is not denied, but *rethought through power and differences*. Barad's agential realism includes a similar understanding about objectivity to Donna Haraway's situated knowledges, which, in the physics context, means that "bodies which define the experimental conditions' serve as both the endpoint and the starting point for meaningful and objective scientific practice' (Barad 2007, 120). In addition, Barad maintains that (agential) *separability* is a condition for objectivity. However, for an agential realist natural scientist, the need for separability is not the same as the remains of the call for 'objective distance' in social sciences. The latter suggested that the researcher should not be too emotionally involved with the subject of study, and hence that one should not study a subject that is 'too close' to oneself.[75] It seems that for the physicists whom Barad studies – Bohr, and also Albert Einstein, who argued fiercely with Bohr – as well as for Barad herself, the question of separability instead concerns *locality*: that the measured properties can be ascribed to some definable part of the world, to some individuation (Barad 2007, 320). If no possibility for explaining

[75] Parvikko (1998) claims a need to such distance. For a critique of such claim, see Koivunen 1998. For an argument for the sensible utilisation of closeness and emotionality in doing feminist research, see Nenola 2007.

what the 'thing' measured is, this would make the measurement process meaningless, or at least cause significant confusion about the meaning of such a measurement. As the physicist Erwin Schrödinger, struggling with quantum phenomena, stated: 'In general, a variable *has* no definite value before I measure it; then measuring it does not mean ascertaining the value that it *has*. But then what does it mean? There must still be some criterion as to whether a measurement is true or false, a method is good or bad, accurate, or inaccurate – whether it deserves the name of measurement process at all.' (Cited in Barad 2007, 429n15, emphasis in original.)

An agential realist solution to the dilemma is the agential cut. Barad's relational ontology suggests the indeterminacy of nature, that is, that only within a specific apparatus are certain properties determined. In her approach, objectivity is based on an *ontological but contingent* distance between the object and the agencies of observation. This distance is an *agential cut*, which is dependent on the apparatus in question. 'The condition of possibility for objectivity is therefore not absolute exteriority but agential separability' (Barad 2007, 184). The measured 'phenomena' are not entities with stable borders, but the borders (the agential cuts) between the agencies of observation and the observed 'object' depend on the experimental apparatus (ibid 140). This is why Barad suggests that the apparatus should be understood as part of the phenomenon. In order to describe the 'entity' to which the particular research results can be ascribed, one needs to describe in detail the apparatus of measurement. She even states that an 'unambiguous' account of the apparatus is needed (Barad 1998, 95).

In my interpretation, the call for (agential) separability as a condition for objectivity is not an essential part of agential realism, but rather, specifically related to quantum physics, that is, to Barad's location of discussion. For the purposes of my study, I understand that striving for a rigorous analysis entails, instead, accounting for power and differences. This does not mean a rejection of the concerns of those who will hold on to the concept objectivity, but re-inscribing the crucial point in the strive for objectivity, which, for me, is not (agential) separability, or an unambiguous

account of the research apparatus, but the *accounting for power and differences in the process of producing the research results*. This is inherently an intersectional project, since it requires constant attentiveness to which differences are at work in a particular research process, and how they constitute not only the researcher but the research process, and hence the knowledge that is produced (e.g. Ahmed 2000; Lauretis 1999; Mohanty 2002; Molina 2005; Naskali 2003; Phoenix 1994; Roy 2008; Strickland 1994; Traustadottir 2001). Accounting for how power and differences work in the research project is also a critical process that scrutinises the ambiguities and the enmeshing of the researcher within forms of power, rather than merely celebrating the successes of the study. This is how I understand the focus of article IV in this study, as well as the continued discussion below in relation to that article.

According to my reading, Barad's notion of unambiguous communication does not take seriously enough that '(h)umans do not simply assemble different apparatuses for satisfying particular knowledge projects but are themselves specific parts of the world's ongoing configuring' (Barad 2007, 184).[76] Despite stating this, Barad does not acknowledge the importance of 'the structural noncoincidence of the subject with his/her consciousness' (Braidotti 1994, 101). A central point in how 'humans' are 'parts of the world's ongoing configuring' (Barad 2007, 184) is the contradictions and desires that do not always coincide with reasoned political choices and conducts (Braidotti 1994, 31). As Rosi Braidotti suggests, constitution of a subject does not entail 'internalisation' of particular values but 'a process of negotiation between layers, sedimentations, registers of speech, [and] frameworks of enunciation' (ibid, 14). If humans are part of the research apparatus, it means that these layers, sedimentations and desires are also part of it. An excellent example of this is the physicist Otto Stern's desire for cigars, intertwined with the performance of less-well-off masculinity and hence bad quality cigars,

[76] See also Braidotti's similar critique of Haraway (Braidotti 2002, 243); recall that Barad's notion of objectivity is to a great extent inspired by Haraway's.

which proved to be a decisive part of his research apparatus (Barad 2007, 161-168). Barad uses the Stern-Gerlach experiment – one of the canonical experiments that brought quantum mechanics into being – as an example of 'gender-and-science-in-the-making' (ibid, 167). In the experiment, bad-quality cigars smoked by Stern resulted in sulphurous breath, which turned silver into easily visible silver sulphide, and thus allowed the scientists to see their results, the silver atom beam on a plate held by Stern in his hands (ibid, 164). According to Barad 'the cigar is a 'condensation' – a 'nodal point,' as it were – of the workings of other apparatuses, including class, nationalism, economics, and gender, all of which are part of this Stern-Gerlach apparatus' (ibid 167). Even although Barad uses this example to call for better accounts of the apparatuses in terms of unambiguousness, that is, she calls for the 'full accounting of all the relevant features' (ibid 433n49), to me this experiment serves as an example of how *ambiguous* research apparatuses are, as are the possibilities for fully accounting for them. As Barad formulates:

'As the example of Otto Stern's cheap cigar makes quite poignant, taking for granted that the outside boundary of the apparatus ends at some 'obvious' (visual) terminus, or that the boundary circumscribes only that set of items we learn to list under 'equipment' in laboratory exercises in science classes, trusting our classical intuition, our training, and everyday experience to immediately grasp the 'apparatus' in its entirety, makes one susceptible to illusions made of preconceptions, including 'the obvious' and 'the visible'' (Barad 2007, 165).

This example effectively suggests that, not only conscious intention defines what is included in the research apparatus, nor is intentionality a guarantee of an unambiguous account of the relevant aspects of the research apparatus. The life that one has lived and the apparatuses within which one has learnt to 'see' are part of the researcher's ability to describe the research apparatus of which s/he is part (Ahmed 2000; Haraway 1991; Lauretis 1999; Roy 2008). In this sense, for a particular researcher some issues are easier to notice than other issues. To paraphrase Päivi Naskali, whether the researcher is able to account for a particular difference is related to whether it is 'a question of his world' (Naskali 2004, 40).

Research apparatuses are affected by the scholar's social positions moulded by marginal positions or privileges, and also, for example, literacy that gives tools to conceptualise issues that would otherwise be left as ignorant spots for the researcher.[77] How, then to account for the researcher as a contradictory subject? Within feminist studies, acknowledging the workings of power in research processes has included various ways of rethinking the relations between the researcher and the participants, in order to minimise objectifying the participant and to account for the multi-faceted effects of power for the research process and for the participants (Liljeström ed. 2004). Natural scientists have also been influenced by social scientists and humanists in this rethinking, for example, some have begun to conceptualise research as 'conversation' rather than discovery, which emphasises the agency of nature (Haraway 1991, 198). A research methodology that allows for tape recording or filming this conversation (that is, also, the researcher's talk to the participant) is especially fruitful. For the purposes of interview studies, this enables the analysis of the not-always-conscious and reasoned process within which the research apparatus is formed, and within which concepts are negotiated and performatively produced.

I subscribe to Jacques Derrida's suggestion that intentionality is not at the heart of conversation, and that a distinction between a successful and an unsuccessful speech act is unnecessary. Citationality, that is, that speech acts are enacted and understood within a specific context, entails the continuous possibility of 'unsuccessfulness' of the intentions of the speaker.[78] The following extract is a unique fragment from my first research interview, and it serves well to illustrate the extent to which intentions and the performativity of language collide. The example

[77] Providing such tools can be understood as one of the challenges that feminist pedagogy has attempted to answer (see Naskali 2001, 4-8). Barad (2000) has theorised such skills as 'agential literacy'.

[78] See the discussion between Jacques Derrida, the deconstructionist, and John Searle, one of the fathers of conversation analysis (Derrida 1977; Searle 1977). Theories of gender performativity (e.g. Butler 1990, 1993) follow Derrida's point of view rather than Searle's (Pulkkinen 2002).

occurred as part of the challenges that I analyse in more detail in article IV, in which the research participant, against my best intentions, seemed to interpret that I suggest that she would not be capable of working anymore or that she should already retire. The challenge was to explain that this was certainly not my intention, on the contrary. Hence, what happened in this interview can be taken as an example of how performativity works: that language carries with it meanings that may contradict the intentions of the speakers. The following fragment is one of my attempts to self-critically raise this issue into discussion. By the time I had realised that the categorisation of the participant as 'ageing' (by the fact that she is hailed to participate in a study that concerns experiences of ageing in relation to work, see article IV) might have been the reason that prompted her to answer in a defensive manner to my questions. I try to raise this into discussion by asking her what she thinks about that I may in fact have defined her as aged by the interview. I try a more personal mode by referring to my mother, who is about the same age as the participants of my study:

'How does it (.) I wonder, when I think of my mother (gives a laugh) who just retired on part-time pension. All of a sudden here at my workplace [the university] and in these studies [that I read], one talks about _ageing workers, and I have never thought of, for example, my mother as 'ageing' or anything like that. I wonder that what it _feels like when someone suddenly (laughs a little) sort of defines you as 'aged' or so(inhales), that what (gives a laugh) do you think about this?' (HN4/5.) [79]

In this extract, I on the one hand, come to explicate that I have entered the discourse concerning ageing workers only since I have come to work in the particular research project. Hence, my mother had not previously figured to me through this discourse. In addition, this extract exemplifies

[79] I have used the following marks in transcribing the text:
_ The word is stressed.
(.) Short break.
(…) A part of speech is cut.
(inhales) Explanations of other communication than speech.
[university] Words added when transcribing in order to make the meaning of the fragment more clear.

what it means to think that a discourse speaks for itself despite the conscious intentions of a speaker. My conscious intention was to use the word 'ageing' in a neutral way, that is, as referring only to chronological age. This is how I thought we were using this term in the research project, despite that I felt somewhat uncomfortable with the term. However, this catch illustrates that I seem to not only have implicitly recognised, but also reiterated, the less affirmative meanings of this term (which I have analysed in more detail in article IV). The trick is that I say: 'I have never thought of my mother as ageing'. This utterance makes sense only if ageing means something other than chronological age. In contrast to my conscious intentions, this utterance, a deed within an unexpected course of the interview, reiterates the discourse that gives ageing a non-affirmative meaning. This slip of the tongue exemplifies one aspect of the contradictory workings of intentions and discourse.[80] The layered subject might mean well, but still reiterates the sedimented meanings of the ageing discourse – or in some other case, produces something unexpected that might prove a crack in these meanings.

On the one hand, Barad's notion of unambiguous communication serves as an argument for accounting for such contradictory products of the researcher as part of the research apparatus. On the other hand, my interpretation entails that, just because of the difficult-to-articulate-or-even-notice nature of such engagement, it is – strictly speaking – misleading to use the word 'unambiguous' in relation to the account of the apparatus that any researcher is capable of doing. To admit that the accounts of research apparatuses are necessarily ambiguous, both in social and natural science, entails less of a restriction to give extra effort to find tools to account for these ambiguities and utilise them in the analysis, compared with a notion that maintains false hopes of achieving

[80] Another aspect is that a word may be used in a conscious way, but what this word 'does' is not determined by the intentions of the speaker. An apparatus that goes well beyond the speaker, or even the interview situation, affects what the word becomes and does in a particular situation; see also article IV, the presentation of the article in Chapter 3.4.

unambiguous accounts. In the following, I work towards developing such tools with the help of feminist discussions about intersectionality.

5.2 Feminism as an intersectional approach

In the nineteenth century, white American feminists were challenged because they excluded black women from the sphere of women's issues in the United States (Brah & Phoenix 2004, 76-77). In the beginning of twentieth century-Europe, socialist movements were challenged because of their neglect of gender (Lykke 2005, 9). The questioning of the white, heterosexual and middle class feminist focus on merely differences, similarities and power relations between women and men, and the studying of several intertwined forms of power that affect women's lives later came to be labelled 'intersectionality' (e.g. Brah & Phoenix 2004; Collins 1998; de los Reyes & Mulinari 2005; Haggis & Schech 2000; hooks 2000; Lykke 2005; Yuval-Davis 2005). One genealogy of feminism sets the centre stage to 1980s-United States, where black feminists interrogated the white middle class legacy of the second wave feminism by analysing the intersections of race, class and gender (hooks 2000, xi-xiii). Another genealogy suggests that analyses of intersections, per se, mark the history of feminism, rather than the questioning of *white* middle class feminism alone. Hence, the American genealogy is argued to cut off the European history of intersectionality, including the 1970s analyses of the intersections of class and gender (Lykke 2005, 9-11).

The reading of intersectionality as a focus on the intertwining of any differences has recently become popular in the Nordic countries (e.g. Egeland & Gressgård 2007; Krekula 2007; Krekula, Närvänen & Näsman 2005; Lykke 2003, 2005; Staunaes 2003; Staunæs & Søndergaard 2008; Traustadottir 2005). The Nordic perspective that writes off racism from the centre of intersectionality has, however, raised the critique of also effacing the workings of power within feminist knowledge production, including the problematic links between Nordic feminism, ethnocentrism

and racism (Carbin & Tornhill 2004; de los Reyes, Molina & Mulinari 2003a; 2003b). The telling of a feminist past, to which a study is connected, entails enacting particular inclusions and exclusions – a form of disciplinary power. The above-mentioned genealogies of intersectionality are differing reiterations of the dominant narrative of feminism that writes the history of feminist studies as a move towards accounting for various differences (Hemmings 2005)[81]. I follow the dominant narrative to the extent that it sets the analysis of power and differences as the crucial task for contemporary feminism. This task is most present in the debates on intersectionality; hence the understanding of feminism in my study is formed by, and grows from, the debates on intersectionality.

As I alluded above, the Nordic debate on intersectionality is divided into what could be called a postcolonial account and a diversity account. The postcolonial account sets the task of intersectional analysis in the Nordic countries to destabilise the power asymmetries, especially racism and ethnocentrism, in feminist knowledge production. From this perspective, it is not viable to think of 'gender' or women's studies as differentiated from other power asymmetries (Carbin & Tornhill 2004; de los Reyes, Molina & Mulinari 2003a). The diversity perspective, on the other hand, sees the theorisation of *intersections* at the heart of intersectionality (Lykke 2003, 2005). From this viewpoint, no particular differences should be preferred as the main focus of an intersectional analysis (Lykke 2005, 10-11).

The disagreement between the two accounts culminates in the questions of how to choose what forms of power to focus on, and ultimately, is *choosing* at all a viable possibility. The diversity approach necessarily involves profound challenges in deciding which forms of power to concentrate on, since the prioritisation of any particular intersection as a focus of study is questioned. Hence Lykke suggests that choosing is necessary, because to claim to analyse an 'endless series of interacting

[81] According to Hemmings (2005), another important aspect of the dominant narrative is a move from essentialism of the 1970s towards poststructuralism of the 1990s – eighties being reserved for the critiques of the white, middle class heterosexual feminism. See also an analysis of similar moves in 'cyberfeminism' that, in order to construct itself, needed to create 1970s feminism as its other (Paasonen 2004, 13).

power asymmetries' is as illusory as performing the god-trick of value-neutral research position (Lykke 2003, 53; see also Haraway 1991, 189). The postcolonial approach, by contrast, seems to name particular differences as more central than others. Nira Yuval-Davis suggests that gender, race and class are the most central differences that affect everyone (Yuval-Davis 2006, 203). De los Reyes, Molina and Mulinari have included sexuality, and according to them 'social positions are always constructed through class, gender, sexuality and race/ethnicity asymmetries' (de los Reyes, Molina & Mulinari 2003a, 161). Maria Carbin and Sofie Tornhill question Lykke's (2003) discussion about choosing by suggesting that severe problems exist in *not* choosing particular differences as the focus of analysis: 'If we accept the idea that gender as a category is constituted in continuous processes in which among others, race, sexuality and class act together, isn't it likely that one cannot choose to not choose one or the other?' (Carbin & Tornhill 2004, 113.)

I am more attached to the genealogy of intersectionality as critique posed to white middle class feminists, where this concept theoretically emerged (Brah & Phoenix 2004), than to the diversity approach. Hence, I agree with the importance of not neglecting the issues called for by the postcolonial feminists in the analysis. That said, in the context of my study that concerns ageing, the challenges of an intersectional approach become exceptionally clear. On the basis of my research, it would be questionable to suggest, as Yuval-Davis' perspective seems to, that age or sexuality would not be forms of power that constitute subjects to the extent that, for example, gender or class do. The irrelevance of age and sexuality can be argued only in relation to a privileged age position, situated in between the 'not yet' and the 'has been' (Krekula, Närvänen & Näsman 2005, 86), or in the midst of 'heterosexual saturation' (Berlant & Warner 1998) that allows that, for example, stories of family weekends at the coffee table and pictures of partners on the work desk, are not seen as related to 'sexuality' (Lehtonen & Mustola eds. 2004). In addition, when ageing is accounted for, the differentiation between age and disability can no longer be ignored (article I; Kennedy & Minkler 1999). The much-used concept of the third age, for example, is constituted not only by class, but is formulated as a

difference from the fourth age – the time near death that involves disabilities and illnesses that radically alter the possibilities for the activity associated with the third age (Muhonen & Ojala 2004, 11).[82] In addition, the intersections of *place* and gender with age cannot be ignored, especially, in the study of midlife women using information technologies (Talsi 2008).[83] As these studies suggest, striving towards resignifying old age or midlife to the positive cannot be distinguished from other forms of power that constitute old age. To rephrase the above citation by de los Reyes, Molina and Mulinari to fit my study context, an intersectional approach is relevant, because: the material-discoursive conditions for ageing are constituted *at least* by gender, class, sexuality, 'race'/ethnicity, and dis/ability (see also King 2006; Zajicek & al 2006). Hence, there are scarce possibilities for arguing for the existence of just a few forms of power that would concern everyone, and that would work as self-evident starting points for a feminist analysis of ageing. At this point, I begin to agree with the diversity account on the compulsion to choose. I illustrate the reasons for this by discussing some of the challenges in the contemporary attempts to manage the analysis of several forms of power that an intersectional analysis brings.

[82] See also a related critique of the differentiation between old and not-old (Andrews 1999, 304-307).

[83] For a broader cartography of the importance of place, understood in several senses such as geographical space, architecture, and sound-space and time-space combinations, for the analysis of ageing and later life, see Marin 2003. Place is a crucial forming factor also in Irina Novikova's (2005) analysis of grandmothers' 'discussion groups' in Rigan neighbourhoods in which age, gender and ethnicity are enacted.

5.3 Intersectionality, materiality, and the compulsion to choose

Lykke suggests that instead of attempting an analysis of endless amounts of power asymmetries, the researcher should make grounded decisions, by choosing those forms of power 'that the concrete analysis identifies as significant' (Lykke 2003, 53). The question that I illustrate later, remains, how does an analysis identify that one form of power is more significant than another? The forms of power work in diverse ways, in that they do not have the same sources, effects or mechanisms (Krekula, Närvänen and Näsman 2005, 87; Verloo 2006). Hence, a significant risk is that the forms of power that are not the specialty of the researcher are simply taken for granted in the analysis (Krekula, Närvänen & Näsman 2005, 87) or presented in a most unfruitful way. The risk in trying to avoid 'not choosing' (Carbin & Tornhill 2004, 113) to analyse relevant differences can be illustrated by the following attempt: Mieke Verloo (2006) compares gender, 'race'/ethnicity, sexual orientation, and class in order to argue against perspectives that tend to see these as differences among others, without accounting for their dissimilar workings. She hence attempts to demonstrate how these forms of power work differently for example, in the range of positions that they produce, in the mechanisms of reproducing inequality, and in the political demands that are posed in order to account for these forms of power. She focuses on the national states that were EU members in the 1990s, and her source for constructing the comparison is 'how these four social categories are commonly (presented as being) linked to inequalities in public debates and in the strategies of social movements and organizations dedicated to the abolition of these inequalities.' (Verloo 2006, 216.) In conducting the comparison, she however, comes to place transsexuals into the category of sexual orientation, to suggest that gender is dichotomous in its range of positions, that for sexual orientation the mechanism of reproducing inequality is primarily discoursive (and occasionally also material but only

in the sense of violence), and that claims related to sexual orientation concern merely recognition, rather than redistribution (ibid, 217-218).

Verloo suggests that this comparison is 'exploratory' (ibid, 215) and that she is aware that 'there is a wide variety of political and theoretical positions' (ibid, 216) concerning these issues. She is successful in her task of illustrating that differences should not be assumed as similar forms of power, and hence her analysis is a significant opening of discussion. However, I suggest that her comparison also demonstrates the challenges in deciding when, and how, a particular difference becomes significant, as well as the challenge of acquiring enough expertise in order to be able to analyse the workings of several differences at once. I also suggest that the reading of what is at stake in the analysis of a particular form of power is necessarily contested, and that a range of problematic silences are perpetuated in the public conceptualisations and EU anti-discrimination policy that have been the basis of her comparison. Moreover, her analysis is an example of enacting an agential cut between discoursive and material dimensions in the workings of these forms of power, which I aim to question with the agential realist approach.

Situating sexual orientation primarily in the discoursive level, and suggesting that it is first and foremost a question of recognition, neglects the aspects of heteronormativity that pertain to the moulding of working life courses (see article II). That heteronormativity moulds working life courses, suggests that it may also result in significant economic consequences, and hence, that it should not be understood merely as a question of recognition. In addition, by situating transsexuals in the category of sexual orientation instead of gender, the power of the formation of the gender binary and its effects is effaced from view.[84] For most of the participants in my study of sexual and gender minorities, a binary gender performance (performing either as a man or a woman) has been required in the workplaces, and some participants' sense of self

[84] The Finnish trans community prefers to use the term 'transsukupuolinen' ('transgender') instead of 'transseksuaalinen' ('transsexual') in order to stress that this identity, as well as the other trans identities, are not aspects of sexual orientation but of gender (see Huuska 2002).

and/or the phase in the process of sex reassignment has not enabled the fitting of these requirements. This has resulted in difficulties in getting a job or getting a promotion, having to settle with fixed-term jobs, unemployment or changing one's profession (article II). All these issues have economic consequences during the life course, and they accumulate and may also have an effect on retirement income. In addition, as suggested by some of the participants' comments, heteronormativity may have severe effects on the well-being of the employees. The latter may even be one aspect in a process of early retirement which ends in a disability pension (article II). Hence it is justifiable to see the different aspects of materiality here as intra-acting, rather than heteronormativity being a 'discoursive' issue, opposed to more 'material' questions, such as economic inequality.

Concerning gender, Verloo's comparison enacts a similar problematic to the studies that claim that in order to achieve a valid analysis of gender, the research should focus on 'both women and men', rather than on 'only' women. Such a view – which also circulates in age studies – is quite broadly proposed in contemporary gender studies and is exemplified by the following:

> 'The exploitation and oppression of women is intertwined with that of men. Such relations must be seen in their interrelatedness. Some subtleties become explicit only when *the situation is exposed as a whole* by drawing everyone into the process […], that is, men and women.' (Mangena 1994, 280, emphasis in the original.)

Leslie McCall (2005) enacts a similar proposition in her discussion of inter- and intracategorical analyses as techniques for managing the complexity of intersectionality. According to McCall, the intracategorical approach manages complexity by studying a single group (such as black women) and strives to illustrate how the effects of different forms of power show in the experiences of this group's members. Thus 'complexity derives from the analysis of a social location at the intersection of single dimensions of multiple categories' (McCall 2005, 1781). McCall contrasts this with the intercategorical approach in which complexity is achieved by

analysing 'the intersection of the full range of dimensions of a full range of categories' (ibid). Intercategorical complexity, utilised in her own research, is exemplified in the article by statistical social science analysis, in which different groups and sub-groups are compared to each other. McCall's claim that such category-comparing analysis is needed in feminist studies is clearly well-grounded. However, the challenge is that a possibility hardly exists for an analysis of 'the full range of dimensions of a full range of categories' (ibid). Especially misleading is her suggestion that analysing 'men and women' would mean that a 'full range' of dimensions is taken into account when studying the category of gender. It omits a range of gendered experiences. In practice, the difference between intracategorical and intercategorical analysis is not that the former takes single dimensions into account while the latter takes the full range. Rather, while the former may focus on 'single dimensions' as McCall suggests, the latter *chooses* to take into account *at least two* dimensions (e.g. women and men) among a variety of possibilities. On the basis of research on gender minorities, the category gender could alternatively include for example, women-identified people (including MtoF transsexuals), people who do not identify as part of either binary position, and part-time women (crossdressers). Because of the multi-faceted materialisation, so to say, of the category gender, the argument that 'women and men' rather than 'merely women' must be studied also becomes questionable. Such arguments seem to be based on the assumption that accounting for 'women and men' equals assessing the gender situation as a whole, i.e. it includes a full range of positions. Hence, the challenge of choosing one's focus can hardly be overcome by a claim that one has taken a full range of dimensions into account.

Cathrine Egeland and Randi Gressgård offer an alternative critical reading of McCall. They read constructionism to be at the heart of intersectionality (Egeland and Gressgård 2007, 217). Hence, they suggest that the questioning of additive and essentialist categories is inherently a constructionist approach, while, for them, constructionism indicates a perspective in which the point is not 'that the real world puts limits to knowledge' (ibid, 216). Instead, 'the reason why not all interpretations are

equally plausible can only be found in power/knowledge structures and valid representations of the world' (ibid). For them, any realist approach to intersectionality is a problem in itself, and shows a 'compromise' in the 'claimed' constructionist assumptions of intersectionality (ibid, 217). They criticise McCall as well as Beverly Skeggs for such a compromise. However, if in McCall's text, realism is 'let in… right through the front door' (ibid, 216) as they suggest, would not this be a conscious formulation of a realist approach to intersectionality, rather than an indication of *compromising* the inherently poststructuralist intersectionality with realism? Their critique exemplifies what Kathy Davis shows to be at the heart of intersectionality – the coming together under this term of two rather different feminist approaches: On the one hand intersectionality has answered to the concern of 'the marginalization of poor women and women of colour within white, Western feminist theory' (Davis, K 2009, 71), which was not inherently a poststructuralist project. On the other hand, '(i)ntersectionality fit neatly into the postmodern project of conceptualizing multiple and shifting identities' (ibid). This is exemplified in the understanding of intersectionality by Egeland and Gressgård, and it enables their point about 'compromising' these poststructuralist[85] starting points. For me, McCall's argument does not need rethinking because of its realist perspective, but because of her assumption of the possibility of the exhaustion of categories. As I have suggested, within an agential realist perspective, it is well possible to think that 'the world kicks back' (Barad 2007, 215), that is, enacts limits to knowledge, *and* that there are no inherent categories in the world. I suggest that this concerns not only gender but other differences as well. My point is hence that, with a

[85] In the case of Egeland and Gressgård, I interpret that my understanding of poststructuralist perspective is fairly similar to their constructionist perspective, as well as to what Kathy Davis, in the citation, calls a 'postmodern project' (2009, 71). Davis is critical towards intersectionality, her project in the article is to explain why such an ambiguous approach has become so popular. My project, instead, is to *utilise* this ambiguity as part of my understanding of rigorous research, as well as to propose one meaningful way to deal with the multi-faceted differences. This appears as impossible from Davis's perspective, which seduces her to discard the whole approach. From my perspective, to completely discard the question of accounting for different differences, because of a claim of its impossibility or difficulty, too easily ignores the questions posed by the postcolonial feminists.

different focus, different categorisations emerge, and the challenge and responsibility persists for the researcher to choose the focus. An intersectional analysis simply cannot be exhaustive. In addition, there does not seem to be a simple way to decide beforehand which differences are more important than others. However, it is also not simple to identify, at the stage of analysing the research material, which differences might be *relevant* in a particular case. I turn to this point next.

5.4 Accounting for (ir)relevant differences

In an agential realist approach, intersectionality can be formulated as a question of where, in the research process, the agential cuts are (see Roy 2008, 145 for a similar agenda). This question is simultaneously an ontological, as well as an epistemological and an ethical question. How are these cuts made in the research material, and how does the researcher's analysis invoke different forms of power? To be completely consistent, in an agential realist approach, a more proper term would be int*ra*sectionality rather than intersectionality. However, since the latter is an established term referring to a particular discussion, I do not see a need to change it. Plenty of readings of intersectionality exist which pay attention to the challenges that the term "inter" indicates, and most contemporary understandings of intersectionality promote a notion of inseparability and mutual constitution of the 'axes of difference' (e.g. Egeland & Gressgård 2007; Krekula 2007; Krekula, Närvänen & Näsman 2005; Lykke 2005, 8; Yuval-Davis 2005, 22). Hence, intersections in this study denote *intra-actions of forms of power that constitute each other,* rather than inherently separate axes of difference that intersect like crossroads (Lykke 2005, 8, cf. Carbin & Tornhill 2004, 112).

If intersectionality is taken to mean any analysis of forms of power that constitute each other, then a feminist perspective to ageing could be understood as inherently 'intersectional'. This is not, however, the

understanding of intersectionality in this study. As I suggested above, gender and age do not suffice as an analysis of the forms of power that mould ageing. I agree with Barad as well as with the other discussants of intersectionality that not 'all relevant factors figure in the same way or with the same weight' (Barad 2007, 167; see also Krekula, Närvänen and Näsman 2005; Verloo 2006). Still, what is 'relevant' in a particular context is a highly contentious question. In the case of interview research, is relevance something that a research participant, for example, names as relevant; or something that is otherwise analysable in the talk of a research participant? Ann Phoenix (2006) suggests two principal ways in which the decision about which differences to focus on can be taken. One possibility is to look at which differences are made relevant in the talk of the research participants themselves. This is based on Nira Yuval Davis's (2006) suggestion that, in particular situations and for particular people, some differences matter more than others. This definition of relevance is however, at risk of resulting in the study of difference 'as oppression [and] not privilege' (Moreton-Robinson 2000, 345), since privileges such as whiteness are often invisible to those in privileged positions, and hence, they may not appear to be relevant in such participants' talk (Frankenberg 2001). I believe that this is especially the case if the study's primary focus is on something other than 'race'/ethnicity, such as ageing. In such a case, the talk of the participants most likely does not include the practices of othering that emerge for example, if the interview themes with the same people would involve, for example, migrants. In a discussion that induces this othering talk, 'race'/ethnicity is made relevant, despite that the research participant may not regard it as concerning her/himself (see Staunaes 2003). As I suggested above, that the study focuses on ageing is not a reason to take other differences for granted, since they *constitute* that which is termed 'ageing' (see also article V).

Another possibility, identified by Phoenix (2006), is to concentrate on pre-identified categories by, for example, analysing *absences* in a particular research material. However, the claim that something is present or absent in the research material is a highly controversial issue. It is linked to the situatedness of the researcher, and includes life experiences as well as

theoretical devices that enable *seeing* some issues, and not seeing others (Haraway 1991; Lauretis 1999; Roy 2008), whether they are 'present' or 'absent' in the research material. If something is analysable from the research material, can it be said to be 'absent'? In addition, the question of presence and absence is tied to the accounts of what is a relevant focus of analysis, or even what is relevant to mention about the research participants.

The question of 'race'/ethnicity in my study exemplifies this. Age, gender and an account of the participants' relation to waged work are aspects that, in Finland, are usually regarded as relevant to mention when a corpus of research material is presented for publication. This is regardless of the actual analytical tools of the study, i.e. whether gender is to any extent problematised in the study, or whether age studies conceptualisations are utilised in the analysis. In the talk of my age study participants, 'race'/ethnicity is not *made* relevant, but does it mean that it *is* not relevant, even to mention? Part of the challenge is that whiteness is deemed as highly irrelevant in the Finnish context. This was exemplified by the peer-review practices in the Finnish scientific journals, in that I have been critically confronted in my attempts to mention – even in a footnote – that the interviewees in my research are white (article IV). Alternatively, I have had to add a footnote to explain why such a mentioning would be relevant (article III). An anonymous reviewer stated, after I did not react to the comments about the first version of the manuscript (III) which suggested dropping the word 'white':

'The use of the word 'white' disturbs still. It feels odd in the Finnish context, because there is no reason here to raise the skin colour as something that characterises the person, if the research does not concentrate specifically on racism or the like. At least more specific reasons for using the word could be given; it would be better though to drop the word.'

In this example, the reference to *disturbance* and *feeling odd* raised my curiosity, and I wished to pause and contemplate what is at stake here. Faced by these narrated feelings I wonder about the power imbued in a

word that is deemed irrelevant, in that it attracts so much attention and perseverance to deny its relevance. To utilise Sara Ahmed's (2004) thinking, when affect arises, it is not just a question of the individual and her or his emotions. Rather, affectivity relates to 'past histories of contact' (ibid, 7), which I understand as particular forms of power in a specific context. In addition, Mary Douglas's (1988) notion of the relationship between 'dirt' and 'order' is helpful here – where something is regarded as disturbing or out of place, there is some order to be found. Thus, when the mention of whiteness 'disturbs' and 'feels odd in the Finnish context,' it can be interpreted as disturbing a certain formation of power.

As in the Netherlands (see Essed & Trienekens 2008), in Finland 'race' is an ambiguous term, and many researchers and policymakers prefer not to discuss racism in the Finnish context, at least as other than 'attitudes' of small minorities (for a critique, see e.g. Tuori 2009a). Similarly to the Netherlands case, notions of national belonging, religion, and language intertwine with meanings given to shades of skin in the process in which inclusions and exclusions of the sphere of Finnishness are enacted (article V; Huttunen 2009; Keskinen 2009; Latvala 2009; Löytty 2005; Rastas 2007a; Tuori 2009a, 2009b; Vuori 2009). The apparatus that suggests the irrelevance of 'race' includes arguments about the Finnish context as being special and innocent in relation to racialisation (see critique, Koivunen 1998; Naskali 2003; Rastas 2007b; Rossi 2009; Tuori 2009a). Finland is not situated among the colonial centres, but rather on the periphery, and its predominantly Finnish-speaking inhabitants were conceptualised as racially inferior at the height of scientific racism (Harle & Moisio 2000; Lehtonen, Löytty & Ruuska 2004), a situation which is now used to legitimate Finnish innocence (Mulinari & al 2009, 2; Rastas 2007b). In addition, the Finnish historical context is narrated as having been 'monocultural', and only recently having transformed towards 'multiculturalism' (see Tuori 2007). This construction of a monocultural history requires the erasure of, for example, the positions of the Saami and the Roma from the narration of Finnish history. In this viewpoint, questions of 'multiculturalism' and racism – in which Finns would also be regarded as enacting racism – are presently seen to be related to migration

to Finland, as well as to racism against recently migrated people, rather than to a long history of Finnish race relations. I suggest that, from this problematic viewpoint, whiteness seems to be only related to the study of an issue called 'racism,' which is likely to involve 'migrants' as the contrasting point (see also Kyrölä 2002, 4). These moves enable the suggestion that most research issues in the Finnish context can be seen as inherently unattached to processes of racialisation, and hence without the need to mention that the interviewees are white. To me, this mention was the minimum acknowledgement in order to prevent taking part in the reiterating of the self evident connection between Finnishness and whiteness in Finnish research projects. This is despite that all the articles of my study did not concentrate on racism, and despite that belonging to the category 'white' is hardly uncontestable.

The notion of white is at least as contested a term as age: as I have suggested by referring to the 'proliferation of ages' discussion within age studies (see Chapter 2.1), mentioning the chronological age of research participants does not tell much of the actual significance of age in any context. Likewise, taking the gender binary as a starting point for a research project, for example, by giving two possibilities to identify one's gender in a questionnaire is not likely to exhaust what gender means for the participants. Mentioning that research participants are men and women speaks little about how gender materialises in the participants' lives, and which kind of femininity, masculinity or trans-position they identify with. But, even as both of the categories of age and gender are highly complex and problematic, I am *not* suggesting that chronological age or the amount of 'women and men' should not be mentioned in publications. Then the question remains: what is it about 'race'/ethnicity that makes it more irrelevant and more disturbing than these other categories to mention in the Finnish context, other than a certain dominant narrative of Finnishness that requires that this particular difference is silenced?

In order to approach the complexity of the contemporary Finnish situation, as well as the self-presentation of also other Nordic countries as

innocent outsiders in relation to colonialism, Nordic postcolonial researchers have proposed notions such as 'colonial complicity' (Vuorela 2009, see also Lundahl 2006; Rossi 2009) or the 'Nordic colonial mind' (Palmberg 2009). These concepts account for the more subtle ways in which racism and racialised imagery became part of the Finnish public sphere, such as in advertisements for the 'colonial goods' (Rossi 2009), and in translated children's books (Vuorela 2009). Presently, racism is experienced by those who do not pass as white Finns (Rastas 2007a). In addition, imagery that can be identified as racist is omnipresent in the Finnish media, especially in advertisements (Rossi 2009). The apparatus that produces the image of innocence in the Finnish context requires such imagery to be normalised, rather than to be seen as racist (ibid; Mulinari & al 2009, 1-2), and it also requires the denial of racism when whiteness as a silenced norm is explicitly questioned (Rastas 2007a, 132-133). The normalisation of racialised imagery was exemplified in the winter 2006–2007 'Licorice Boy' discussion. The discussion began with the shock of the British Euro-Parliamentarian, Claude Moraes, who encountered the Finnish company Fazer's licorice wrapper, with a caricatured black face, which – in Britain – is widely taken as a racist image. He launched a campaign against the company which finally resulted in the change of the licorice wrapper, but a major Finnish debate emerged that defended the 'Licorice Boy' wrapper as not racist, but as an innocent part of the Finnish cultural tradition. As Leena-Maija Rossi suggests, this exemplifies the normalisation of racism. (Rossi 2009, 189-190.)

Hence, whiteness creeps into the notions of Finnishness and moulds who is taken to belong, and who is quite not (Essed & Trienekens 2008; Kyrölä 2002, 15). Even though most of the Finnish scholars of working life prefer not to call it racism, the shade of skin also correlates with, for example, the possibilities of finding employment in the Finnish labour market (Ahmad 2004; Forsander 2002; Forsander & Alitolppa-Niitamo 2000; Paananen 1999). Based on this brief excursion about the question of the innocence of the Finnish context, I suggest that the overlapping concepts of ethnicity, 'race' and nation are at least as relevant as age, gender and sexuality in the moulding of the situations of my research

participants, whether or not that is visible to the participants themselves or analysable in their narratives, which have been collected on the subject of age. The writing of the articles for this study, about subjects that have mostly been seen as irrelevant in relation to ageing in waged work (racialisation, menopause, claims about 'cranky old women', and heteronormativity), has been a conscious choice to raise questions that seem to be left in the margins in both feminist studies, to the extent that these issues deal with ageing; and in age studies, to the extent that these issues question a focus on gender as 'women and men'. I suggest that it is always a matter of choice – of agential separability – which differences are accounted for in the research process; relevance is no more an obvious or visible part of the apparatus than the fumes of a cigar.

5.5 Sensitivity to differences as rigorous research

Above, I have pointed out some of the challenges of an intersectional analysis. On the one hand, a researcher needs to choose the focus, since the forms of power work in different ways, and analysing an endless amount of differences seems aspiring for a god-trick. On the other hand, to account for the differences that become relevant in a particular context also involves great challenges. An argument about relevance is necessarily volatile, because it is a matter of situated analysis and particular readings that suggest that this specific issue is relevant. In addition, an argument about relevance assumes its contrast, that the neglected forms of power are *ir*relevant in the particular context. Like relevance, irrelevance is a matter of reading, or, to paraphrase Carbin and Tornhill (2004, 113), it is a question of choosing not to choose a particular course of analysis. In addition to that I have chosen to concentrate on particular forms of power in the articles of this study, I have also slightly reframed the propositions included in the intersectionality debate, in order to find a path in between choosing not to choose and aspiring for a god-trick. Even though one is

only able to *analyse* a few intertwining forms of power in one study, I also seek *sensitivity*[86] to other differences. The point is not to be able to analyse and account for the workings of all the differences that some reading would deem as relevant. The aim is much more modest: only to *avoid*, if possible, the worst ways of *invoking another difference in the attempt of accounting for those one is analysing*. This desire for sensitivity is at the heart of my understanding of an intersectional approach and its fruitfulness.

An approach that aims to be sensitive to differences entails being on one's guard in relation to *which processes of othering, that is, which forms of power are invoked when an account is made of a particular difference*. In this study, I have paid attention to such invoking, particularly when an *affirmative* account of ageing or some other difference is made. I have focussed on how the interviewees are situated within their work organisations, and how their positioning in the interviews is a product of the intra-actions of the interview situation and the gendering practices in the work organisations. In article II, my primary focus has been on heteronormativity; in article V, racialisation; and in articles III, IV and VI, on the intersections of gender and class. However, I suggest that a range of other differences are at work, and that they constitute ageing. As Pirjo Nikander suggests, positioning is achieved by making contrasts (Nikander 1995, 20). Here, the intersectional methodology indicates accounting for the instances in which an affirmative view of ageing is achieved by explicitly stating or implicitly assuming other, more unsuccessful agers. I have looked at how several forms of power are invoked in these situations. Hence, I understand the 'contrasting' in these cases as being similar to the processes of othering that are widely analysed in postcolonial feminist studies (e.g. Brink Larsen 2009, 231; Keskinen 2009, 266; Mohanty 2002; Mulinari & al 2009, 3-5; Vuori 2009, 207, 212; Yang 2009, 245).

This understanding of intersectional methodology – as an analysis of how other differences are invoked when an affirmative account of a

[86] I thank Jukka Lehtonen for first suggesting to me the term 'sensitivity' to differences. This comment has since then rolled in my mind, and this text is a proposal of what such sensitivity, in the case of accounting for differences, would mean.

particular issue is made – was useful both in the analysis of the research material and in reading the age studies literature. Such an analysis pays attention to, for example, how a 'confident' style of speech in relation to ageing (instead of defensive) is enabled by power asymmetries within the participant's work organisation; hence for someone who is favourably situated within gendered power relations, positioning her/him by the interviewer as an 'ageing' person is not a threat (article IV, 66-67). Another example consists of a gay man who invokes the problematic notion of 'cultural difference' when securing that he *has* a 'family' despite continuous questioning by workmates (article II, 99; Charpentier 2004, 107-108, see also Chapter 6.1). A third example concerns talk about menopause. In giving an account of menopause that has been seen as affirmative from a majority feminist perspective, a participant utilises the difference health/illness for a personal advantage. The participant sees menopause as a natural part of women's life, which entails managing possible inconvenient experiences without hormone treatment. However, I argue that this is not necessarily an affirmative account of women's midlife. Instead it may involve subjection to the individualising discourse that sets the person as responsible for her health and the control of risks (Murtagh & Hepworth 2003; article III). In addition, this account creates a moral difference between those who are able to modify their life style and manage their bodies in order to stay healthy, and those who are not (see also Sarvimäki 2007, 259). The 'affirmativeness' of the menopause account that I analysed is hence an example of utilising this difference, in that the participant positions herself as the responsible and capable person who, on the one hand, takes responsibility of her health by various means (e.g. cholesterol medication), and on the other, sees menopause as a natural part of a woman's life that she is capable of managing without hormone treatment (Charpentier 2007, 128-129).[87] The fourth example concerns the newspaper debates analysed in article V. In these sources, a critique of

[87] In article III, the account of this person is also analysed (p. 185), but due to the shortening of the analysis for publication in the journal *Sosiologia*, this specific part of the analysis was left out.

restrictive migration policies in Europe is justified by referring to the ageing of Europe, with an assumption that Europe would not manage without the assumedly younger and stronger migrants. Here, the resistance of the Fortress Europe poses an affirmative account of migrated people, but this account is boosted by a negative reference to ageing, including the cutting off of older people from the sphere of 'migrants' (article V, 175-176).

These examples suggest that choosing, for example, ageing and gender as a focus of analysis, without the sensitivity to other differences, would, in the course of analysis, take for granted a range of other power asymmetries that are invoked when affirmative old age or midlife is advanced. In all these examples, the speaker is trying to advance a particular issue, but when doing this, ends up invoking another difference. Hence, the intersectional methodology in this study consists of an *attempt to avoid this problematic invoking of other differences when formulating affirmative accounts of ageing*, as well as taking into account how such invoking is enacted in the research material.

This problematic is also present in age studies. I suggest that this interpretation of an intersectional methodology could work as one possibility to interpret what a contemporary 'feminist approach to ageing' could mean. As I suggest in article I, in the talk of Sharon Kaufman's (1986) research participants, disability and ill health are mobilised in the narrating of a self that is deemed either ageless or ageful. This is by no means a question or critique only related to Kaufman's book. A similar effect is included in another classic book on the ageless self (Thompson & al 1990, see article I). In addition, in her study of public and private ageing, Karen Ballard & al write: 'Some women found [that] peer group comparisons provided a positive experience of ageing, especially when they felt that they had aged better than other women of a similar age' (Ballard & al 2005, 176). A difference is invoked here as well: in this case it is in relation to gender performativity in terms of the appropriate and desired looks. This invoking of a power asymmetry, however, goes uncommented by the writers, and hence the issue is rendered as a mere sign of a 'positive experience of ageing' (ibid). Several scholars have

argued that the strategy of presenting ageing as a mask (e.g. Featherstone & Hepworth 1989; Hepworth 1991), as well as the strategies of distancing oneself from old age, can be understood as resistance to ageist understandings of ageing and old age (Bytheway 2000). I suggest that merely acknowledging these as strategies to resist ageism shades from view how this resistance and a related attempt to construct an affirmative account of ageing invokes other differences, such as helping to turn the fear of ageing into fear of disability (see article I).

The challenge related to invoking differences is also involved in the approaches presented by Molly Andrews (1999, 2000, analysed in article I) and John Vincent (2006). Andrews argues for an affirmative old age, and the strength of her approach lies in giving value to old age and the experience that it brings with it. John Vincent (2006) makes a related argument for an affirmative understanding of later life. He analyses what he calls anti-ageing science, in which ageing, and ultimately death, is fought against by several different means and respectively, with different understandings of old age. The common denominator in these understandings is that ageing is a technical problem to be solved and fought against, whether it concerns the alleviation of symptoms of ageing (such as producing anti-ageing creams, Viagra and hormone treatment), life expectancy extension (fighting illnesses common in later life such as cancer and cardiovascular disease), or life span extension (not only fighting disease but aiming to control cellular senescence). Within the sphere of the anti-ageing science that Vincent criticises, the understanding of old age varies from a problem of aged appearance and dysfunction of sexuality (Katz & Marshall 2003) to a time of risk for various deathly diseases and the accumulation of defects in the biological maintenance and repair processes.

At the heart of the anti-ageing science is that present Western societies treat and explain death by the means of science (Vincent 2006, 681). Hence, either explicitly or implicitly, the aim is to fight against death, to postpone it as far as possible. As Vincent summarises, all these perspectives of anti-ageing science amount to a cultural logic that 'if death

is a solvable problem, then old age will be a failure' (ibid, 694). The project of even implicitly fighting against death amounts to devaluing old age as the 'final coda to life' (ibid, 693). Vincent criticises this view of not enabling a more affirmative understanding of old age: 'Without a point at which life is brought to a close, there can be no evaluation, summation, rounding off – no ritual demarcation to mark the transition' (ibid). In this view that purports to find a more affirmative view of old age, the pair life/death is understood as an important categorisation that gives life its meaning (ibid). Without the prospective of death, there would not be the possibility for the final reflection and conclusion of a life, which Vincent sees as the affirmative meaning of old age.

This view touches me as one of the most compelling arguments about affirmative later life, in which old age has value in itself and also *because of* its relation to death, rather than despite of it. Hence, this view questions seeing ageing merely as an increase in dysfunction, defect or disease that only reminds one of the nearing, feared death. Despite these compelling points, behind both Vincent's and Andrews' arguments, the prospect of successful ageing of developmental psychology looms large. Even though Vincent does not mention the developmental psychologist Erik H. Erikson or his theory of the dilemmas in different life stages – whom Andrews mentions – the idea of successful ageing in terms of psychological growth is also reiterated at the core of his argument. This shows especially when he writes: 'If we lived forever, we could never graduate from the university of life and would be left as permanent students, always failures and never be able to complete the syllabus' (Vincent 2006, 693). In addition, he calls his perspective on old age as aiming to a 'successful conclusion to life' (ibid, 694). These understandings of old age that involve a successful concluding of one's life and growth as a human being are founded on the ideal of successful psychological development (article I). Despite the compelling aims to value old age, they produce troublesome outsides of unsuccessful agers, populated by those who are not able to grow in the way that the psychological development perspective suggests, or who are not able or willing to reflect and conclude their life, or who never become ready for a final coda.

These age studies examples suggest that a mere focus on ageing, or even on ageing and gender (e.g. in Andrews 1999), does not suffice in avoiding the implicit production of a range of unsuccessful agers, and conducting processes of othering that can be seen as problematic from a feminist point of view. Hence, in this study I call *sensitivity* the *attempt to not invoke another difference in a non-affirmative way when advancing or analysing a particular issue*. This is the crucial meaning of the intersectional methodology for the purposes of this study. I suggest that this understanding of intersectionality enables avoiding the god-trick attempt to analyse all the possible relevant differences, or claiming that only a few differences are relevant. Depending on the chosen research material and approach, a subject such as 'ageing and waged work' involves a range of power asymmetries that are all 'relevant' but only appear when a particular research material and focus of analysis is chosen. All such 'relevant' focuses have certainly not been exhausted in this study, and I suggest that it is not possible for all of them to be analysed simultaneously. However, it seems possible – as well as sensible – to restrict the *analysis* itself to only a couple of differences at a time, and conduct *sensitivity* towards other differences. I have then restricted the latter to an attempt to *avoid invoking other power asymmetries* in problematic ways when I have approached affirmative accounts about ageing (and in some cases, also affirmative accounts about other differences). I suggest that sensitivity in this sense works as a *tool* to encounter the challenges involved in the necessary restriction of the focus of the study, for example, to an analysis of ageing and gender, and the challenges involved in 'choosing to not choose' to fully account for other power asymmetries. I argue that sensitivity to differences, in this sense, provides one possibility to conduct intersectional analysis in a meaningful way, which counteracts the arguments that the intersectional approach could be discarded as well, because of its inherent ambiguities and because anyway it is not possible to analyse all differences at once (e.g. Davis, K 2009). If the focus on 'avoidance of problematic invoking' enables conducting sensitivity to a variety of differences that are not included in the primary focus of the

analysis, it becomes all the more difficult to justify a total ignorance of, for example, racism only because 'something has to be chosen' and 'everything cannot be analysed'. To construct this restricted notion of intersectional approach is not to argue that conducting sensitivity is easy. In practice, it includes a demand to extend one's attempts to acquire 'agential literacy' (Barad 2000) beyond the power asymmetries that are, at first, 'the differences of my world' (Naskali 2004).

The definition of *rigorous analysis* in this study is based on this intersectional methodology. 'Objectivity' as a term brings with it an illusion that it can be reached, that is, that at some point in a research process one can be assured that the research is objectively conducted. In Barad's approach, this point comes when the apparatus is unambiguously accounted for, and when the agential cuts are determined, which guarantees ontological separability as the condition for objectivity. However, in the 'power and differences' approach that I propose, such a point of assurance and comfort will never come. This position is not the same as denying the relevance of the project of striving towards objectivity, and neither is it a second best choice in the face of the ambiguous apparatuses. It is also not a suggestion to list one's position (such as I am white, woman, in my thirties, able-bodied) in the beginning of the study, or merely to reiterate the 'race', class, gender mantra to show political correctness or that one is 'well informed', without contextualising the terms (Knapp 2005, 255). Confessions or mantras do not reveal how differences and power work and are utilised in the analysis. Intersectional methodology, in the sense proposed here, is a call for sensitivity to how differences and power work in the research material and in the research process, including how the subjectivity of the researcher is produced and moulded within the apparatuses that pertain to the research.

From this perspective, whether the study is rigorously or 'objectively' conducted is analysable in how the researcher has been able to discuss and take into account the workings of differences and power in the research process and in the studied issue. This can be called a notion of objectivity that focuses on power and differences, or this can be called a denial of the ultimate possibility of objectivity, and a definition of rigorous research

through accounting for power and differences. This is a matter of whether the reader sees it as essential to hold on to the *concept* of objectivity. The concept of objectivity is simultaneously delusive and reassuring. It is delusive in the sense that is brings with it the reassurance of a 'readiness' of one's analysis at some point of the research process (that one can claim 'objectivity'). It is also reassuring, because of 'the strength of its normative force', by which it calls for trust to the researcher and the study (Heather Douglas, cited in Roy 2008, 141). The intersectional methodology – as a version of rigorousness – denies the reassurance of ever having achieved a full account of the apparatus. Rather than reassurance, rigorous research on these premises requires constant alertness to the invoking of differences in the conduct of one's analysis. However, as objectivity is a flexible and changeable notion (Roy 2008), it can be reformulated through the feminist tradition that I have referred to. After this reformulation, the call for trust relates to whether the researcher has analysed and accounted for the differences that become invoked, enacted, and produced in the process of the study and in the resulting accounts of the agential reality.

5.6 The power of language, or, sinking in transdisciplinary quagmires

In addition to objectivity, agential realism, as developed in this study, differs from Karen Barad's version in relation to the question of representationalism. Barad's work has raised discussion, because she takes issue with the arguments about the intertwining of matter and meaning in the following way:

'Language has been granted too much power. (…) it seems that (…) lately every 'thing' – even materiality – is turned into a matter of language or some other form of cultural representation. The ubiquitous puns on 'matter' do not, alas, mark a rethinking of the key concepts (materiality and signification) and the relationship between them.' (Barad 2007, 132.)

In addition, Barad suggests that too much power has been granted to language, and formulates a question about *access*:

'What compels the belief that we have a direct access to cultural representations and their content that we lack toward the things represented? How did language come to be more trustworthy than matter?' (Ibid.)

Here, it seems as if Barad argues that language and matter are in fact separate. She explicitly questions 'the asymmetrical faith we place in our access to representations over things' (ibid, 49). In an attempt to empathetic reading, I do not suggest that Barad goes astray in contradicting herself in this case (cf. Ahmed 2008, 34). Agential realism is one of the several approaches that attempt to dismantle the difference between materiality and discourse. I interpret that this is why Barad proposes the notion of material-discoursive instead of discoursive, and suggests that it makes no sense to talk about a 'nondiscoursive'. She formulates her point about 'nondiscoursive' against Foucault, who 'makes a distinction between 'discoursive' and 'nondiscoursive' practices, where the latter category seems to be reduced to social institutional practices' (Barad 2007, 430n25; she refers to Foucault 1980, 197-198). She continues that this is a 'specific social science demarcation', which is not fruitful in agential realism, because agential realism 'is not limited to the realm of the social' (ibid). In my social science version of agential realism, if something is referred to as 'nondiscoursive', it means that in a particular process of meaning-making it is foreclosed; that is, it is not possible to utter, conceptualise or perceive.[88] Hence the term does not refer to practices, institutions, nature, material world or the like, that would be material in some sense of the term, *in contrast to* discoursive, as Barad seems to understand the term. In the agential realist approach, all the above-mentioned phenomena are understood as simultaneously material-discoursive. It is just that in specific historical situations, some material-discoursive practices are more easily conceptualised than others, and it

[88] See Butler 1993.

may even seem that some practices are the only intelligible ones, or they may be the only ones that are allowed to exist.[89] This is an example of how normalising power works (Butler 1993).[90]

Pertaining to the dismantling of the difference between materiality and discourse, 'discoursive practices' is another term that does not make sense within the agential realist approach. As Barad suggests, every practice, substance, object, and even concept is simultaneously material-discoursive. Another empathetic act of reading is, however, needed to understand what Barad then does with the term 'discoursive practices', in other words, why she would use it at all. I base my interpretation on the following examples:

'Discursive practices are not speech acts. Rather, discursive practices are specific material configurings of the world through which determinations of boundaries, properties and meanings are differentially enacted.' (Barad 2007, 335.)

'Discursive practices are the material conditions for making meaning.' (Ibid.)

'Its [the brittlestar's] discursive practices – the boundary-drawing practices by which it differentiates itself from the environment with which it intra-acts and by which it makes sense of its world, enabling it to discern a predator, for example – are materiality enacted.'(Ibid, 375.)

I suggest that Barad uses the term in order to argue for the inseparability of matter and meaning within the term 'discoursive practices', which is used by Foucault and Butler, whose texts have inspired her. In other words, I suggest that the use of the term 'discoursive practices' indicates her interpretation of how discoursive practices would be rethought – within an agential realist approach – as simultaneously material. Despite this, I find the use of this term somewhat confusing, because it can easily be interpreted as indicating a difference from

[89] For an example of such a foreclosure, see Lyotard's concept of differend (Pulkkinen 2000a, 96).

[90] I hence do not see a contradiction in my reading of agential realism to propose that such outsides are enacted, and in claiming the open-endedness of what can be produced in the intra-acting materialisation of the world (cf. Tuhkanen 2005 in his reading of Butler).

material practices or implicating, for example, a reference to texts or other meaning-making which would not involve materiality. Therefore, in this study I keep to the term 'material-discoursive practices'. If I use the term 'practices', they are, by implication, material-discoursive.[91]

Despite the possibility to empathetically interpret the terms that utilise the notion of discoursive, Barad's point about a symmetrical access to representations and materiality is hard to understand in the context of interview research. If matter and discourse cannot be separated, how can one ask a question or make a claim about a claim of an 'asymmetrical access' to these? I suggest that pausing to contemplate this question opens up a possibility to analyse which agential cuts Barad herself makes in her understanding of materiality, as well as, for me, it leads to exploring the materiality of interviews. To me, as a researcher who uses interviews as research material, Barad's critique about 'the belief that we have a direct access to cultural representations and their content that we lack toward the things represented' (Barad 2007, 132) raises questions in relation to the analysis of interviews. When writing my research, I have the transcriptions of the interviews concretely at hand, as well as the tapes. The discussion in the tapes, and the transcriptions, however, mainly concerns the practices in work organisations; and from a representationalist perspective, it could be said to include representations of these practices. My question is, how could I or anyone claim that I have access to the practices in the work organisations no less than to these representations? Here at least, it seems that the 'representations', i.e. the taped and transcribed discussions, seem to be more concretely at hand to analyse than are the practices in the work organisations that the participants discuss. Some discourse analytical and narrative perspectives would even suggest that I simply have no access to practices outside of the

[91] Despite this, in this study, I have sometimes used the refrain 'meaning-making and practices'. This does not indicate that practices would be separable from meaning-making, nor that there would necessarily exist meaning-making that is not in some way materialised. That refrain is rather used synonymically to material-discoursive practices, and as a concession to the common feminist discourse in which the intertwining of these terms has to be explicitly stated, because otherwise they would be seen as separate.

texts at hand. I refer to approaches that argue that texts are not representations of reality, but ongoing reality in itself, hence for example:

'Without texts, there would be only non-situated formless and shapeless lumps. In any case all descriptions are texts, and require sorting based on conventions. Accordingly one cannot dive in 'the reality' beyond texts. Instead an organised 'reality' is textual reality.' (Hyvärinen 1998, 331.)

This perspective has given rise to, for example, the question of whether interviews are at all meaningful research material, since they are not part of 'authentic reality' (as, for example, newspaper articles), but they are induced by the researcher (for a critical response, see Ikonen & Ojala 2005, 21; Nikander 2002). The critical concept 'interview society' answers to such an accusation by suggesting that interviews are not specific to research, nor are they inauthentic communication (any more than they would enable access to an 'authentic self'). Instead, interviews are a crucial and prevalent part of contemporary societies. (Gubrium & Holstein 2002, 9-12.) A distinction between authentic and inauthentic is itself problematic, and every text needs to be analysed by accounting for its genre. Interviews can be analysed with the simultaneous contemplation of what it means if a particular conversation or text is produced as an interview. (Nikander 2002.) However, if I should follow the approach that refers to reality as textual, then I would not be studying the practices in work organisations, but the discourses, narratives or identities reiterated within the interviews (e.g. Virkki 2004b; Nikander 1995). Such discourse analysis can ask, for example, how the 56 to 64-year-old participants resist or reiterate the subject position of the 'ageing worker' offered by the interviewer. Article IV is an example of how my approach differs from this kind of discourse analysis: I pay attention to the interview situation, and the above-mentioned question is part of the analysis. However, I continue by interpreting the talk and the positioning of the participants through my analysis of the gendering practices in the work organisations. Even though this analysis is also mostly based on the talk of the interviewees, I make an argument about the practices within the organisations.

At this stage it is fruitful to ask, what is a 'representation' for Barad, anyway, and whose work does her critique about granting too much power to language target? At first sight, it seems to be directed towards poststructuralists (according to another interpretation, 'unspecified scholars'; see Ahmed 2008, 34). Barad's example is, however, a representation of an atom by a scanning tunnelling microscope. This microscope uses a tunnelling current, with which the tip of the microscope feels, rather than sees, the form of the researched object:

'The distinction between physical touch and the interaction between the microscope tip and the sample is not as great as one might think. 'Touching' as we know it in our everyday lives is an electromagnetic interaction, a repulsion between electron clouds that don't so much 'touch' in the sense of encountering each other's boundaries through physical contact as sense one another's electron clouds; and furthermore, the gap between the STM [scanning tunnelling microscope] tip and the surface atoms involves a separation of a mere few nanometers, so the question of whether this is 'really touching' in the sense of physical proximity is moot.' (Barad 2007, 411n25.)

This technique means that a 'representation' made by a scanning tunnelling microscope is not the same as snapping a picture. A multi-faceted, material process is required for such a product to emerge, including human subjects, training, and technology (Barad 2007, 52-53).[92] An agential realist approach questions that the product of these practices would be a 'representation', i.e., a reflection of reality, according to geometrical optics. When Barad states that 'representationalism marks a failure to take account of the practices through which representations are produced' (ibid, 53), she has at hand the practice of scanning an atom. The production of 'a representation of an atom' is a thoroughly material-discoursive process – the very concept of an 'atom' and the knowledge as to when such an object has been successfully perceived, interweaves meaning-making into this process. In *this* sense, the material configurations of the world are no less available for access than

[92] This is a similar argument to the one in which Barad criticises Butler's ignoring of the importance of ultrasound technology, and, hence, the short-circuiting of the complex material enactments involved in the process of gendering a foetus, see Chapter 4.3.

representations, and, from this point of view, language seems to have been granted too much power. In the context of qualitative interviews, this point would, however, mean simply that interview transcriptions could not be taken as simple reflections of what happened in the organisations, but the researcher needs to take into account how the interviews are conducted, what the role of the researcher is, and so on. This is a familiar argument in social sciences (Gubrium & Holstein 2002; Ruusuvuori & Tiittula eds. 2005), and hence it can be asked whether Barad's argument offers anything new for social scientists? Her critique seems to rather concern conventional notions of natural science representations.

Reading Ahmed's (2008) response to Barad, as well as other texts in these negotiations, entices me into thinking about the challenges in transdisciplinary discussions. Fruitful discussions and criticism might too easily sink in transdisciplinary quagmires. Here I mean by such quagmires the difficulties raised for understanding because the discussants' concepts have been materialised in such different practices of science (such as analysing interviews or scanning an atom). I have been inspired by this quagmire, however, and have come to take it as a challenge to question the inherent distances and ontological differences between an interview and practices or 'reality' that are assumed to be elsewhere, as well as to further ponder about the notion of access.

5.7 Accessing the materiality of interviews

In my research process, I have confronted the question of *access* in several senses. In addition to shambling in the transdisciplinary quagmire with Barad's texts, I have asked myself the following question in relation to the above-mentioned narrative and discourse analytical studies that deny the possibility of accessing any reality beyond texts (e.g. Hyvärinen 1998, 331): If I am interested in organisational practices and not merely identities or narratives reiterated in the interviews, am I determined to

repeat a naïve form of representationalism? A propositional answer to this question is: 'a version is always a version of something' (Hyvärinen & Löyttyniemi 2005, 204). Hence materiality or practices could not be detached from the interview accounts. I have also been asked, by one of the anonymous reviewers of article VI, whether I can access organisational practices by analysing merely interviews, i.e. by analysing 'representations'. The reviewer suggested: 'in situ observations would have been useful to explore the picture beyond discourse, opinions and representations in order to verify how intense or deep the stereotypes are grounded in actual practices.' This comment prompted me to include the following clarification to the article:

'The results of this study do not indicate whether older women actually are any more cranky than men of their age, and there might not be any way to verify what is actually the case. Even observations by the researcher would be intertwined within the apparatus in which the employers and employees view their organization – one in which perceptions are always imbued with meaning-making.' (Article VI, 680.)

My answer to the latter question stems from the feminist critique of the links between power and knowledge in scientific practices. This critique confronts the figure of the modest scientist who is assumed to possess a view from nowhere (Haraway 1991, 2007) that can objectively observe the 'actual practices', while the interviewees are assumed to produce mere representations and opinions. Only within such a perspective can one assume that a researcher can see better in a relatively short period of field work, compared to the many interviewees and to the several years – even decades, during which the interviewees have been working in the organisations. The question of who is supposed to have access to the organisational practices and how, and whose access is a mere representation, illustrates well that the question of access is also a question of power.

Both questions, about the risk of reiterating a naïve form of representationalism and of the access to the 'actual practices', further seduce me into an agential realist reading. Does not the view that it is

impossible to have access to what is behind texts, actually exemplify enacting an agential cut that produces such a 'behind'? Likewise, the proposition of better access to the observing scientist is based on making a difference between discourse and practices. What would an agential realist approach to interviews – which is interested in practices in work organisations, but does not want to rely on simple representationalism – look like? If the focus on material enactments is one of the central contributions of an agential realist approach, then what is 'material' in an interview?

First of all, it can be suggested that the belief that one analyses 'text' when one analyses interviews is mistaken. Barad claims that Bohr's 'insistence on the materiality of meaning making (…) goes beyond what is usually meant by the frequently heard contemporary refrain that writing and talking are material practices' (Barad 2007, 147). It may seem as if a social scientist is analysing texts or merely language, since the materiality at hand at the moment of analysis is a pile of paper full of text (or a Word file opened on a screen), rather than, for example, a scanning tunnelling microscope. I propose that the insistence on the materiality of meaning-making in agential realism enables critically assessing the assumption that, in social sciences and humanities, the object of analysis is text or discourse rather than materiality. Interviews are a proper matter to explore this further. A central way towards thinking about materiality in an interview is the discussion of its context(s).

Most of the discussions about the significance of the interview as a context for the interviewed participant's talk regard the interview first and foremost as an interactive context, that is, an interaction between two (or more) people (Nikander 2002; Ruusuvuori & Tiittula eds. 2005). Here, the context where a particular utterance by an interviewee is generated is assumed to be the interview, and usually the immediately preceding question or other action (including staying silent) of the researcher (Ruusuvuori & Tiittula 2005; Suoninen 1997). Alternatively, a notion of an abstract 'cultural context' is used, which enables the researcher, who is familiar with this context, to make arguments about what the talk

concerns. In addition, an analysis of an 'argumentative context' can specify, for example, which discourses the participant argues with (Suoninen 1997, 52-53).[93] The notion of context is, however, problematic to the extent that it relies on a geometrical conception of space, *in* which the interview and the participant's talk is situated (Barad 2007, 376, 470n45; see also Liljeström 2004). This is related to the challenge of where materiality is then, in an interview. The terms such as 'interactive' and 'argumentative context' would suggest that talk is produced within other talk, rather than within material enactments.

One possibility to consider the materiality related to interviews, is to pay attention to what would be a proper choice of dress to a particular interview, and how a successful choice, such as a black suit when interviewing managers, enhances the success of the interview (Tienari, Vaara & Meriläinen 2005). The effects that dressing may have in an interview can however, be taken further than an account of a proper choice of dress. They can be conceptualised as gender performativity enacted in the interviews (see also Ranta-Tyrkkö 2005, 237-238). As Anna Rastas (2005) suggests, one cannot necessarily know beforehand which differences prove meaningful in a particular interview. In the age interviews, gender and age were enacted for example, in the following way: had I looked like I was of the same age as the participants, it is likely that some of the men would not have dared to call older women 'hags' in my presence (see article IV). In this sense, my bodily presence became part of the talk, by enabling or seducing certain formulations, which would hardly have come into existence had my age appearance been different. With a closer analysis, an heterosexual assumption was also at play in these combined age-gender performances. This was visible for example, with the interviewee that I had challenges with, analysed at length in article IV (see also Chapter 1.4).

Despite the challenges accounted for in the article IV, and after struggles of resignification, I also managed to change the atmosphere of the

[93] See also an analysis of a text in its material context (a note in a kitchenette where university employees can warm up their lunches), including a problematisation of the difference between material and abstract contexts (Heikkinen 2004, 32).

interview, and to establish a volatile connection with the participant. By 'connection' I do not mean similarity here, but rather a form of affection or affinity (Haraway 1991, 155-157). The first such moment involved the redefinition of our age difference to a more affirmative difference for her. For this task, I utilised the notion of 'experience' in order to change the atmosphere, by suggesting that I am 'young and inexperienced' (HN4/3). The participant responds by saying: 'Young and inexperienced? The experience comes always, with age. (…) This is a fortunate age too. This is very fortunate. No more children; or children have their own lives.' Here, older age as an asset is reiterated through the notions of family and care, which situates the woman employee in a web of generational relations, the heterosexual notion of connections (see also article V). I continue by asking: 'Do you have many children?' When she replies, and tells the ages of her children, I conclude that 'the boy is my age then', which establishes another connection. This discussion redefined our age difference, which I analysed in article IV from the perspective of a non-affirmative difference that assumes that the 'ageing workers' are incapable in relation to younger workers. At this point of the interview our age difference came to include both the aspect of mothering, and the long work experience as an asset. This formulation of the age difference also comes into play later in the interview, when the participant tells that she is more experienced, and 'a sort of mother figure' (HN4/5) who looks after the young trainees. In the end of the interview I ask if she can tell me something related to age and work, which I have not yet asked. She first tells me about educating clients not to talk about older workers: 'when someone says 'older worker' I reply 'not old but someone who has been here for long''. I ask her if something else comes to mind as well, and she tells about high heels:

Bank clerk: 'mmm… heels get lower (both laugh). Before I had very high heels, but now they are getting lower. (both laugh) My feet cannot take it anymore.'

Sari Irni: 'My feet cannot take it even now (laughs).'

Bank clerk: 'Yes, yes, you have never learnt to wear them.'

Sari Irni: 'No, I had dancing shoes (laughs) with heels and then after the evening my feet were so swollen that I threw them away (laughs).'

Bank clerk: 'Yes, but for me it has been compulsory, my husband is more than twenty centimetres longer than me.'

Here a connection is enacted as well, and this time it seems to be based on an heterosexual assumption, an assumed heterosexual affinity, so to say. This is again material (a 'body matter') in the sense that had I had, for example, very short hair, tattoos, big rings, or other signs of butch performativity or female masculinity (see Kuosmanen 2002 about these signs), a moment of affinity would not likely to have resulted in a discussion of high heels. The last cited utterance suggests that the affinity is not only based on a discussion of shoes, but the wearing of these shoes is assumedly an heterosexual matter. This utterance enacts an assumed 'difference within heterosexuality' between us two women; it seems to involve the participant's heterosexual assumption that her husband is tall(er than mine), because of which she, instead of I, have had to learn to use high heels. I doubt again that this utterance, and this moment of affinity would have come to existence, had I performed more female masculinity when conducting this interview. In that case, an assumed heterosexuality would not have become the point of connection or a seeming mutual understanding, which now shows as a yet further sign of the easing of the tension in the interview.

In addition to gender performativity, the materiality of interviews can be enacted by the tape recorder and the catastrophe involved when it does not work properly. In the case of this study, some of my sexual and gender minority interviews are barely audible from the tapes, and hence extremely challenging both to transcribe and to analyse. This is the central reason why, so far, I have restricted my analysis of these interviews to one article (II). That the recording did not work is still perplexing to me, because apparently I used similar devices at the time of conducting the age interviews. Here the tape recorder certainly performed an enactment that

reminded me of the material 'obligatory passage points' (Latour 1999, 183-184) involved in conducting interview research.

A third aspect of materiality in interviews is the voice heard from the tapes. As Marja-Liisa Honkasalo (2004) has suggested, the tone of voice is left over from both phenomenological views on bodily experiences and constructionist readings of, for example, interviews. Here I link this bodily matter to the analysis of emotionality. 'Positive' emotions, feelings of sharing, and compassionate and empathetic listening are often mentioned in relation to, and as the aim of, feminist interview methodologies (for a review, see Oinas 2004). In addition to a mere aim to an empathetic interview – in which this kind of emotionality assumedly marks a successful interview – emotionality can also be studied as a marker of power at work in the interview situation (Blee 1998; Wasserfall 1993; see also Ahmed 2004). The tones of voice are one possibility to grasp the emotionality in an interview. My feelings of the participants' tones of voice in answering some of my questions first led me to the process that included writing article IV.

Part of my interpretations also consists of what I felt in these situations, in other words, how I *felt* the tones of voice. This feeling can be conceptualised as 'body resonating' (Kaskisaari 2000, 59).[94] Later, when I listened to the tapes while conducting the analysis, I could sometimes hear from the participant's voice the issues that I had felt during the interview, but sometimes I could not reliably tell that the voice would have been, for example, 'irritated', even though I 'had heard' this during conducting the interview. Communication is much more than words or voice, and certainly all these aspects of communication resonated in what I heard, or rather, felt, in certain parts of the interviews. These tones of voice can be

[94] In the context of studying autobiographical narratives, Marja Saarenheimo suggests that 'the power of autobiographical narratives lies not so much in *expressing* emotions as *inviting* or *arousing* emotions in the narrator as well as in the audience' (Saarenheimo 2002, 168). Such invitation and arousal of emotions can be interpreted as an instance of bodies also resonating in interview situations. See also Aili Nenola's analysis of 'crying but doing research' (Nenola 2007, 51), in which the tears are yet a further example of how bodies and emotionality are intertwined in research.

understood as one aspect of the materiality of the interview. This is not only a matter of individual bodies and their feelings or sounds. The resonating body marks the differences and power asymmetries within the interview (ibid, 59-60).[95]The material-discoursive interview apparatus hence includes gender performativity, the reiteration of cultural understandings of gender and age, resonating bodies, voices, feelings, the tape recorder, and forms of power, such as assumptions of heterosexuality. The intertwining of the feeling of the interview to hearing the talk further emphasises the inseparability of these aspects of the interview apparatus.

I take this apparatus of feelings, meanings, genders, and technologies to be a product of both the interview situation and the apparatus within which the interview is conducted. Barad's posthumanist performativity is a useful tool in this analysis. The participants' words that I cite in the articles get their meaning not only from the intentions of the speakers, nor from the citations of the cultural systems of meaning. Instead, the meanings are produced within specific material-discoursive apparatuses, including the gendering practices in the work organisations. In article IV, I concentrated on the analysis of the term 'ageing worker' and how this term is differentially enacted in the studied organisations. I argued that these meanings are transferred to the interview situation when this term is cited in the talk. Hence, the meanings of the term 'ageing worker' are not static, and the term does not carry any *inherent* meanings.[96] Rather, these meanings are enacted within specific apparatuses. The emotionality that is attached to this term in a particular apparatus becomes part of the atmosphere of the interview, rather than merely the formulations of the questions itself. In this sense, the gendering practices of the work organisations are not behind, absent or elsewhere, but rather present in forming the interviews.[97]

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[95] Kaskisaari has developed the concept of the resonating body in the context of reading autobiographical texts, but I propose that it also works in analysing interviews.

[96] For another, Deleuzian-inspired suggestion of the materiality of concepts and the enactment of their meanings within specific apparatuses (assemblages, in the Deleuzian case), see Parikka & Tiainen 2006. For an approach inspired by Wittgenstein, see Peltonen 2009.

[97] See also Helavirta (2007) for an analysis of children's interviews, in which the place as well as movement became part of the interview. She does not conceptualise this as 'materiality' of

Interviews and their analysis hence involve materiality in several senses. In their specific ways, all the above-mentioned aspects of the interview apparatuses question a representationalist view of interviews, in which interview text (the transcribed interview) would consist of representations, and the material practices would remain elsewhere. The apparatus within which a specific utterance is made does not merely include 'talk', or an unspecified cultural context, but it involves specific material-discoursive practices. Such an agential realist perspective to interviews suggests that it is misleading to propose that *in addition to* talk, there are material practices involved. Instead, the interview talk embodies material-discoursive intra-actions that are not limited to the turns of speech, or to the contours of the speakers, or even to the interview situation. In this approach, the question of access is also tuned to a different perspective. To formulate access in terms of a differentiation between interview talk and organisational practices, or language and materiality, seems all the more delusive, if not impossible. It is only the particular ways of recording interviews, transcribing them, and moving particular fragments to the research report, that result in the view that this might be text that is analysed, which is separate from materiality.

This process – which includes transcribing the interviews – could also be called a purification process. For Bruno Latour (1987) and Nelly Oudshoorn (1994), purification signifies the way in which scientific results

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interviews, but some of her insights can be read as compatible with my agential realist account of interviews. For example, she suggests that by movements children sometimes told more than by words (ibid, 636). Her analysis aptly shows that the *place* and the *movement* within the interview were not only a 'context' for the interview talk, but they also constituted the interview communication, and formed and directed the course of the interview, and hence were inseparable from the interview talk (ibid, 636-637).

See also Ojanen 2008 for an insightful and very self-critical analysis of the intertwining of times and places in research practice. From an agential realist perspective spaces, times, practices and power asymmetries do intertwine in one way or the other in all research practices; the crucial question is *how* they intertwine in each case, and where the agential cut is placed when accounting for the research apparatus. Hence detecting such intertwining need not necessarily be understood as detecting a failure in the research process, as Ojanen seems to suggest. I interpret an analysis such as Ojanen's instead as an 'epistemological-ontological-ethical' (Barad 2007, 26) decision to place the agential cut in order to account for the extension of the research apparatus in *time*.

are seen as 'natural facts', in other words, as if purified from the scientific and social apparatus within which they have become existent. As conversation analysts have suggested, such a simple issue as what the interviewer asked, in other words, to what question the participant answered, is very much a matter of transcribing. This does not hint to fraud by researchers in omitting crucial parts of the interviews when presenting them in the research report, but that, in a particular instance of talk, a declarative sentence, or also silence, can – in practice – work as a question (Ruusuvuori & Tiittula 2005, 51-54.) This argument alludes to that researchers do not always realise how they actually asked, and how the talk of the participants is a co-product of the participants in the conversation. Sometimes during this study, I was getting answers to questions that I thought I did not ask (see article IV), and this dilemma was not resolved by a more detailed transcription of the interviews. This exemplifies that the apparatus within which the interview talk becomes intelligible is not exhausted by the interactive context accessed by transcribing, but the apparatus extends beyond the preceding utterance, and beyond the interview itself. I then utilised the theories of performativity and the studies of emotionality and power in interview analysis, as well as conversational analysts' insights that helped me to conceptualise what had happened, and why the tones of voices differed between the interviews (article IV).

Several important questions concern access in relation to interview research, such as who is accessed in a research process, and how the person is accessed (Vakimo 2008). Access in the interview study of work organisations concerns not only to what extent practices in work organisations can be accessed by interviews, but who can access them, what practices are accessed, and what agential cuts are made in the process of accessing. The distinction between language and materiality seems all the more questionable, at least from the point of view of conducting an interview study. In the end, Barad's question of the differential access to representations and materiality, as well as the related critique of scholars giving too much power to language, seemed to be more relevant as a critique of natural science representations than an account

that concerns poststructuralist-oriented feminists in social sciences. Still, the transdisciplinary quagmire that formed part of my perplexity when faced by her question, made me rethink the issues of materiality and access in terms of conducting interviews. The materiality of interviews, and what is meant by an access to materiality in interview research, proved to be a multi-faceted issue. Access in this case, then, also concerns the choices of how in a particular study the materiality of the interviews is accounted for, and which aspects of this materiality are utilised in the analysis and made accessible to the reader. Hence, only after a proper 'purification process', can it appear as if interviews consist merely of text or talk, rather than materiality.

⑥

Making moves, making trouble, making age

6.1 Moving experience

Several age studies scholars, such as Margaret Gullette (1997), Roberta Maierhofer (2008), Margaret Cruikshank (2008), Kathleen Woodward (2003), and Margaret Walker (2000), have proposed exits from the narrative of decline, as well as formulated alternative later lives and midlives. These alternative figurations[98] include, for example, Kathleen Woodward's (2003) proposal of 'wise anger' which she offers instead of the notion of calm and detached wisdom of later life, and Margaret Walker's (2000) concept of "lateral integration". The latter is an alternative to the normative ideal of a life review in later life, which, according to her critique, is based on a career model of an individual life. Margaret Cruikshank's queering of ageing is yet another attempt to make a move in relation to stable conceptualisations of later life. Janet Jakobsen's comment about queer as a 'space of difference' is an inspiration for this rethinking: 'Queer was supposed to name a space of difference that didn't just produce

[98] About figurations, see Lykke & al 2004, 327. As Donna Haraway suggests, figurations are never just texts, images or visions, but material-discoursive configurations of the world: 'Figurations are performative images that can be inhabited', hence they 'make explicit and inescapable the tropic quality of all material-semiotic processes (…) We inhabit and are inhabited by such figures that map universes of knowledge, practice and power.' (Haraway 1997, 11)

a new identity – homosexuals who are different from heterosexuals, gays who are different from straights – but might also allow us to remain in the space of difference itself, without being trapped in identity' (Janet Jacobsen, cited in Cruikshank 2008, 151). For age studies, queering of ageing on this basis entails sensitivity to different sexualities and genders, and also that '(i)n the space of difference, late life might be seen as inherently worthy, not requiring qualifiers like 'positive' or 'successful' to render it desirable' (Cruikshank 2008, 151). From such a perspective, an affirmative view of ageing and later life would not be theorised as requiring positive identities related to age (cf. Andrews 1999). Instead, the notions of ageing and later life could be understood as movable and moving, and not a *difference from* (young, healthy, attractive etc.). Cruikshank's theoretical project is to formulate a sort of identity politics without identities for later life, but here I focus on the conceptualisation of (work) experience and its relation to ageing, and I suggest that it is in need of such a move.

Cultural gerontology very seldom overlaps with the study of ageing in the labour market, but I suggest that waged work in particular, is in need of alternative figurations related to ageing. As Margaret Gullette has noted, ageing in the capitalist economy has generally been regarded as a hindrance to competitiveness and efficiency (Gullette 1998, 23). The 'master narrative of decline' in the context of waged work is articulated by Richard Sennett as follows: 'Everyone grows old, and, enfeebled, we all become at some point useless in the sense of unproductive' (Sennett 2006, 94). According to his sources, older employees are assumed to be set in their ways, slow, and having lost their energy. Moreover, these assumptions are gendered, in the sense that women in midlife are particularly thought of as 'lacking drive' (ibid). In her analysis of the fashion cycle and how it teaches us that ageing equals loss and decline, Margaret Gullette suggests that other cycles also exist that perform related 'ageing practices'. An example of such practices consists of the technological changes, resulting in 'discontinuities in work life, where your 'old' skills or knowledge become useless, or your 'old' job disappears' (Gullette 1997, 200).

Here, I understand *experience* as a node that, on the one hand, is in need of rethinking, and, on the other hand, could offer an alternative figuration for ageing in waged work. Both the Finnish age policies at the turn of the century as well as my research interviews have induced me into rethinking experience in waged work. The Finnish government's attempts to answer to the challenge of ageing, as posed by the OECD, the IMF and the EU since the 1980s, have included several age programmes that have campaigned for the retention of people over the age of 45 years in the labour market. The most remarkable of them, conducted at the turn of the century, the *National Programme on Ageing Workers* (hereafter, the Age Programme) constituted a visible attempt to re-imagine ageing as positive, by taking as its slogan 'Experience is a National Asset' (see article V). I have raised this programme in this study, not because I want to inherently criticise it for not having a broader perspective on experience. Instead, I want to point out – in relation to the history of devaluing of older age within the labour market (Gullette 1998) – this rare attempt to resignify the meaning of ageing in the labour market to the affirmative. The following programmes have already begun to pay attention to differences within ageing workers, and I suggest that this study also contributes to how the links between experience and ageing can be rethought. Despite the tributes to the importance of experience, and hence of the value of midlife workers in the Age Programme texts (see article V), the aspects pointed out by Gullette and Sennett are also prevalent in the practices of the Finnish labour market (Julkunen 2003, 149; Julkunen & Pärnänen 2005, 253-255). Some of the arguments that want to see value in 'experience' in the sense of experienced workers, involve a self-evident connection of older age and experience, that is, a vision that experience is something that *accumulates during one's career*, and is hence connected merely to ageing (see also Nilsson 2008, 109-110)[99]. In contrast, I suspect that precisely this connection enables the stagnated view of older workers. If experience is

[99] Nilsson analyses the Swedish context, and it seems that 'experience' is here a central, alternative and resistant discourse (Nilsson 2008, 107-112). I, instead, focus on how it has been part of the governmental discourse in Finland.

figured as the accumulated production of a career, and more specifically, of a certain type of work within that career, it is particularly prone to lead to a situation wherein, when the job disappears, there is no vision left for the usefulness of experience. Moreover, by regarding experience as merely related to the accumulation of years also enables the idea that at some point the accumulation changes into stagnation, of getting into a rut.

Here, instead, I propose the notion of *moving experience*; aiming for a figuration of ageing that avoids the stagnation, and also that brings the analysis of power into the conception of experience in the labour market.[100] For this task, the link between experience and ageing could be reviewed with the help of feminist rethinking of the notion of experience. Feminists have long politicised this concept, by paying attention to how the experiencing subject is located within the formations of power. Feminists have argued that power asymmetries have an effect on a range of experiences, as well as normalising power, which moulds resources for conceptualising experience. An important feminist question has also asked whose experience is counted as relevant in the formation of knowledge. (Koivunen & Liljeström 1996; Scott 1993; Mohanty 1992; Amos & Parmar 1984.) I have drawn from these insights to discuss experience in relation to the labour market, and especially, to older workers. The Finnish Age Programme suggested that both work experience and, more broadly, life experience, contribute to the 'experience' that is the specific asset of older workers. From the feminist viewpoint, both the intertwined aspects of experience – the life experience and the work experience – are moulded by several forms of power that have an effect on whether, and for whom, experience can be seen as an asset. Hence the experience that accumulates in a particular job differs according to the power that shapes the work and the workplace, such as heteronormativity, racism, and gendered assumptions related to ageing.

[100] See Jyrkämä (1994, 64-69) for another analysis that utilises the notion of movement, 'Old Age in Movement' as his title suggests. He works with a different set of tools, Giddens and a sociological approach that assumes the sex/gender distinction, but the interest in 'moving age' theoretically and analysing age and ageing as contextual processes is similar to mine. My moving of experience is a further way to set age in movement with the help of contemporary feminist theories.

As the focus on heteronormativity suggests (article II, see also Lehtonen ed. 2002; Lehtonen & Mustola eds. 2004), experience and its connection to work skills varies in relation to the positioning of the worker within several forms of normalising power, such as sexuality, gender and 'race'/ethnicity. The (in)visibility of skills is one instance in which experience and heteronormativity are mutually constituted. As I suggest in article II (see also Vanhala 2004), what remain unnoticed in a workplace in which the employees are assumed as heterosexual, are the skills and experience gained in the process of confronting heteronormativity throughout life as well as socialising with lesbian, gay and transcommunities. In some professions, such as social work and education, the non-heterosexual and transgender participants of this study suggested that they had gained advantages concerning the understanding of difference, in comparison to their workmates. In addition, sometimes *not* performing binary gender could be an asset, that is, gender performativity that adheres to neither of the two assumedly separate genders. For example, employing a person that not only performs binary gender could be seen as an economic advantage for the work organisation in attracting clients with whom, as one interviewee put it, 'my personality just happened to fit right in' (II, 111; Charpentier 2004, 120; see also Adkins 2000). This situation could also be formulated by saying that here, the 'life' contributed to the employee's work performance in a way that could be, as the interviewee formulated, 'exploited in a positive way' (ibid) by the organisation.

In health care, non-heterosexual workers sometimes make arrangements to protect non-heterosexual clients from workmates that they see as potentially harmful because of negative attitudes towards sexual minorities (Vanhala 2004, 215-216). If an heterosexual assumption of the workers prevails in the workplace, these skills, which I interpret to concern both recognising which clients might need such protection, and, which behaviours might harm the clients in the first place, are left unnoticed. Vanhala interprets that an 'imagined community' (Anderson 2007) is being created with the clients and the non-heterosexual

employee, and that the challenge concerns the openness of the individual employee: if the employee is not openly non-heterosexual, the actions that have an effect on patients' well-being are left unnoticed (Vanhala 2004, 215). Rather than the individual employee's openness, I emphasise the prevalence of the heterosexual assumptions of the co-workers. Heterosexual assumptions are part of the heterosexual saturation of the workplaces, a form of power that crucially creates the awkward situations in which non-heterosexual employees either have to make a specific case of themselves in order to confront these assumptions, or they have to avoid this confrontation and hence 'conceal' their identity or the gender aspects of their intimate relationships. Theorising beyond the openness of the individual employee also helps to see these skills as work skills, the implementation and acknowledgement of which are not tied to a particular identity or choices about how to speak about this identity. These skills can be learnt in particular life experiences, such as during the course of confronting a heteronormative environment and socialising in subcultures, and/or by extensive studying, which can also be conducted by those who are situated in a privileged position within these power asymmetries. Hence, different forms of power, exemplified here by heteronormativity, not only affect the well-being of the employees, but, in addition they may leave invisible some of the work tasks or skills that the employees do in order to improve the quality of work.

I have pointed out, with reference to earlier studies, how the racialised structuring of the Finnish labour market has an effect on the possibilities of the utilisation of work experience, especially from the viewpoint of *whose* work and study experience is accepted as relevant in the Finnish labour market (article V). Here, visibility is not only a question of whether the work experience is visible, for example, in the sense that it can be proved by documents, but the legitimacy of these experiences as assets is tied to implicit expectations of Finnishness, which mostly means whiteness. However, as I suggested in connection to racialisation and multiculturalism in article V, it is also problematic to assume that certain experiences or certain resources automatically result from a migrant background (see also Tuori 2009a, 50-56), for example, that solely

ethnicity and culture would explain the choosing of a particular type of work (such as kebab restaurants, see Wahbeck 2005). The challenge here is that a migrated person is often seen through the prism of being first and foremost a 'migrant' (de los Reyes 1998), rather than, for example, an 'experienced worker'. The assumptions about the primacy of cultural and ethnic explanations can serve to silence structural factors, such as discrimination and unemployment (Wahlbeck 2005, 42). This especially concerns those who have migrated to Finland for reasons other than employment.

Another instance of the racialised structure of visibility is the interpretation of a certain conduct as a result of the migrant's culture. For example, one of the research participants suggested that, in the case of his workmates, it is the migrant background and 'their culture' that explains the negative comments about his non-heterosexual family life (article II, 99; Charpentier 2004, 107-108). This is an example of the meaning-making that especially concerns non-Western migrants. Both, when migrated people are seen as resources to the Finnish labour market (Tuori 2009a, 54), and, when some migrants' opinions about homosexuality are criticised, the reified notion of 'different culture' is interpreted as the resource and explanation of the conduct (de los Reyes 1998; Knocke 1991). Examples abound of Finns who have heterosexual assumptions, and who make difficult workmates for sexual and gender minorities (Lehtonen & Mustola eds. 2004; Lehtonen ed. 2002). The reified notion of the different culture however, works to project a liberal view of Finns in contrast to a generalised view of non-liberal migrants (Tuori 2009a, 138; see also Mohanty 2002).

Another challenging issue, in relation to whose and which experience qualifies as an asset in waged work, is the assumption that child care is a part of women's experiences; hence a midlife woman's assumed asset becomes that she no longer has the responsibility of taking care of small children (article V). This is not only problematic as an heterosexual assumption of life courses – the assumption that all women form couple relationships and have children, and moreover, are always in the most

responsible position in the family to care for the children (see article II). My reading of the interviews proposes, that even for the women who have this experience and could have gained from it, the experience of child care is not valued *as such*, that is, as contributing to the work skills of the women, but it is only valued when and because it has *ended* – because midlife women no longer are assumed to be tied to these tasks (article V).

The feminist perspective utilised here suggests the opening up of experience for an understanding of the forms of power that mould experiences, and hence play a crucial part in affecting which life experiences end up being useful and used in work. Instead of a linear path in which experience accumulates, and according to which, the person who has lived and worked the most years possesses the most amount of experience, several forms of power mould whose experience, and which experience, becomes acknowledged as an asset in the labour market. What is experienced in a particular job differs according to the location of the employees in relation to these formations of power. This point leads to recognising that some forms of experience are more visible than others in the workplace, and some experience is hence more easily accounted for in recruitment and promotions. In addition, job seekers do not simply have more or less experience, but, for example, racialisation differentiates between the seekers and plays a role in which experience counts, and who is considered 'experienced' in a recruitment situation. This approach also encourages asking how the location of the workers who are situated 'in the centres' of these constellations of power has an effect on the formation of their work experience and skills. The situatedness in the centres, for employees who have lived an heterosexual life course with binary gender performatives and are white and able-bodied, provides privileges in forming a career. However, if such employees do not strive to move beyond their privileged vision, this position may not prove to be an advantage. For example, in the case of the health workers whose non-heterosexual workmates needed to protect non-heterosexual clients from them, the privileged vision seemed to rather be a hindrance to the quality of work. In some cases, different knowledges (Roy 2008) can contribute decisively to the formation of work skills, and hence, to the quality of work.

From an age/queer/feminist studies perspective, such a fluid conceptualisation of experience that accounts for power may provide spaces of difference for older workers, and may also open up possibilities for recognising hitherto invisible experiences and work skills.

6.2 Troublesome ageing women

In this study I had not planned to focus on menopause (article III), nor was I expecting to encounter 'cranky old women' (article VI) in my research material. During the course of reading the interview transcriptions, since my focus was on gender, I began to pay attention to the utterances according to which women, when they age, are claimed to become troubling: bitter, difficult, irritable, even horrible workmates, and not as convivial as men. This kind of change seemed to especially concern women, and according to the utterances its reason seemed to be ageing itself, and occasionally, menopause. The challenge became, how should I interpret these comments? Would I understand them as telling how things actually are in some of these work organisations, or would I 'smash them' as mere stereotypes, as one experienced scholar in a recent cultural gerontology symposium suggested? With these questions, matter came gnawing into my research, and I felt a need to develop the approach that I would later name as 'agential realism for social scientists'.

Making a choice between reality and stereotypes seemed questionable, and in any case a bad choice: either I would ignore the research that has been conducted about how emotionality is attached to female bodies, and how the change in the understanding of gender as hormonal has historically shaped these perceptions (Ahlbeck-Rehn 2006; Oudshoorn 1994; Roberts 2007). Or, I would not take seriously what women tell about their experiences of menopause, or ageing more broadly (see Goldstein 2000; Julkunen & Pärnänen 2005, 249). At this time in my research process, I was struggling with my poststucturalist starting points of the

research. To me, a focus on ageing meant that I gradually began to miss more space in theory for biological processes. This longing is articulated by Margaret Cruikshank in the following way; she argues against one of the most influential and radical thinkers within contemporary cultural and feminist gerontology, Margaret Gullette, and her notion of 'aged by culture' (Gullette 2004):

'Jogging centenarians make impressive survivors, but stories of less robust women, including those who use a wheelchair or who contend with problems such as hearing loss, macular degeneration, and arthritis, are needed to balance the picture of personalities resisting classification. If I become too stiff to walk and too bent to sit at a computer, I probably won't describe myself as 'aged by culture'. Social construction carries us just so far. On the other hand, if I do last until infirm, the ways I interpret my infirmities and the ways others regard me will inevitably be determined by culture.' (Cruikshank 2008, 151.)

In the case of menopause, even though the majority of women do not feel any trouble because of it (Hemminki & al 1995), the focus on 'cultural construction' in feminist studies may serve to stigmatise and marginalise the experiences of those who do (Goldstein 2000). During the time that I had these thoughts, my colleagues and I had a reading circle around feminist theory. For one of our sessions, we read Karen Barad's article 'Posthumanist Performativity' (Barad 2003). When I read the article, I felt that Barad's thinking provided some crucial answers to my longings, and relief to my ambiguous feelings about poststructuralist theory: thinking with agential realism, and later, with other science studies scholars, I did not have to give up my anti-foundationalist approach, but instead I acquired tools to think about biological processes and other 'matters' as part of such an approach. The agential realist approach also shifted my focus towards apparatuses, phenomena and agential cuts; towards a(n agential) *realist* epistemology, in which, still, nothing is foundational (see Chapter 4.3). Part of this shift entailed analysing gendering practices in work organisations by asking the research material: if indeed it would be the case that midlife women would be more irritated, bitter, or otherwise 'troublesome' than the men of their age or younger colleagues, within

which apparatuses might such emotionality have been produced? In which sense do such apparatuses involve aspects of age, which aspects, and what else is involved? If 'ageing' is said to produce cranky women, then what might this 'ageing' consist of? In other words, what are the apparatuses and agential cuts that enable the existence of entities and individuals such as 'troublesome ageing women'?

The answers to these questions are multi-faceted. First, in some cases, *informal distribution of work* seemed to result in that older women did more work than others, which irritates them (article VI). Here the question was of age, in the sense that older workers, because of their longer work experience, saw more work to be done, including tasks that facilitated everyone's work. The apparatus also included gender, because in some cases the tasks had been formed through gendering practices as either women's or men's responsibilities (article VI). The second answer is related to the question of *who can raise difficult issues in the workplace*, or resist particular changes or common practices. On the one hand, increased experience brings confidence and courage to utter one's opinion (Koski & Tedre 2009, 249; Kujala 2006, 178; Ruoholinna 2006, 168). On the other hand, if this opinion involves resistance, it can be interpreted in quite another way related to ageing: at worst by condemning the person as a 'troublesome hag' (Kosonen 2003, 113; see also Kujala 2006, 148-150). According to the interviews, the nearing of retirement age may facilitate that the employee is not only able or willing to raise difficult issues, but is asked to do so (article III). Apparently, this is because the nearing of retirement age in specific conditions seems to lessen the fear of consequences for raising these issues. Raising difficult questions also seemed to include gender aspects, for example, if women in a male-dominated workplace experienced marginalisation, or if women otherwise resisted gendering practices such as wage inequalities between women and men (article VI). The precariousness of the person's work situation, the possibilities for joint action around the issue, as well as the characteristics of the issue to be raised, seem to condition the possibilities for raising such difficult issues. For example, for a person with a fixed-term

contract, innuendos and unpleasant jokes in which heterosexuality is privileged, or otherwise an atmosphere that requires binary gender performance, may urge changing jobs rather than raising these issues at the workplace (article II). Changing a workplace because of heteronormativity is not a minor issue, because ten percent of the sexual minority employees who had changed jobs within five years said that negative attitudes towards lesbian, gay and bisexual people either influenced or were the main cause of the job change (article II).

Normalising power also plays into the conditions of resistance. Some issues are seen as more legitimately related to 'gender equality' than others (Honkanen 2008), and thus they are more likely to be brought up and listened to, as common concerns, in the workplaces. For example, in Finland, wage inequality between women and men is promoted in the public as a legitimate 'gender equality' concern (which does not mean that it is easy to solve), whereas heteronormativity in the labour market has only come under public consideration during the last decade. In the recent public debate, the latter is mostly discussed in terms of sexual and gender *identities* and the (non/)acceptance of these minority identities in workplaces (e.g. Inhimillinen tekijä[101] April 8, 2009). Instead, the issue could be discussed as a form of power that moulds the workplace, the coffee breaks, work meetings, discussions of family, and also working life courses for all workers, and not just the minorities (see also Lehtonen & Mustola eds. 2004; Lehtonen ed. 2002; Lehtonen 2003, 18). Resistance to racism is another issue that is not easily brought up in the workplace, since racism is something that white workmates may not *see* (Frankenberg 2001). If, in some cases, racism already works at the level of recruitment in preventing one from getting a job (article V), as requirements of binary gender performance or heterosexuality also seem to sometimes do (article II), I suspect that the one who succeeds in getting the job most likely does not risk being labelled a difficult and complaining person, especially if the complaints would concern an issue that is invisible to the workmates.

[101] 'The Human Factor', a TV2 discussion programme, see http://yle.fi/elavaarkisto/?s=s&g=5&ag=111&t=&a=7077 [accessed May 4, 2009].

Changing jobs as an answer to difficult issues is also an age-related question, and an option more easily available to younger than older employees (Virjo & Aho 2002).

The focus on the apparatuses within which ageing is produced has also entailed accounting for enactments that go beyond human conduct. Gendering apparatuses also include, for example, work spaces. The materiality of these spaces, as well as the space-time conditions of work, intra-act with how age becomes significant and how a person's situation is formed (see also Eräsaari 1995; Holland & al 2007). For example, a bank clerk needed to change her office to the back of the building, out of sight of the incoming clients, because her workload grew too much. This, in turn, was a result of her long work experience that attracted clients that knew her (see article III). Another example is the architecture of the food factory building, including two floors with stairs in between, which the women employees had to climb while carrying boxes (see article VI). Here, the architecture and especially the stairs and the boxes can be interpreted as 'non-human materiality' within the gendering apparatus that irritated the women. Hence, my analysis of the apparatuses has included paying attention to different forms of matter and its workings in the work organisations, in addition to 'human interaction', which has most often been seen as the 'stuff' of the gendering practices. To paraphrase Bruno Latour's (1993) analysis of the significance of the microbe to the French in the late nineteenth century: In the gendering apparatuses of twenty-first century in Finnish work organisations, humans are not the only meaningful actants. Materialities beyond human bodies, such as boxes, stairs, and offices also contribute.

A complex combination of power, including gender, sexuality, 'race'/ethnicity, and aspects of age and working conditions enable or alternatively discourage raising difficult issues and resisting unjust practices. The apparatuses that serve to produce the 'complaining older women' are not confined to the practices and materialities within work organisations, but extend to the economic and political conditions that mould the gendering practices, for example, in that the slimming of the

welfare state (Kovalainen 2004; Julkunen 2001) has an effect on public sector women's work (article VI; Eräsaari 2002a). Aspects related to 'age' within these apparatuses include the nearing of the time of retirement (which facilitated raising difficult issues), the experience gained during years or even decades of work (which resulted in increased workload), as well as the possibilities of getting a new job at a certain 'labour market age' (Vaahtio 2002), and all this in the particular contexts of the work organisations. Hence, what to an observer might seem to be an emotional response – related to ageing, midlife or hormonal changes – consists of several practices, including how the life course is staged by social policies (retirement age and early exit paths), and how long work experience has been gained from the job at hand. In addition, it includes the normalising power that works in recruitment and in other moves during the working life course (articles II & V), which in turn mould how (in)secure the person's position in the present job is. All these practices serve to shape who is able to raise difficult issues, which issues can be raised and with what costs – and in the end, who has the most chances of becoming labelled as a difficult person because of resistance.

It is a fine line between resistance, trouble-making, and being regarded as troublesome. The resisting women also make 'gender trouble' (Butler 1990) in their work organisations, which could be regarded as a subversive or affirmative practice. Within the present atmosphere, if resistance is at all conceptualised in relation to older workers, it appears predominantly as problematic opposition or an inability to change that goes against the grain in the changing working life, rather than as critical, experience-based evaluation of the sensibility of these changes (Julkunen 2003, 147-155; Kujala 2006, 135, 148-150 157-158, 177; Ruoholinna 2006, 169). As Julkunen has noted, agents tend to disappear within the discourse of the changing working life, in addition to that ageism remains not conceptualised: it is as if working life itself changes to a direction that marginalises older workers (Julkunen 2003, 148-149). Related to this are the changes in the so-called new economy, which include a move towards controlling minds and personalities instead of work tasks per se (Casey 1995; Virtanen 2006). Hence an employee has to be able to sell her or

himself, not only as an industrious worker, but as a nice, or rather, cool person (Vähämäki 2004, 24). The challenge is how to perform such a personality when one is regarded by others as an *ageing* person, with the not-so-encouraging meanings related to that term (article IV; Vaahtio 2002)? In the present discourse, the conduct of older workers is not seen as *resistance* and *critical contribution* in the affirmative sense, but rather as *stagnation* related to *ageing*. Likewise, so-called early retirement is broadly conceptualised between a desire to retire – the 'pull' of free time – and the 'push' by unsatisfactory working conditions. In future studies, it might prove fruitful to also explore these practices as forms of resistance.[102] My study suggests that in some cases, early retirement might indeed involve resistance to the gendering practices of the organisation (article VI).

But, are women really the only ones who resist, and hence trouble the contemporary practices in the labour market? The age interviews provided no evidence that men would not resist or become irritated if they confront unjust practices, on the contrary. According to the men's interviews, they could also whinge, criticise, or be angry or bitter because of treatment that they felt was unjust – and resist it. However, in this research material, only women were *generally* pictured as trouble-making in this way. The term 'general' here is not a quantitative statement indicating how 'most' or 'many' of the interviewees would have figured ageing in women. Instead, it refers to the form of speech: individual male workmates could also be pictured as in some ways troublesome workmates (see for example, a food factory employee's comment about her male workmates),[103] but the statements that I am interested in are formulated as if – not only some

[102] See also Kujala (2006, 180) who discusses senior women teachers' resistant 'identities'. My focus differs from this in that I do not work with the notion of identities, but rather with agency. I do not assume that the actions are conceptualised as resistance by the actors themselves, or that any kind of 'identity' related to this issue is needed.

[103] 'In the kitchen [...] there are two of those men who never [...] wash these paddles and other stuff, and who don't tidy up before others come to work. [...] And the same thing with the emptied boxes, the cook could very well take them when he comes around downstairs ten times a day [...] But there are two of those blokes and it's no doubt that they won't touch the boxes.' (See article VI, 672-673.)

individual workmates in specific situations – but ageing women *generally* become troublesome, with an allusion to women's emotionality (see the introduction of article VI):

'We have older women [...] who have begun to be cranky when they have grown older.' (Bus driver, man.)

'The 45-year old and older women's way of treating their work mates and other people is horrible.' (Waiter and shop steward, man.)

'The men, they are quite convivial, but in women one sees maybe a sort of tenseness that could be a result of the menopause.' (Bank clerk, in managerial position, woman.)

The following incident serves well to explain what I understand as the nature of these generalising utterances about ageing in women: When I had published article III, a reporter expressed her interest in writing an article about this. She, however, came back to me saying that she could not make the story, because she had asked a couple of shop stewards about the issue, and they did not think that older women were a specific problem in their work organisations. To me, this well illustrates several issues connected to this theme: Making a claim that older women are 'troublesome' is a sensitive issue, and not a politically correct statement from a shop steward, hence I was not surprised that they would not make such an argument publicly in a newspaper. Moreover, I doubt that even all those who, in our research interviews, uttered this point, would repeat it, if they were confronted out loud with it, for example by saying 'do you really think that women especially, when they age, become somehow difficult, cranky, or even horrible?' I also doubt that they would have uttered such a comment had the interviewers been 50- or 60-year-old women.

I propose that the comments in the interviews about menopause and troublesome ageing women exist in a fairly similar way to how Jeff Hearn and Wendy Parkin (1987) have suggested that sexuality exists in organisations: as innuendos, mentionings in subordinate clauses, as subtle utterances that may be denied later. Hearn and Parkin first thought that

these are methodological problems in the study of sexuality in organisations, but came to conclude that, rather than problems in getting into the real issue, this is the way in which 'sex' – including gendered bodily issues other than sexual practices – *works* in organisations (ibid). In other words, I suggest that claiming that ageing women are more troublesome than men does *not exist in the same 'straightforward' way* as, for example, the discussions about tiredness or learning, which are broadly discussed in our interviews, and which are expressed as non-gendered issues that concern many older workers.[104]

The next question is why is *especially* women's ageing that was assumed to cause trouble? I suspect that, in addition to the gendering practices in work organisations, the history of how women are understood as biological beings is at play. This includes the arguments about the hormonal woman (Oudshoorn 1994), and the understanding of women in general as more emotional than men (Ahlbeck-Rehn 2006). A crucial point in the emerging theory of hormonal sex was how the cyclicality of women's hormonal systems came to be interpreted. As Oudshoorn notes, it could have been taken as a sign of regularity and orderliness, but instead it became to be regarded as a sign of instability. According to Oudshoorn, at least two connections remained in the emerging field of endocrinology with previous conceptions of sex, that of the persistence of the two-sex model, and that of women as psychologically instable and more emotional than men. Neither of these was specifically promoted when the evidence increased. (Oudshoorn 1994.) The notion of sex hormones and their assumed relation to women's instability has been a powerful tool in the practices of biomedicine, for example, in the making of diagnoses within a Finnish mental hospital (Ahlbeck-Rehn 2006).

Crucially, not only the theoretical assumptions within the emerging field of endocrinology came to reiterate the binary gender, but these developments have also been intertwined with other societal practices.

[104] These are dealt with in other publications and presentations of the research project (e.g. Julkunen 2003; Julkunen & Pärnänen 2005; Charpentier & Järnefelt 2002; Charpentier 2002; Pärnänen 2005).

Younger women are assumed cyclically emotional, and menopause is seen as a stage in the life course that causes, among other symptoms, emotional problems (Kangas 1997, 71-72; Kangas & Topo 1994; Oudshoorn 1994). My logic is hence that it is the discourse of women's menopause that offers some of its symptoms, especially irritability, to the processes in which 'ageing women' are perceived in the workplaces. The link to menopause was made in some of the interviews that discussed the 'cranky old women', but not in all cases (articles III & VI). Even if menopause is not mentioned, I propose that women's hormonal body – that is assumed to produce emotional instability – is a major conceptualisation that enables this generalisation of 'ageing women' as troublesome.

This interpretation is also in accord with the other fragments in the research interviews, in which women were seen as differing emotionally from men in a more affirmative sense, in that older women were argued to be able to deal with difficult clients in a more fruitful way (see article VI).[105] In this study, I do not explore this other aspect of women's emotionality, and neither do I discuss men's emotionality, but leave them for further analyses. The point is however, that the emotionality of older women was reiterated in more than one sense in the research material of this study, and that notions of menopause provide powerful arguments about biological bodies, related to the forming of this emotionality. It can be interpreted that the troublesome ageing women are one instance within this material-discoursive formation of emotional women. However, interestingly the symptom lists related to male menopause – male menopause being a figuration of men's ageing that did not show in this research material – also include similar notions of emotionality, such as irritability (Vainionpää 2006, 35). A focus on ageing hence seems to complicate the understanding of the genderedness of the emotional bodies within biomedicine, and also brings men into the sphere of raging emotions. As with women, the cause is seen in changing hormone levels, which for men means lowering testosterone levels.

[105] According to Karisalmi and Seitsamo (2003, 15), age stereotypes in the metal industry seem to favour over 45-year-old workers in general, because of their better cooperation skills.

As Elianne Riska suggests, the contemporary 'viagracization' of men's health exemplifies that the explanation of women's physical and mental condition by their reproductive organs, named as the 'ovarian theory' is not limited to women. Both 'men's and women's reproductive organs are interpreted as constituting the major explanatory factor of their health' (Riska 2003, 82). These developments are related to the changes in the biomedical apparatus towards the end of the twentieth century and continuing into the twenty-first century. A crucial effect of the developments of the biotechnologies has been the blurring of the boundaries of humans and technologies; Haraway's notion of the cyborg is the famous metaphor that critically highlights the ways in which commercial processes, economies, and human and other bodies are intertwined (Haraway 1991; 1997). In the age studies context, the cyborg has been read as pointing to 'the current medical trend toward making hip and knee replacements readily available in old age' (Powell & Longino 2001, 205). Ultimately, Haraway and the other science studies scholars pay attention to the impossibility of ontologically differentiating technologies and bodies, most notably exemplified by the developments in biotechnologies that also ground the concept of 'biomedicalisation' (Clarke & al 2003; see also Franklin 2007; Haraway 1991, 180, 203-230; 1997; 2004, 106; Joyce & Mamo 2006; Lykke & al 2004, 330; Powell & Longino 2001, 205; Roberts 2007). In the context of age studies, such an argument leads to the insight that '(t)here can be no pure human 'ageing'' (Gilleard & Higgs 2000, 142).

In the case of menopause, such a methodological approach, shared also by agential realism, results in the questioning of the sharp distinction between what is assumed to be 'the natural body' and medical technologies, that is made in some of the feminist critique of the medicalisation of menopause.[106] The blurred boundaries are exemplified, for example, in that 'hysterectomy and hormone therapy shape women's

[106] For a critique of making this distinction in feminist menopause studies, see Kwok 1996. For an overview of recent developments in the broader feminist studies of health, see Oinas & Ahlbeck-Rehn 2007.

thinking about the end of reproductive life, blur the concepts of menopause and postmenopause and confuse the measurement of age at menopause' (Topo & Hemminki 1995, 267). Taking into account the agential realities in which bodies are intertwined with technologies, it is difficult to even determine the age when menstruation ends (Hemminki 2003, 156).[107] Because of hormone treatment and other medical technologies, it is not easy to distinguish the natural, the social or technological in menopause. In this sense, natural menopause is more of a fictional ideal rather than an account of reality.

The changes that have been captured by the notion of 'biomedicalisation' (Clarke & al 2003) include the shift from 'patients' to 'consumers', with the allocation of responsibility for the consumers to assess risks and manage health. This development is accompanied by the increased marketing by pharmaceutical companies straight to the consumers (Clarke & al 2003; Conrad 2005). The globalisation and the increasing attempts to gain profits for the pharmaceutical industry results in the utilisation of whatever cultural tropes are at hand in order to widen the markets. This includes the correspondent of the ovarian theory for men (Conrad 2005, 6-8; Riska 2003; see also Vainionpää 2006).[108] As suggested by the health sociologists, this is a complex process that subsumes both the broadening of the sphere of biomedicine, the dissemination of knowledge by the internet that also has empowering aspects for the consumers of health products, as well as challenges to the normalising power of gender (Clarke & al 2003, 166; Conrad 2005, 11). At the intersections of gender, ageing and sexuality, these developments have resulted in the normalisation of men's erectile dysfunction and the

[107] The study of anti-ageing medicine is another context in which a critique of medicalisation that assumes an 'ageing itself' (Mykytyn 2008, 320), or an ideal of natural ageing which is then 'medicalised', results in a considerable amount of trouble.

[108] This is not unique to contemporary notions of gender; in nineteenth century Western medicine, both women's and men's genitals were used to explain their conduct or life crises. This does not however, imply symmetry, since women and men were situated differently within the societal order and the medical imagination of bodies. This is exemplified by that hysteria, one of the bodily problematics of the time, came to symbolise the nature of women, rather than only being a condition that was seen more commonly in women than men (Uimonen 1999, 58, 65-70).

accompanied increase in the sales of Viagra (Conrad 2005, 11, Katz & Marshall 2003, 2004). The deviance of older women's sexuality has also been questioned, and the discourse has been shifted towards 'sexual dysfunction' that needs to be treated with hormone preparations, in order to enhance postmenopausal women's heterosexual capabilities (Katz & Marshall 2004, 65-68; Sybylla 1997, 203-204). The 'troublesome ageing woman' is just one product within these material-discoursive apparatuses, which seems to materialise in the context of work organisations; it is by no means the only or even a dominant figuration of midlife women.

6.3 Menopause and the practices of individualisation

The results of my study suggest the importance of scrutinising which apparatuses are at play when 'ageing' is mentioned in the context of waged work, and in which sense aspects of age are, or are not, involved in these apparatuses (see also Julkunen & Pärnänen 2006, 259; Ilmarinen & al 2003, 151). A crucial aspect of both scientific and political discussions related to ageing is that ageing tends to be equated with processes in individual bodies. I interpret that menopause is the ultimate bodily explanation that offers itself in relation to perceiving the conduct of midlife women, and the availability of such a bodily explanation enables the idea that ageing in general, in midlife women, produces such emotionality.

The feminist mainstream argument about menopause suggests of the claimed menopausal symptoms that only vasomotor symptoms and the dryness of mucous membranes are actually related to menopause (Gannon 1999, 78-81). In addition, it is argued that menopause is not a universal phenomenon, but involves the formation of 'local biologies'[109] that entail

[109] I interpret Lock's concept from an agential realist viewpoint, and hence the point is not whether women's bodies really were different from each other in Japan and North America according to her comparative study (see Lock 1993 and her critics Boulet & al 1994; Oddens 1994). From an agential realist perspective the phenomenon conventionally perceived as a woman's body is materialised in intra-actions of meaning-making and bodily processes.

culturally specific bodily experiences within menopause (Lock 1993). However, critical voices question the 'cultural construction' of menopause and the related critique of hormone treatments. Diane Goldstein argues – against the grain – on the basis of accounts by women who participated in a menopause support group: 'To simply accept the notion that menopausal symptoms are culture specific dismisses the somatic nature of the menopausal experience shared by group members.' (Goldstein 2000, 320.) For Goldstein, arguments that propose cultural construction neglect crucial aspects of women's experiences, and deny that they would be 'real':

'The incidence, significance, and causes of other reported symptoms such as depression, fatigue, headaches, and dizziness are repeatedly called into question as sociocultural rather than physiological (and yes, we may wish to read this here as therefore 'not real'). Gynecological textbooks have frequently carried such statements as 'the emotionally mature, busy and happy woman usually has few if any difficulties in adjustment.'' (Ibid, 310.)

Contrary to what Goldstein suggests, to take women's bodily experiences seriously does not necessarily mean that these sensations should be attributed to the ageing process, nor to hormones (Rothfield 1997, 41). In this study, I asked *what* is then neglected or denied, if ageing is 'denied', as some scholars accuse the constructionists of doing? My answer was: Illness, disabilities, increase of tiredness, experiences of failure, among others, as well as change and growth (article I). As Bill Bytheway asks, one can discuss grey hair, need of services, and increase of

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There is no biology, local or universal, that could be said to exist prior to these intra-actions. This is why I would discard the term 'local biologies' and favour a conceptualisation of women's bodies as material-discoursive phenomena, which materialise within particular apparatuses. This is only a slight modification of Lock's thinking, and it may sound cosmetic, whether one proposes a dialectic between culture and biology as Lock does (e.g. Lock 1993, 39), or intra-action. However, it is significantly different to understand bodily phenomena as material-discoursive or 'the body not only as products of local histories, knowledge and politics but *also as* local biologies' (ibid, my emphasis). It is only the assumed difference between biology and culture, the 'also as' that gives rise to the notion of 'local biologies'. Such a formulation initiates a debate of whether female bodies are universal or local biologically, that is, whether there really are 'biological differences' between women (the other discussants, or, Lock's critics, include Boulet & al 1994; Oddens 1994). In my opinion, such a debate goes astray, if the point was to suggest the mutual constitution of biology and culture, rather than an existence of different biologies.

chronological age, and not deny them, but why do these diverse issues need to be given some other name, that is, to group them under the notion of 'old age' (Bytheway 1995, 125). The notion of frailty as a marker of old age is questioned in a similar way: 'Of herself, an old woman might say that she moves slowly, uses a walker, or can't climb stairs. These specifics are more telling than the generalising term 'fragility'' (Cruikshank 2003, 177).[110] As suggested by critics (Gannon 1999), that hormone treatment works is not in itself proof that it is a 'menopausal syndrome', a change in women's hormonal levels, that is the cause of the various bodily experiences and feelings. Neither is the reality of the sensations dependent on whether they are statistically related to hormonal changes or not.

I would interpret the experiences of the women Goldstein studies in a slightly different way than she does. To appropriate Bruno Latour's (1993) thinking, the talk about somatic or physiological experiences may enhance gaining power, because it involves translating bodily experiences to an issue pertaining to medical science. In order to give legitimacy to their experiences, to get proof that the experiences are, in fact, 'real' – and that the women are in their full senses – the women Goldstein studied needed to translate their experiences into a medical state, a 'somatic' or 'physiological' question, to use Goldstein's terminology. Without this translation, the women were left with individualisation, moralisation and psychologisation, and because of this, the women in the support group as well as Goldstein herself, needed to define the experiences in 'physiological' terms. Such a biomedical diagnosis not only increases the possibility of getting help, but it restores the self from the distrust and accusation that the problems are 'in your head' (Lillrank 2003). Paradoxically, this translation does not help avoiding individualisation, because the biomedical option also reduces the experiences to individual women's bodies and hormones – which is not to suggest that hormones

[110] For an analysis of how such specifics can be analysed from autobiographical narratives, see Palomäki 2004, 107. She shows how bodily ageing was located specifically in *feet*, which symbolised the importance of being able to move, in the biographical narratives of women aged 72-92 (ibid).

would not be part of how women (and men) are constituted, also in work organisations.

The individualisation is a challenge that is also likely to concern workplaces. If a woman needs help because of inconvenient bodily experiences, seeking help by focusing on the whole apparatus – including gendering practices in the work organisation – may not be easy. The challenge is the predominant understanding that 'menopause' is an issue related to 'biological bodies' or 'health', and that for women of a certain chronological age, and recently also for men, this is where the explanation of the bodily experiences or behaviours is to be found (article III; Vainionpää 2006). Likewise, if the 'cranky old woman' is understood to be a *person*, a particular female workmate (and moreover, if she happens to be in the assumed age of menopause), it is likely that solutions focus on the individual woman rather than on the power asymmetries in the work organisation.

This is the background through which I understand the comment of one of the interviewed women, who said that a physician had suggested that she take hormones when she began to get irritated (article III, 184). Finding bodily solutions to work questions, or, the gendered individualisation of the challenges related to work, has a history which is tied to the history of menopause and hormone treatments (Topo 1997a, 1997b; see also Sybylla 1997, 212-216).[111] In Finland, connections were made between menopause and waged work, in which women's hormone treatment was seen to be necessary in connection to modernisation (Topo 1997b).[112] During the 1950s and 1960s, very few texts in Finnish medical journals concerning menopause mentioned hormone treatment, but these

[111] About the history of menopause and hormone treatments in Finland, see also Kangas 1997, 61-75; Kangas & Topo 1994; Topo & al 1991, 119-133.

[112] Päivi Topo (1997b) has studied the lay and professional discourse about menopause from the viewpoint of arguments concerning hormone treatment, from 1955-1992. As Celia Roberts notes, the theme of modernisation in menopause discourse has involved a racialised dichotomy of 'modernised' Western women versus 'natural' non-Western women. Menopausal symptoms have been seen as modern Western women's problems, while non-western women are believed to lead more natural lives with continuous reproduction. Hence, they have been assumed to have less menopausal symptoms and less need for hormone treatment. (Roberts 2007, 123-128.) Studies of menopause, that take account of racialisation in the Finnish context, have yet to be conducted.

texts already connected menopause and work. According to Topo, a text from 1961 suggests that '(t)reatment was to be given not only to alleviate a woman's suffering but also because her family, fellow workers and other people might be suffering as a result of her climacteric complaints' (Topo 1997b, 753). It is not specified which complaints might bother the workmates. Already in the 1950s, in the lay magazine that Topo studied, the symptoms that are now called 'atypical' (including irritability and other emotions) are mentioned.[113] In the 1960s, the lay magazine suggested a rise in women's climacteric complaints as well as the need of hormone treatment. The reason given was the modernised, 'hectic' life style, and also the increase of women's waged work in midlife. Menopause was now seen as a deficiency disease, and it was compared to the castration of males. At this point, the American physician Robert Wilson and his book *Feminine Forever*, which included suggestions of the long-term use of hormone treatment, also entered the Finnish discussion (Topo 1997b, 755). The themes of modernity and work were present also two decades later – in the 1980s – when hormone treatment had become mainstream. As Topo interprets, hormone treatment was now considered as 'satisfying the requirements of a modern career woman for family harmony and her own happiness' (Topo 1997b, 757).

I suspect that the understanding that menopause and ageing more broadly pertain to *individual bodies* is so strong that an attempt to change the workplace is always at risk of restoring the problem to the contours of the individual employee. I argue that this is also the case in relation to other issues that can be conceptualised as 'ageing' within the contemporary atmosphere and that it also concerns ageing men. For example, employees over the age of forty made their feelings of tiredness intelligible by referring to ageing, rather than in relation to their workload or time pressure at work (Charpentier & Järnefelt 2002). Within such resources for making experiences intelligible, it is likely that critique, or another attempt to change the working conditions, most likely results in

[113] These are called 'many other annoying symptoms' (in addition to hot flushes) in an article studied by Topo (1997a, 3).

getting attention as an 'ageing worker' or a 'menopausal woman'. As I have proposed (most clearly in articles II, IV, and VI), the work organisations and workplaces studied here differ considerably in their gendering and sexualising practices. It may depend on the practices in a particular work organisation (for example, what are the person's position and work tasks, and whether the organisation is male or female-dominated, and what is the age structure), whether such attention as an 'ageing worker' is manageable for the person. For example, Frances Reynolds' study suggests that, for women who had hot flushes or sweating at the workplace, it was not a real option to take this up with the employer or workmates, and in this way, to try to change the working conditions. The women she studied did not want to draw attention to what would have been conceptualised as their 'menopausal symptoms' (Reynolds 1999). In future studies, more attention is needed to the various practices in which employees are positioned as 'ageing' or 'menopausal', and to the consequences of such positioning in the work organisations. Further research – that accounts for other forms of power – such as heteronormativity and racialisation in this positioning, is also needed.

⑦

Naturalcultural forces and social sciences

7.1 Accounting for naturalcultural forces

A question that has haunted me alongside the analysis of ageing at work concerns the 'biological' aspects of ageing. How to study ageing in work organisations not solely as a discoursive phenomenon, or as taking ageing self-evidently as a bodily deterioration process, but by critically accounting for the biological materiality of bodies? A study that concentrates on work organisations, and does not utilise laboratory tests, epicrises or other aspects of medical apparatuses as part of the research apparatus, needs to rely on other studies and arguments about biology and physiology in order to take biological aspects of bodies into account. In this and the following chapter, I discuss what is at stake in such an endeavour. How, from the viewpoint of a social scientist, could arguments about biological bodies be utilised? This includes the questions of *when* arguments about biological bodies, or other natural scientific arguments are needed, and *what is at stake* in their utilisation in social sciences.

In my reading, Barad argues that naturalcultural forces should be taken into account in feminist research, or otherwise the research is by definition problematically limited. In addition to the critique of Butler, which I will discuss in more detail in the following chapter, this concerns Barad's critique of Leela Fernandes' materialist feminist study of the jute industry. Barad suggests that Fernandes could have broadened the concept of materiality to include 'naturalcultural forces' (Barad 2007, 242). These consist of 'the replacement of jute by new synthetic materials, interests of agribusiness, including agricultural 'vulnerabilities' of the jute crops, [and,] proposed biotechnology fixes, such as genetic modifications to try to make the plants caterpillar and flood resistant' (ibid, 452n30). Barad further argues that neglecting these issues makes Fernandes's study 'limited in important ways' (ibid, 242). An evaluation of Fernandes' study is not part of my research task, but two issues in Barad's critique that go beyond the discussion of Fernandes need to be raised. On the one hand, her critique prompts the question of what kind of accounts of matter suffice, so that a study will not be, by definition, 'limited' in its analyses of materiality. On the other hand, the critique raises the concern about social scientists making the nature-culture distinction in the foundations of their research projects. By not focusing on the naturalcultural forces, Fernandes' study seems to involve such a distinction in the premises of the study. Barad's suggestions aptly illuminate the agential cuts that researchers make when they decide what they focus on (e.g. on human agency rather than on naturalcultural forces), and how these cuts also serve to distinguish between 'human agency' and 'nature' in the very foundations of the research project.

However, does making a nature-culture distinction in the foundations of the research project necessarily entail that the study is limited? Every study is, by definition, limited in the sense that it has to be restricted to a particular approach and research data. Claiming that a study is limited beyond this necessity, just because it makes a nature-culture distinction in the foundations of its approach, is at risk of reproducing the primacy of the

'natural', and hence of the explanations and focuses of natural science. In this sense the feminist negotiations of materiality tread a fine path between fruitful transdisciplinary discussions and reinstating particular hierarchical disciplinary differences. I argue instead that making the nature-culture distinction at the starting point of the research is problematic *only if the study claims to do otherwise*. For example, suggesting that a phenomenon *is* 'socially constructed' without discussing materiality beyond social practices, is to make such a claim (see also Rotkirch 2005, 2). Related to this, a mere reference to, for example, Butler's notion of materialisation, or a suggestion that it is not possible to gain access to any reality beyond meaning-making is insufficient *if* the aim is to blur the nature-culture distinction: invoking the concept of materialisation or related conceptualisations does not yet show how the material-discoursive apparatus works.

I fully agree that it is not possible to conceptualise or grasp a reality without meaning-making (see Charpentier 2001a, 24-25). Judith Butler's notion of materialisation has been one of the most discussed inspirations within feminist studies for this type of argument. However, might not this wide-spread way of sett(l)ing the matter-and-meaning relations also mean that one does not have to touch the issue of materiality, if it is – in any case – intertwined within the discoursive that one studies? Or, to put it differently, is it not so that with the help of this argument,[114] it is possible to escape the question of the relations between matter and meaning? This is because from this perspective, the question is irrelevant: there are no 'relations' to discuss, since matter and meaning are not separate but intertwined. As I have noted, in age studies, such formulations have not

[114] The following exemplify such arguments:
'Without texts, there would be only non-situated formless and shapeless lumps. In any case all descriptions are texts, and require sorting based on conventions. Accordingly one cannot dive in 'the reality' beyond texts. Instead an organised "reality" is textual reality.' (Hyvärinen 1998, 331.)
'Discourses and the social reality are intertwined. The social reality is produced in differing social practices, in which linguistic and material aspects intertwine as fabrics in the same process. Meaning-making does not float separated from the material aspect of culture, but our interpretations of social reality and materiality are always socio-culturally and linguistically constructed.' (Virkki 2004, 32.)

become popular. Most age studies scholars seem to be sure to acknowledge a specific place for the biological matter of ageing. But, in poststructuralist women's studies where these arguments have been popular, Barad has – in this respect – been suspected of returning to 'old binaries' (Ahmed 2008, 34). In my understanding, it is hard to utter the critique intelligibly against the above-mentioned 'escape' from matter, without reiterating the notion of matter *as if* it was separable from the systems of meaning-making, culture, or the social.

Neither the argument about the necessary intertwining of matter and meaning, nor an explicitly stated focus merely on 'social practices' or the like seemed compelling enough for the research tasks of my study. On the one hand, setting biology apart and stating that the study focuses only on the 'social' aspects of ageing, 'talk about the body', 'representations of the body' or similar, reinstates a difference between matter and meaning. In the case of menopause and the claims about the troublesome ageing women, this focus would have left open central questions about the significance of these utterances. If I could not say anything about the status of the talk about 'cranky old women' beyond it being 'talk' or more materially 'discourse' within which bodies become intelligible, it seems that I would have left open the question of how this talk matters, in two senses of the term. Using the argument of the intertwining of matter and meaning in the beginning of the study (see note 114) would not have made any actual difference in comparison to the studies in which the separateness of biology from one's considerations is explicitly acknowledged. In both cases, the focus of the study would be on social practices, meaning-making, narratives or the like, and with this focus, the nature-culture distinction is inscribed in the foundations of the research apparatus. I hence suggest that the much-used argument of the intertwining of matter and meaning is at risk of being, first and foremost, a rhetorical reminder that the researcher knows that matter and meaning are not separate, even though the study in question discusses only practices of meaning making, social practices, representations of bodies, or human agency. As I claimed above, this did not seem to be a viable option in the case of menopause in working life, and hence I focussed on the

material-discoursive practices in the work organisations and the interviews, as well as on the question of what is at stake in the utilisation of arguments about biological bodies in social sciences.

(Un)settled realities, new genealogies

Concerning the utilisation of arguments about biological bodies in social sciences, my approach differs in some important ways from that of Anna Rotkirch, who is the most vocal feminist scholar in Finland to propose that biology, meaning evolution theory, needs to be taken into account in sociological studies.[115] Rotkirch writes that when she studied sociology, she was taught that biological and sociological explanations differ to the extent that they need not, or even should not, be discussed within the same text. She now suggests that 'sociological explanations should parallel 'biology' or they should even intertwine with it,' and continues that '(o)ne needs to understand that evolution theory concerns as much sociology, anthropology and psychology as it concerns biology and physiology' (Rotkirch 2005, 2). Rotkirch does not however claim that every student of sociology should study 'genetics, physiology and neuropsychology', or that social sciences should be wholly reshaped with evolution theory (Rotkirch 2004, 18). For her, two justifiable approaches to evolution theory exist in sociology. The 'pack of cards strategy' [korttipakkastrategia] requires that the researcher acquaints her/himself with evolution theory and actively engages with it (Rotkirch 2005, 2). The 'frame strategy' [kehys-strategia] consists of reading just a few articles about evolution theory which sets the biological frame back to sociological research. By this, Rotkirch means an

[115] In Finland, the question of bringing evolution theory back into social sciences, most notably to sociology, has evoked emotionality and debate during roughly the last ten years. These encounters have resulted in, for example, a theme interview study that suggests that the scholars who support evolution theory are excluded from the social scientific communities (Kivivuori 2007). I see these debates as part of the broader transdisciplinary, but also, public discussions, situated in the quagmires between natural sciences and social sciences. These debates also include the critique of women's studies in general as non-scientific, which not only constructs problematic hierarchies between social sciences and natural sciences, but also ignores the existence of feminist natural scientists and science studies (Charpentier 2005).

acknowledgement and awareness that some of the capabilities of humans 'have a basis in natural selection (that is, are genetically mediated)' (Rotkirch 2004, 19). In practice, this awareness would show in the research process by the impossibility of claiming that something *is* 'socially constructed', if the researcher has not discussed the possible genetic mediation of the issue in question (Rotkirch 2005, 2). In a sense then, according to her, social construction needs to be framed with evolution theory.

My approach differs from Rotkirch's in two senses. First, for Rotkirch, the evident discussant seems to be evolution theory. From my perspective, a crucial question is not how to bring evolution theory to social sciences, but how to account for the materialisation of matter, and how to question the nature-culture distinction as the starting point of research – evolution theory can be part of such theorisation, or not. From the perspective of the feminist negotiations of materiality, I argue that exploring the materialisation of matter involves several possibilities for how to account for the 'material enactments' or 'living matter'. A crucial issue is that the notion of living matter, or its more distinctive version, 'life' is mostly dependent on a particular understanding of genealogy, the tree-model, in which nature, culture and history are intertwined in a very particular way (Franklin, Lury & Stacey 2000). Evolution theory is a key example of invoking and producing this genealogical model. In this model, kinship is attached to biology, heterosexual reproduction and generations; and genealogy is linear, biological and proceeds in a tree-like manner, also grounding modes of handling property and ordering life. The new reproductive technologies, exemplified by transgenic breeding – such as the OncoMouse™ that is used in cancer research (Haraway 1997, 79) – have questioned this genealogical model in a fundamental way. These biotechnologies have complicated the arguments about the natural, and 'life', most notably that which was previously regarded as a biological necessity in relation to reproduction (Franklin, Lury & Stacey 2000, 85-90; Franklin 2007).

Citing these developments is not merely to account for scientific progress or to state how to understand the relation of 'nature' and

reproduction in the beginning of the twenty-first century. Instead, the point is that the tree-model of life and the natural imbued in it is a particular genealogical account, a product of the material-discoursive practices, possibilities and conditions available at the time of its formulation. The invoking of evolution theory in social sciences as *the* account of the biological or the natural is one example of citing this genealogical model. To aim to account for the intertwining of the biological and the cultural does not necessarily require an attachment to this model. An agential realist approach for social scientists could rather see it as crucial to avoid naturalising some perspective as *the* way of accounting for 'the biological' or 'the material'. Barad's own analyses provide examples that utilise natural sciences other than biology; Birke (2000), Derry (2002), Franklin, Lury and Stacey (2000), Franklin (2007), Haraway (1997), Fausto-Sterling (2000) and a range of other scholars provide alternative approaches to biology (including evolution theory) and to the ways in which power is involved in producing scientific knowledge (Stengers 2000). The case of motherhood, one of Rotkirch's nodes of discussion that she explains by evolution theory (see Rotkirch 2003), could – from the perspective of intertwining of naturalcultural forces – be approached from a variety of angles, such as by asking from an ecological perspective how natural resources are used in parenting, or how the use of reproductive technologies makes a difference to the forms of power that constitute motherhood. It is crucial that my point here is not to discount evolution theory, but to focus on the power relations, extending to particular assumptions about genealogy and the 'natural', which are easily involved if evolution theory is imposed as *the* way of accounting for the intertwining of naturalcultural forces.

The other crucial difference between Rotkirch's and the agential realist approach involves the question of what the 'frames' are that Rotkirch mentions, and how one is to acquire them. From an agential realist perspective, the results of the studies that concern living matter cannot be taken as a 'frame'. This is because this proposal seems to involve an assumption that biological facts simply exist, and that they can just be

'taken into account'. In my interpretation, only an assumption of a *settled* biological reality enables picking just a few texts that reveal what the biological frames *are*, to which social scientists can then adjust their studies. Rotkirch's approach, even in her explicit contempt of politics (see Rotkirch 2005, 22-25), would at least, in the case of ageing and menopause, lead to a highly politicised settlement of the biological frames. Most of the studies of menopause rely on biomedical models, rather than on a 'broader-biological model' (Derry 2002). The broader-biological model acknowledges the multi-faceted working of hormones, and it regards menopause as a change of state in the hormonal system, and hence postulates that post-menopause could be understood biologically not as a deficient or risky, but another 'normal' state (ibid).[116] In order to set up frames in the case of menopause, should one choose readings from the mainstream biomedical corpus of research? Or, should one reject the biomedical models and pick readings that most biomedical students may never encounter, but which offer analysis of the mechanisms and criticism of the notion of deficiency, or its modification – disease prevention with medication (such as Derry 2002)? In contrast, choosing texts in order to illustrate what is at stake in the disputes and the different perspectives about menopause could no longer be called the setting of 'a frame'. In an agential realist approach for social sciences, the accounting for biological aspects is not about the setting of frames, but of critically relating to 'closed boxes'. An agential realist perspective hence requires a move towards the direction that Rotkirch calls the pack of cards strategy,[117] although – in the agential realist approach – what such play with cards entails is a specific question that needs negotiation with other feminist (and) science studies.

[116] Other theoretical developments of menopause as a change of state of a complex system, rather than as a one-way process towards a deficiency state, include Martin 1997.

[117] Concerning the pack of cards strategy, Rotkirch sees the main fruitfulness of evolution theory in that it provides hypotheses, which can be tested in quantitative studies, or which can be used to generate questions and new perspectives in qualitative approaches (Rotkirch 2005). In other words, she approaches natural science from the 'entrance of ready made science' (Latour 1987, 4).

Temporary freezing and scientific developments

One concept that helps in approaching arguments about biology is the term 'closed box' that refers to what Bruno Latour (1987) has called 'black boxes'.[118] By the closed box, I hence mean a phenomenon, such as the engine of a car or a vaccination, whose technological details the user does not necessarily need to know or discuss, because the phenomenon has become self evident – an everyday issue that can be used without knowing exactly how it works. As a result of lengthy disputes and activities, a closed box has emerged, that is, the controversies have been worked into a machine that just works. In addition to a machine, a closed box can refer to a widely shared assumption within a particular discipline. In this sense, a closed box means an issue that was once under considerable negotiation, but which has now become mainstream and, in this sense, a self-evidence that can be referred to without specific discussion or argumentation, that is, a scientific 'fact' (Latour 1987, 131; see also Liljeroth 2009, 46-47). The implication is that 'facts' as such do not exist, but only particular settlements to lengthy disputes and actions; hence there *are* no facts, instead facts are *made* (see also Hubbard 1990, 22-24). The notion of the closed box comes close to Barad's concept of phenomenon; the latter is likewise an analysis of what a 'fact' means (see Chapter 4.3). From this point of view, the setting of biological 'frames' to social scientists' studies by merely reading a few articles entails taking particular settlements for granted, and moreover, without necessarily understanding *which* disputes and settlements.

[118] Despite the common usage of the term black box, here I utilise the term 'closed box' instead. To me it captures well what Latour means by the boxes, because he writes about practices in which they are 'forced to (…) close' (Latour 1999, 192), and a possibility to 'reopen' them (Latour 1987, 3). Precisely, the project of studying 'science in action' is about *opening* the (closed) boxes: 'The impossible task of *opening the* black *box* is made feasible (if not easy) by moving in time and space until one finds the controversial topic on which scientists and engineers are busy at work. This is the first decision we have to make: our entry into science and technology will be through the back door or science in the making, not through the more grandiose entrance of ready made science' (ibid, 4, my emphasis).

In my interpretation, closed boxes cannot, however, be avoided altogether in a social scientist's version of Barad's agential realism. Even though Barad proposes a historically aware notion of intra-activity, she also utilises settled issues, or at least, temporarily freezes the intra-active movement of the apparatus. Agential realism follows the Foucauldian reasoning in the sense that the historical developments are – in the agential realist account – part of the process in which body-matter and its agency (such as the foetus as an agent in US abortion debates) is formed (Barad 1998, see Chapter 4.3). In my interpretation, to be able to conduct such an analysis means that the scholar needs to temporarily 'freeze' [119] the intra-active movement of material-discoursive apparatuses. This is what Barad also does, in her reference to 'facts' throughout her book (Barad 2007). In her article, published in the feminist cultural studies journal *Differences* she does not invoke the term 'fact'. However, what I call 'freezing' can be read from this article, too. As I have suggested, from the point of view of the feminist negotiations of materiality, the most interesting aspect of this article is her discussion with Judith Butler's concept of materialisation. For Barad, an adequate discussion of gendering through technological means, such as the ultrasonogram, requires an approach to materiality that accounts for the specific aspects of this technology. In the article, Barad explains how ultrasound technology is based on the piezoelectric crystal and its qualities, she tells the history of this technology (as first, military technology), and then she argues that it is the images that this technology provides that have enhanced the idea of the foetus as a human, 'a child' and hence, acquiring human rights (Barad 1998). In this discussion, Barad gives an account of ultrasound technology as it works in a particular moment. The clarity of her analysis of the material-discoursive intra-actions at stake in this situation thus seems to require a temporary freezing of the intra-active movement of the material-

[119] Marianne Liljeström 2004, 165 uses the term 'locking' in the context of studying history. She suggests that 'history writing necessarily involves locking the infinite differences and unstable meanings of the past' (Liljeström 2004, 165), and continues that it can be fruitful to pay attention to the way in which this locking is done (ibid). My following discussion is one proposal for paying such attention.

discoursive apparatus. In other words, she is able to present an account of how the ultrasound technology *works*, instead of becoming drowned in scientific disputes about what is at stake in this technology. As Celia Roberts notes, such an account related to menopause and hormones, in the case of the effects of hormone treatments, is not available:

'What underlies both these forms of argument, then – the radical feminist position that sees HRT-taking as a form of oppression of naïve women and the poststructuralist position that promotes women's active and critical engagement with biomedicine, rather than refusal of it – is the desire for *an answer* to the question of HRT's effect on bodies. Given the complexities of bodies and of the 'working' of hormones within them, this desire is highly problematic.' (Roberts 2007, 145-146, emphasis in original.)

The possibility of 'freezing' is related to how developments in science are conceptualised. The need to include an account of scientific developments into an approach that utilises the results of natural and biomedical sciences is illustrated in a short comment in the introduction of a collection on the cultural history of Western understandings of health (Joutsivuo & Mikkeli eds. 1995). One of the editors suggests:

'The purpose of this book is by no means to claim that progress would not have happened in medicine during the centuries, a claim which would be sheer folly. Instead our book strives to show that during the last 2000 years in the Western countries several different understandings have prevailed over the nature of healthy life styles.' (Mikkeli 1995, 15.)

To put it crudely, adding such a comment in the beginning of a book is one way of dealing with the challenge of how to question the notion of science as progress, but at the same time to acknowledge the meaningfulness of science as practice (and not merely the reproduction of the contemporary social order and its power relations). Another way to utter this point is exemplified by the cultural historian of ageing, Thomas Cole: 'I have no desire to denigrate the accomplishments of science and medicine or to return to the 'good old days' of Calvinism when people were

reconciled to the vicissitudes of aging and death by virtue of faith' (Cole 1992, xxvi).

A brief comparison to Latour's approach, interpreted through his analysis of the *Pasteurisation of France* (1993), serves to explain what is at stake in agential realism in relation to accounting for scientific developments. Latour proposes an approach that he himself calls 'anthropology' – this approach is widely known as actor-network theory (ANT). Latour argues that Western anthropologists have been able to discuss societies far from their own societies more 'symmetrically', by acknowledging how the effective actors do not consist only of humans, but, for example, also gods and sacred animals. Because of the belief in modernisation in the West, Western societies have been studied by assuming crucial differences between nature and society, and between science and belief. Because of these assumptions, research of these societies has not recognised all the actors that are effective at a particular moment. According to Latour, an anthropology of Western societies is also needed, which is similar to that conducted of other (non-Western) societies, and which is more open to different actors, who are not all humans. From this perspective, the question is not whether sociologists should take into account the results of natural science, but that sociological studies are left incomplete if they only focus on 'the social', because this is not all of what society is comprised of. Hence, what happened in late nineteenth century France was not that Louis Pasteur's genius discovered the microbe and led the whole of the hygienist movement, as Latour caricatures the French historical accounts. Rather, the microbe helped to empower the hygienist movement. This new actant was spoken for by those who controlled the laboratory. The hygienists translated issues such as low birthrate, which was seen as a threat to France, to be a hygienist question, and Pasteurians translated that societal problems were related to their laboratories. Hygienists suggested that bacteriology supported their case, which is why they needed to make Pasteur the genius. The reference to 'prestigious, indisputable science' (Latour 1993, 56-57) strengthened their networks, and because of this ennobling, the

Pasteurians also became strengthened and their networks were broadened. (Latour 1993, 52, 56-62, 81, 1996.)

In my interpretation, Latour's approach does not require the researcher to take a stand between different scientific arguments in order to claim which is more plausible than another. Instead, the point is to *understand* what the scientists claim, what other actors claim, and who is enabled to speak for the new natural actants and gain power by this. In other words, even though power seems not to be a relevant concept for Latour (Stengers 2000), this can be read in the following way: what is at stake here is a societal power game in which all the actors are not humans. Barad's approach differs from Latour's in that she bases her concepts on the technology and laboratory experiments of quantum physics, that is, on the results of experiments. Such an approach requires that the researcher takes a stand on which scientific experiments or arguments are more plausible than others, and in this sense acknowledges one's implication in the scientific processes.[120] This is in contrast to Latour's approach of setting the main focus on the networks of scientists and other actors. It also differs from the approaches inspired by Foucault, in that they question the notion of science as progress.[121] Barad, on the one hand, works with the history of science and technological practices, and in a sense her analysis can be interpreted as reopening closed boxes. For example, in the case of the ultrasonogram, she analyses the historical apparatus at stake that has enabled its materialisation (Barad 1998). Here she can be interpreted as analysing the ultrasonogram picture of the foetus as a closed box – the myriad of practices but also power relations and materialities that enable its existence. In this sense, her work is roughly compatible with Latour's and Foucault's perspectives, and her notion of

[120] Acknowledging one's implication in the scientific processes is related to a stance to biomedicine and other sciences inspired by what Isabelle Stengers calls, in contrast to irony, *humour*: 'the capacity to recognize oneself as a product of the history whose construction one is trying to follow' (Stengers 2000, 65). This entails appreciating sciences as practices, the critic's dependence on these practices in many spheres of life, and trying to preserve this humour (see also ibid, 164) throughout the transdisciplinary encounters.
[121] See for example, Sybylla 1997 for such a Foucauldian account of menopause.

phenomenon is close to the notion of a closed box. On the other hand, she also works with what Latour calls 'ready made science' (Latour 1987, 4). This is, for example, the case when she bases her understanding of the reality as indeterminate on the recent experiments in quantum mechanics (Barad 2007).[122] This double movement, connecting in the analysis the appreciation and utilisation of the newest scientific results, *and* critically regarding these results as bound to historical practices and power relations, *and* reopening the closed boxes *in order to enable new arguments about agential realities* makes, in my reading, the crucial difference to both Latour's and the Foucauldian approaches.

In my interpretation, the agential realist approach departs both from claiming progress in the sense of accumulation of facts, as well as from questioning developments in science altogether. In agential realism, the time of scientific developments could, instead, be understood as 'crumpled' (Roberts 2002).[123] As Celia Roberts' reading of the history of endocrinology suggests, scientific developments include not only gaps and delays in how researchers' insights have become part of the canon of endocrinological truths, but also remnants that seem to remain in scientific writing. For example, already from 1855, when Claude Bernard had discovered that the liver produces glucose and presented the idea that the body produces 'internal secretions' in order to stay in homeostasis, it would have been a logical possibility to understand the regulation of bodily functions in terms of these chemicals. However, the idea of hormonal regulation did not become established until half a century later. In the latter half of the nineteenth century, the regulation of bodily functions and sex differences was attributed to the nervous system.

[122] This concerns especially the quantum eraser experiments, as Barad writes: 'My agential realist resolution of the measurement problem is consistent with the recent experimental realizations of quantum erasers' (Barad 2007, 348). About these experiments and their usefulness for the formulation of agential realism, see Barad 2007, 310-317; about the 'measurement problem', see Chapter 4.3.

[123] In her book, Barad does not explicitly confront the notion of science as progress despite that she utilises the term 'fact' and the newest research results on her field of interest; she discusses time mainly in relation to how quantum physics questions the linearity of time (2007, 310-317, 437n82). The following argument about crumpled time of science (Roberts 2002) is, in my opinion, compatible with Barad's agential realism.

Combined actions and interests of gynaecologists, physiologists, biochemists and pharmacists were needed, before the 1855 understanding of internal secretions was transformed into the idea of hormonal regulation of bodies, including sex differences, which superseded the nineteenth century belief in the primary status of the nervous system in the regulation of bodies (Roberts 2002, 10-13; see also Oudshoorn 1994).

After 1910, the existence of testicular and ovarian hormones was established, and in the 1920s, the scientific facts consisted of 'male' and 'female' hormones according to the two-sex model (Oudshoorn 1994, about the two-sex model see also Laqueur 1990). In addition, it was established that 'the sex hormones must be distinct and sex elusive or their hosts would be abnormal' (Hall, quoted in Roberts 2002, 14). This 'fact' of two distinctive sexes was questioned no later than during the 1930s, when the researchers found both these hormones in females and in males, and they also concluded that oestrogen and testosterone are chemically quite similar, and that testosterone sometimes changes into oestrogen in the body (Roberts 2002, 14; Oudshoorn 1994). After this conclusion, the 'well established fact' was that 'sexual differences were a matter of relative quantities of particular chemicals, rather than absolute essences.' (Roberts 2002, 14) As Roberts notes, even though the two-sex model was now questioned at the hormonal level, the talk about 'female' and 'male' sex hormones still persists in the beginning of the twenty-first century. Hence, in addition to gaps and delays, *remnants* seem to persist in scientific writing despite that the 'facts' on which they were based have been changed in newer studies (ibid 14, 20). Roberts suggests that Michel Serres' notion of 'crumpled time' can be of help in understanding what is at stake in these remnants. Serres proposes that, instead of understanding scientific time as linear or flat – like an ironed handkerchief, a more proper metaphor would be a crumpled handkerchief. In the latter, '(t)wo distant points suddenly are close, even superimposed' (Serres quoted in Roberts 2002, 19). When the time of scientific developments is understood through this metaphor rather than as linear progress, it becomes intelligible that the nineteenth century two-sex model has persisted in endocrinology

despite the changes in the 'well established biological facts' that were supposed to support it (Roberts 2002, 20). This approach also helps to understand the persistence of the notion of emotionality that continues in accounts of hormones and women's bodies. For example, in a guidebook of the hormonal treatment of menopause for Finnish physicians, irritability is regarded as the most common menopausal symptom, experienced by eighty to ninety percent of women (see Rutanen & Ylikorkala 2004, 13). Such accounts shape the understanding of the so-called 'menopausal symptoms', which in turn participate in the apparatuses within which 'ageing workers' materialise. A further study could concentrate on menopause and emotionality, and continue to more fully scrutinise which apparatuses are involved in enabling the importance of irritability as a menopausal symptom.

In agential realism, the temporary *freezing* of the intra-actions in a particular apparatus does not entail believing in the linear progress of science, nor is it an example of believing in 'nearly true descriptions of reality' (Töttö 2004, 283) in the critical realist sense. An account of an agential reality does not involve an assumption of a determinate reality, of which even 'nearly true' descriptions could be given. The critical realist account assumes such a determinate reality, while agential realism instead understands all research results as 'phenomena', in other words products within specific apparatuses (Chapter 4.3). From an agential realist perspective, when a social scientist utilises arguments about, for example, biological bodies, a reliance on 'temporarily frozen accounts' seems justified, such as in thinking whether or not, and how, hormones as 'living processes' can enact in producing irritability, and hence whether such enactments can be part of the ageing apparatuses in work organisations. Such reliance entails, on the one hand, that the research results that are used in the freezing are taken to refer to phenomena, instead of to independent reality. This task, on the other hand, entails accounting for the crumpled time of science in the particular field, such as discussing how the

arguments about biology are imbued with remnants of binary gender.[124] Hence, an agential realist argument about 'materiality' cannot be made without some understanding of how the settlements and formations of power in the field in question have been formed. A mere reference to the most recent scientific results or to the issues that are taken as facts in any contemporary mainstream science would not do, but an understanding is needed of the apparatuses within which the field's notions of biological bodies (or other 'materiality') have been formed. Utilising arguments about biological bodies in agential realism means that settled issues are not taken for granted, and claims of facts are perceived as closed boxes, that is, as products of particular apparatuses. Instead of concentrating on revealing the negotiations that lead to the settlements, an agential realist however, works *with* the settlements, but tries to – so to say – keep the boxes ajar. As Latour's (1999, 183-184) examples of machines illustrate, when closed boxes are opened, yet new closed boxes emerge on which these were built. By keeping the boxes ajar – keeping the theoretical settlements open – I do not suggest a possibility to simultaneously keep all the possible boxes opened, even though this would be ideal. In the intersectional sense, here the agential realist approach proposed strives to keep ajar those boxes that are chosen as the main focus of the study (such as what pertains to sex hormones in the case of menopause), and to avoid freezing – without understanding which other forms of power constitute those boxes. From an agential realist perspective, then, even if the intra-actions within an apparatus are temporarily frozen for the sake of an argument, the researcher is aware of which boxes are kept closed. In this sense, an agential realist approach includes a constant sensitivity to settlements, in the form of accounting for the crumpled time of scientific developments, *while* the purpose of the study includes giving accounts of agential realities.

[124] The persistence of the notion of 'female' and 'male' sex hormones in endocrinology exemplifies this. For another example related to endocrinology, see Lynda Birke's analysis of the discussion about endocrine disrupters that have been called 'gender-bending' chemicals (Birke 2000).

7.2 From reductionism to multiple apparatuses

The agential realist approach that I have discussed here questions the notion of *reductionism*, as well as the differentiation between *primary and secondary qualities*. To me, these terms and distinctions seem crucial in the transdisciplinary discussions between natural and social sciences, and therefore they need a more thorough discussion. In addition to understanding scientific developments (as crumpled), and what the arguments about living processes refer to (phenomena), a pivotal challenge in the task of thinking with biological bodies in social sciences is the differentiation of the study of the body into primary and secondary qualities: '(E)ither it will be the nature in us, the physiological body (…) or it will be the subjective embodiment, the phenomenological body that will thrive on the lived-in impression provided by something 'more'' (Latour 2004, 208).[125] An utilisation of arguments about biological bodies in social scientific endeavours could, for example, lead to regarding biomedical studies about menopause as concerning the primary qualities, and the utterances given in qualitative research interviews as 'mere' secondary, experiential qualities. The inverted commas around the word 'mere' speak about a power relation inherent in this distinction: the assumption that, somehow, an account of the so-called 'primary' tells a greater truth, or gets closer to the 'real' issue in question. Such an argumentation is crucially strengthened and *enabled* by what Isabelle Stengers refers to as the 'experimental invention: the invention of the power to confer on things the power of conferring on the experimenter the power to speak in their name' (Stengers 2000, 88). Hence, the power relations imbued in scientific practices strengthen arguments about biological bodies by suggesting that it is not the scholar who makes a particular argument, but Nature itself – revealing itself in the experiment. Such a conferring has not been part of the resources of qualitative studies in social sciences, which partly enables

[125] The history of this differentiation in Western medicine is related to the paradigm that developed towards the end of nineteenth century, in which empiricist natural science was integrated into medicine, including the search of causal bodily explanations for the conditions and feelings that it treated (Uimonen 1999, 26-27).

the differentiation between primary and secondary qualities (the latter are assumed to be 'subjective', *in contrast to* the accounts about nature by the so-called 'hard sciences'). As I have argued, agential realism and other science studies approaches have questioned such a view of experiments and nature; and Barad's concepts of phenomenon and apparatus capture what these so-called primary (as well as the secondary) qualities refer to: they are phenomena whose existence is enabled by particular apparatuses.

If the distinction between primary and secondary qualities is enacted primarily by natural scientists, a conflicting conceptualisation exists among social scientists: the accusation about reductionism. As I have argued, agential realism is one way to theoretically grasp bodies in order to not fall for the distinction of primary and secondary qualities, or for reductionism. To see 'bodies' as phenomena within several int*ra*secting apparatuses is an alternative to understanding the hormonal, or more elaborately: the 'alteration in hypothalamic thermoregulation and changes in neuromodulatory systems evoked by decreased levels of circulating estrogen' (Pinkerton & Zion 2006, 142) as the primary qualities of menopausal bodies. The other side of the coin is to avoid seeing accounts about hormonal processes related to menopause as 'mere reductions' of the lived ageing bodies. Instead of always involving a risk of reductionism, arguments about the biology of menopause can be understood as yet further additions to the proliferation of phenomena that also affect and compose bodies in work organisations. In this sense, biomedicine might be said to *add to bodies* (rather than to reduce them) a 'complete set of new instruments' (Latour 2004, 227). This is not critique of reductionism per se, but a more radical position, *an argument about its ultimate impossibility*:

> 'In the laboratory of the most outrageously eliminativist white coats, phenomena proliferate: concepts, instruments, novelties, theories, grants, prices, rats and other white coats…Reductionism is not a sin for which scientists should make amends, but a dream precisely as unreachable as being alive and having *no* body.' (Latour 2004, 226, emphasis in original.)

This proliferation is made invisible in accounts that forget 'the narrow instrumental constraints to which a few isolated facts owe their existence' (ibid). To put this ironic comment of Latour's into the agential realist perspective, these 'facts' are phenomena that owe their existence to particular apparatuses, without which these phenomena do not exist (see also Hubbard 1990, 22-24). Science studies scholars have called this process, which obscures the practices within which the 'facts' exist, 'decontextualisation strategy' (Roberts 2007, 156; Oudshoorn 1994). Instead of a problem or a risk of reductionism, what is at stake is the working of multiple apparatuses. I interpret Latour's *proliferation* in this broader sense, as work of multiple apparatuses in which natural scientific 'facts' are first materialised and decontextualised, and then these facts continue their enactments in other apparatuses. Part of this proliferation is that the products of the biomedical science apparatuses become part of the ageing practices in working life by providing discoursive resources for interpreting bodily sensations and others' behaviour. This is exemplified in my study, for example, in that the conduct of midlife women is sometimes assumed to be related to hormonal and ageing processes; and that an interviewee concluded, after talking with her physician, that hormone products are an answer to her irritation (articles III, VI).

In article III, I stated that 'irrespective of whether biomedical research can claim a connection between the termination of menstrual periods, the lowering of oestrogen levels and irritability, and despite that at the moment this connection seems questionable, this assumption has consequences in women's lives' (article III, 190). This is crucial in the sense that it suggests that the results of biomedical research, no matter how well argued, have no necessary connection or explanatory power to the practices in work organisations. This point can be well illustrated with the help of Annemarie Mol (2000), who proposes the concept of 'multiple' realities in her ethnography of a medical institution and the performativity of atherosclerosis of the leg vessels. She shows how different medical apparatuses – on the one hand an investigation by a physician that is based on narrated experiences of the patient as well as touch and eyesight, and on the other, autopsy – do not necessarily produce coherent bodily

ontologies. These ontologies might be in contradiction with each other, for example, a person may live her life by not claiming trouble, and only in autopsy can it, by chance, be determined that the person had atherosclerosis. But had s/he? If the diagnosis and the very definition of atherosclerosis of the leg vessels are based on severe pains when walking, then how could one invoke any 'primary qualities' that determine what the person's 'real condition' was? To me, Mol's study illustrates well that bodily ontologies are dependent on, and materialised, within particular apparatuses; hence it can be read as an example from the medical world about the ontological points posed by agential realism (see Chapter 4; Barad 2007).

In a similar way, in that it is not possible to cut the leg for a pathological examination *and* ask the patient how the leg feels – as Mol points out – there is a practical incompatibility between practices in work organisations and medical investigations related to hormone levels (on practical incompatibility, see Mol 2000, 89-90). Even if hormone levels can be determined by blood tests, they may vary, and it is hardly possible to account for the performance of hormones at the same time as a scene is enacted in the workplace. Still, a seeming connection exists between the phenomena produced in the two different research apparatuses, on the one hand, in biomedical research on menopause and on the other, in my qualitative interviews that discuss practices in work organisations. Despite this connection (the phenomenon of irritable women in both), I suggest that the products of medical apparatuses also *enact* in what I call ageing apparatuses in work organisations, rather than that the arguments and results of biomedical studies merely could *explain* what happens in work organisations.

An 'easy' argument would refer to the research that proposes that only vaginal dryness and vasomotor symptoms, hot flushes and night sweats, are associated with menopause (see review Gannon 1999, 78-81), and would argue that *because* there is scarce scientific proof for the fact that irritability would be related to menopause, the troublesome ageing women perceived by the interviewees must be a result of something other than

women's hormones. However, this argument would only bring a 'phenomenon' in Barad's sense, isolated from the apparatus that guarantees its existence, to explain the workings of another apparatus. It would be as questionable as, should one be convinced by the studies that suggest that irritability or other emotions *can* be seen as symptoms of menopause (Goldstein 2000; Hemminki & al 1995), to argue that because of these research results, it is more probably hormones rather than the practices in work organisations that enable the existence of the troublesome midlife women.

The challenge in the argument that biology should be taken into account in social sciences (e.g. Rotkirch 2004, 2005), is: how to do this without falling for the distinction between primary and secondary qualities? This distinction risks legitimating the belief that in some cases the 'isolated facts' of natural or biomedical sciences may provide a sufficient account of a particular phenomenon in, for example, work organisations. If the research results of biomedical sciences seem appropriate (they include claims about irritable women, and such women also seem to emerge in work organisations), it is then this distinction between primary and secondary qualities that would make it redundant to ask for any other explanations. It is, however, a risky logic to argue that only if these biological facts (phenomena materialised within research apparatuses) do not provide a sufficient answer should one look for another explanation. I suspect that this is, in part, also the case in feminist studies of menopause: the argument about social and cultural explanations is taken to be dependent on the research results that concern possible biological explanations. For example, Goldstein (2000) argues against sociocultural explanations by suggesting that the 'somatic' symptoms are *real*. Sociocultural explanations in turn are suggested if the bodily 'symptoms' do not seem universal (Lock 1993), or if a connection between pre-, peri-, and postmenopausal states and the 'symptoms' cannot be established (Gannon 1999). As Pertti Töttö aptly argues, it is not necessary that culture and biology have opposite effects (Töttö 2004, 290n5). While Töttö uses this insight for proposing the need to take into account arguments about biology in social sciences and to defend Edward Westermarck's thinking, I

suggest that *arguments about biological bodies cannot make other apparatuses redundant*,[126] for example, practices in work organisations, even if arguments about biology would seemingly explain the phenomenon in question.

However, not even the biological aspects of menopause are effectively accounted for, despite the wide-spread belief in the mainstream menopause studies that the cause of various symptoms lies within women's bodies. For a causal mechanism to be postulated, it would be desirable not only to show the correlation, but to explain the mechanism of causality (Töttö 2004, 269-270). That the correlation, if it is perceived several times, is still a sufficient ground to postulate a causal mechanism (ibid, 271) is especially clear in the studies of menopause. The postulations of causality are vast, but the explanations of the mechanisms are scarce.[127] For example, arguments about the mechanisms that would account for the link from hormones to women's emotions are vague. 'The physiological mechanisms underlying menopausal symptoms are still incompletely understood', suggests a relatively recent review concerning vasomotor symptoms (Pinkerton & Zion 2006; see also Gannon 1999, 83). This is despite that they are, of all the so-called menopausal symptoms, those most indisputably connected to hormonal changes in the West. Scarce explanations exist of how hormonal changes would cause irritability, other than that vasomotor symptoms disturb sleep, which then causes the person to feel tired and hence not in the best possible mood (see Rutanen & Ylikorkala 2004, 13). Hot flushes and night sweats are however, not the only aspect of women's life that cause sleep disturbance. Partners, children, finances, and parents can all be of concern and disturb women's

[126] Myra Hird makes a similar argument in another context (Hird 2004b, 8). See also Isabelle Stengers' (2007) critique of eliminativism, which consists of among other things, 'the complete ignorance and contempt' (ibid, 8) with which some evolutionary psychologists eliminate the work done within the humanities that could pertain to their subject of study. For a critique of the overtly simplistic notions of the social in studies about sex hormones, see Roberts 2007, 84-87, 100.

[127] For a similar argument about the non-existing explanations of the connections between hormones and social behaviours that are seen as 'masculine' or 'feminine', see Roberts 2007, 84-85.

sleep at this age (Hislop & Arber 2003; see also Mahlamäki 2007, 37); as well as sleep-disordered breathing (SDB), which is often under-diagnosed in the case of women, because its diagnosis is based on symptoms typical to men (Anttalainen 2008). An analysis of articles about menopause in a Swedish medical journal in 1990-2001 suggests that even though the int*er*action between social situations and biological processes is sometimes accounted for, the causal chain is assumed to move from the biological to the social. If the context of the menopausal body is taken into account, it is suggested that the menopausal symptoms may cause problems in social situations, not that the social situations would cause these 'symptoms' (Esseveld & Eldén 2002, 55; see also Topo & al 1991, 118). The very utterance of 'menopausal symptoms' assumes them to be internal to bodies (Rothfield 1997, 39). This understanding exemplifies the reliance on the distinction between primary and secondary qualities in the biomedical studies, and the definition of 'menopause' through these primary qualities, to which the social only has an external relationship. This differentiation also enables looking for the explanation to women's irritation in women's biology, as well as explaining – primarily by biology – the sleeping problems that account for the irritability.

Feminist studies have effectively criticised the biomedical understanding of menopause for merely focusing on bodily processes, rather than on the broader context in which the so-called menopausal symptoms appear (Ballard & al 2001; Derry 2002; Esseveld & Eldén 2002; Gannon 1999; Hemminki, Topo & Kangas 1995; Kangas 1997; Kaufert 1994; Komesaroff 1997; Lock 1993; Martin 1997; Reynolds 1999; Rostosky & Travis 1996; Rothfield 1997; Sybylla 1997; Topo 1997a; Vainionpää 2006). The analysis of medicalisation, or later, biomedicalisation (Vainionpää 2006, 19-25; see also Clarke & al 2003) of menopause has been the driving force of most of these studies. These menopause studies have, on the one hand, challenged the power of biomedicine and the pharmaceutical companies to reduce a phase of women's life to biological effects. On the other hand, another strand of these studies has argued against what they see as claims about the all-encompassing power of biomedicine or menopause to define women's

lives at this phase (e.g. Ballard et al 2001; Esseveld & Eldén 2002; Hemminki, Topo & Kangas 1995; Kangas 1997). However, despite the extensive critique of biological reductionism and (bio)medicalisation, the broader apparatuses within which the bodily experiences and emotions relegated to menopause materialise are seldom accounted for in a detailed manner. This is exemplified by that only a handful of studies focus on menopause and waged work (see article III). Reynolds' (1999) study is one of the most detailed in its analysis of work situations. She notes that hot flushes are experienced more often in work situations that cause women stress, such as meetings. Still, she does not go further to question the boundary between workplace practices and bodies, and 'menopause' remains a name for the processes within the boundaries of individual 'women's bodies'. Here again, the assumed difference between primary and secondary qualities seems to enable that hormones are regarded as the primary explanation of the bodily experiences, rather than seeing them as part of a broader apparatus that extends beyond women's bodies.[128]

I argue that the understanding of menopause as a question pertaining to individual bodies results in that cultural and social explanations are assumed to be about something *else*, they are not assumed to be about 'menopause' (e.g. Gannon 1999). And, if they are not about menopause, they are not researched when menopause is studied, beyond claims that certain phenomena, such as depression, could not be attributed to women's bodily changes (ibid 35). At first this seems logical, but it results in that the feminist studies of menopause are mostly studies about women's bodies and biomedicine, especially critiques of reductionism or hormone treatment. My interest here has been in shifting the focus from the individual bodies to understanding ageing as materialised within

[128] See also Roberts 2007, for an approach to menopause that does not discuss working life, but which sees sex hormones as messengers that extend their actions beyond bodily borders, and hence, as more than 'simply biological' entities (Roberts 2007, 158). 'As messengers, sex hormones can be understood as actors involved in complex interactions: between entities within the body; scientists and laboratory entities used in experiments; historical and cultural understandings of sexual and other differences; and the situated experiences of particular bodies' (ibid. 155).

particular apparatuses that are not limited to 'bodies' or to the biomedical apparatus and interests of pharmaceutical companies that affect these bodies. Instead, in this study, I understand menopause as a non-*individual* question, that is, not merely a 'bodily' issue or a question of 'women's health'.

Hence, the challenge in understanding menopause in waged work is not only in asking questions about 'women's health' and 'women's bodies' in the *context* of work organisations. As I suggested in article III, restricting menopause to a question of women's health, and understanding it as a bodily issue is part of the material-discoursive apparatus that individualises it. Agential realism is one possible attempt to shift this focus from women's bodies, to how these bodies materialise in work organisations, and, what the consequences are of these materialisations. In this sense, menopause in working life is a phenomenon formed within an apparatus that includes at least biological processes, feminist, sociological, anthropological and biomedical arguments (which often overlap), and gendering and sexualising practices that define what is at stake in a particular situation in a workplace.

This is similar for the 'cranky old woman', who is partly produced within the apparatuses of menopause, if women's behaviour is explained by menopause (article VI). As articles III and VI suggest, depending on the work organisation, the practices and forms of power within which 'troublesome ageing women' materialise may include measurements of work climate, tightening demands and (re)placements of employees to back rooms (bank), stairs and boxes (food factory), other human figures such as 'lazy young workers' (food factory), pension schemes, reductions of workforce and male bonding (metal factory), and resistance to and disappointment with organisational changes that worsen the position of older women or particular employee groups (hospital). Thus, the troublesome ageing woman is not the so-called 'mere discoursive construct', that is, not a product of meaning-making, talk or prejudices alone. Nor is this phenomenon a 'real woman', in the sense that 'she' could be defined within the contours of a woman's body. 'Menopausal women' or 'troublesome ageing women' are not reductions, but results of a

proliferation of phenomena. Only this proliferation, that forms what I have called *ageing apparatuses,* guarantees and maintains the flesh of these figurations.

7.3 Transdisciplinary encounters and the politics of materiality

Someone like me, well rehearsed in the thinking that there is no access to materiality beyond discourse, could have read some of Barad's and the other natural scientists' arguments simply as misunderstandings or misplaced critique. This challenge in reading across disciplinary boundaries is part of what I have called 'lumbering in transdisciplinary quagmires'. Still, contemplating the question of the ageing worker, and particularly, a female version, the troublesome ageing woman, has benefited greatly from the transdisciplinary feminist negotiations of materiality. These contemplations also open up possibilities to embrace fruitful transdisciplinary encounters within feminist studies. In this study, this entails slightly twisting the terms of Barad's argumentation in relation to her critique of social scientist's perspectives, while also regarding agential realism as a fruitful intervention to the analysis of the ageing worker.

A case in point in the transdisciplinary quagmires is Barad's critique of Butler for only accounting for how discourse materialises, and not how 'matter comes to matter' (Barad 1998, 91). Like others who use the pun on matter, Barad asks both in which way is matter made significant, and in which way matter materialises. The latter appears at first problematic in a reading that assumes the inseparability of matter and meaning. This is because Barad, from the perspective of such reading, seems to assume that some 'matter' exists outside of discourse (that is, that a difference can be posited between the materialisation of matter and the materialisation of discourse). As I have indicated, at least one of Barad's critiques alludes that she does not succeed in dismantling the binaries but rather reiterates them

(Ahmed 2008, 34). Related critique has been posed to Haraway (Currier 2003, 323-324; Kirby 1997, 147; Pulkkinen 2000a, 147-150). In addition to these critiques, another question to which I have alluded is what qualifies as matter within the transdisciplinary feminist negotiations of materiality. I suggest that Barad also makes an agential cut in her definition of materiality, in that it consists of the matter studied in natural sciences, and that this partly enables her critique of Butler. As I have argued, in the ultrasonogram example, Barad's reading is fruitful, but in some other cases, such as in the Leela Fernandes critique, as well as in the discussion of Butler's materiality as 'surface', this is more contestable. On the basis of Butler's chapter on lesbian phallos in *Bodies That Matter* Barad criticises her notion of materialisation in the following way:

'Perhaps the most crucial limitation of Butler's [approach]… is that it is limited to an account of materialization of human bodies, or more accurately, to the construction of the surface of the human body (which most certainly is not all there is to human bodies).' (Barad 1998, 107.)

This critique does not quite hit its target in the sense that it assumes a conceptualisation of materiality as it is analysed in the biomedical or natural sciences – only from such a point of view is Butler's focus *limited* because it focuses on the 'surface' of bodies. Only from this perspective can Barad also argue that Butler does not deal with the issue of how matter materialises, but only how discourse materialises. This argument involves a particular understanding of what qualifies as an analysis of matter, which is based on a natural scientist's perspective. This also concerns the other critiques of Butler as well as Grosz, about focusing only on the surface in the analysis of the materiality of bodies (on Butler, see Honkasalo 2004, 317; Kerin 1999, 93; on Grosz 1994, see Birke 1999, 2). The disciplinary borders seem to implicitly work in these feminist negotiations of materiality and enable some of the critiques: without the assumption of 'natural science matter' as the only or primary qualification for materiality, an argument about the limitations of the other focuses on bodily matter could not be uttered as *critique*. An assumption that a focus on bodies is

inherently limited if it does not discuss the biological aspects of bodies is at risk of producing a hierarchical difference between natural and social sciences. Moreover, it is at risk of reproducing the distinction between the primary and secondary qualities in how to study and understand bodies.

I interpret that Barad partly exploits Butler's texts in her argument about the importance for feminists to also account for the matter of natural sciences – but only partly exploits. As I have argued, in the ultrasonogram case, the critical reading is apt: in some cases the analysis of how bodies are made intelligible through sex is limited, if it does not account for the technologies that enable the sexing, as well as the individuation of specific phenomena, such as the foetus (Barad 1998). Another crucial point is that Barad utilises the distinction between discourse and materiality in order to assess a specific problematic: the materialisation of that which is assumed in Butler's account as inaccessible outside of discourse, and that which Butler refers to when she denies to deny 'an array of 'materialities'': the 'hormonal and chemical composition, illness, [and] age' (Butler 1993, 66; Barad 2007, 124n26). The latter are included in what Barad means by the term 'matter'. Butler's inverted commas around the term materialities exemplify why Barad's point about the materialisation of matter is needed: poststructuralist scholars in social sciences and humanities tend to avoid discussing the materialities focussed on in natural or biomedical sciences, because a reference to these materialities without inverted commas might involve an assumption of the existence of these matters in some sense outside of discourse. For social scientists, the benefit of agential realism, along with other science studies perspectives, is to offer tools for tackling arguments that concern these matters. In addition, making the difference between discourse and matter is related to the challenge of how to confront claims to 'inaccessibility' (see note 114) without naming that which is argued to be inaccessible. Concerning the latter point, I read that the difference between matter and discourse in Barad's texts is made for the sake of the argument, instead of revealing a contradiction in her argument, in the form of an assumption that these *are* separate entities.

A further point concerns the possibilities for operating with language in empirical analysis. Currier's (2003) critique of Haraway, about reproducing a binary between bodies and technologies in conceptualising the cyborg, as a hybrid exemplifies this. I suspect that a conceptual inseparability of these terms can be achieved only if the theoretical approach is not discussed in any empirical context. For example, as soon as the Deleuzian approach that Currier proposes as an alternative to Haraway is utilised in an empirical analysis, it too involves the conceptualising of these differences. The following example is from an insightful Deleuzian reading of a 'work of the work of art':

'In an assemblage like this, the human and the nonhuman, the material and the meaningful intermingle directly: paper scraps and other 'representations', rhythmic brush strokes, acrylic paint, varnish, shred of black lace etc., they all work on the same level, on the immanent plane of composition' (Kontturi 2010, 16).

In conducting empirical analysis, the concepts such as human, nonhuman, material, technology and meaning are hardly avoidable, and it requires a particularly hostile reading, or alternatively, the giving up of empirical analysis, in order to claim that merely using these concepts and suggesting their 'intermingling or the like *always* entails an assumption of determinate boundaries or the reproduction of the problematic binaries. This concerns both Deleuzian-inspired empirical analyses such as the above, and analyses inspired by scholars such as Barad and Haraway.[129]

[129] Celia Roberts suggests of the neologisms such as bio-social, sex/gender, material-semiotic, and naturecultures, that 'maintaining the original words in these neologisms, social theorists signal that what is at stake is not the complete disintegration or breakdown of categories, but rather the reconfiguring of boundaries and the visibility of new movements, mobilities or flows across them' (Roberts 2007, 198-199). On the one hand, her reading aptly questions that using these terms would entail a belief in or conceptual reproduction of determinate entities. On the other hand, however, I prefer to argue that such concepts are used for the sake of argument and in order to make oneself understood, rather than indicating moves across boundaries. For me, the question is not of categories (that 'exist') and their boundaries, whether determinate or indeterminate, but of questioning that reference points exist to these categories. A case in point is the term 'sex/gender', which Roberts uses in her study. If this neologism is taken to indicate 'reconfiguring of boundaries' between sex and gender, it is assumed that such a sex/gender difference exists, even though it is without determinate boundaries. This problematic is illustrated by the translation challenges for a non-native

Agential realism has been a great inspiration for my study of the 'ageing worker'. In the transdisciplinary spirit that Barad herself supports, I have however, made slight changes to her approach in order for it to suit my research context. These changes in my social scientist's version of agential realism have included first, the modifying of Barad's notion of objectivity through the discussion of intersectionality to what I call sensitivity to differences as rigorous research. Second, the modifications have included the rethinking of Barad's critique about 'the belief that we have a direct access to cultural representations and their content that we lack toward the things represented' (Barad 2007, 49) by turning it into a discussion about notions of access, and how materiality is at stake when access or a lack of access is suggested in a research methodology.

Third, in my interpretation, agential realism is not only interested in the materialisation of matter, as Barad puts it, but in the politics involved in the definition of materiality, in claiming the (in)separability of matter and meaning, and in claiming the need to account for 'materiality'. Such an agential realism scrutinises how these *politics of materiality* are imbued in research practices and in the feminist negotiations of materiality. From this perspective, a claim about the need to account for materiality necessarily involves a politics of materiality that calls for analysis. For example, specific politics and power asymmetries exist in claims that only social scientists should adjust their studies to natural scientific arguments, and not vice versa (see Charpentier 2005). Utilising arguments about biological bodies in social sciences is not in any way simple or straightforward, but a transdisciplinary project that may require ploughing through transdisciplinary quagmires. These quagmires can be productive, but can also hinder discussion, as can be seen in some of the responses to the crossing of disciplinary boundaries within feminism. The musing of an agential realist perspective for social scientists has been one attempt to continue these discussions and build bridges into these quagmires.

English speaker from the Finnish word 'sukupuoli' that includes both aspects (see Appendix III).

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Appendix I: Detailing research materials

Age interviews

The questions in the age interviews were planned mostly by the project leader, docent Raija Julkunen, even though they were discussed together with the project members, and although I was free to construct the questions of the interviews that I conducted in the way that I pleased. Anna Pärnänen, who at the time worked as Julkunen's research assistant, contacted and interviewed the personnel managers of the organisations, and they helped us to find the senior employee interviewees from each organisation. Pärnänen also furnished the various other documents of the research organisations[130] from the personnel managers and the shop stewards, whose interviews she also conducted. Altogether, these additional documents amount to one folder, and they vary from organisation to organisation. The potential employee interviewees were first sent a letter of invitation, and then either Pärnänen or I called them and asked whether they wanted to participate. If they were willing, the one who called them then also interviewed that person. Pärnänen and I conducted 23 and 17 employee interviews respectively. The interviews were transcribed by Anna Pärnänen, project secretary Kaisu Väänänen and me.

The questions posed to the personnel managers, shop stewards and employees were slightly different. We inquired about the relationship of the 56 to 64 year-old employees to their work, by asking about emotions related to work and ageing. Other themes included age at work, bodily experiences of ageing, and thoughts about retirement. The personnel managers were inquired about the public organisation or the firm, the changes in working life and the operational environment from the perspective of the organisation, personnel policy, an 'ageing' person as an

[130] The number of employees in the organisations varied from 140 to 6 000.

employee, the extent to which older employees stay at work, and about their early retirement. The shop stewards were asked about the personnel policy of the organisation as well as what was called the 'age policy' of the organisation. By age policy was meant, for example, how the employer treats older employees, and how age shows in recruitment and situations of reorganisation (Pärnänen 2005; Pärnänen 2009). Anna Pärnänen and I had slightly different methods of interviewing. Pärnänen followed a list of questions more closely, while I did not mind the order, but followed the flow of discussion (if it started to flow, that depended on the interview) and only tried to make sure that all the planned themes were discussed. I kept this difference in mind when conducting the analyses by checking how a particular answer to a question was situated within the stream of discussion.

Sexual and gender minorities questionnaires and interviews

The snowball method in the *Sexual and Gender Minorities* project included distributing questionnaires in various events targeted at lesbians, gay men, bisexuals and transpeople, and by informing about the study via mailing lists and websites of sexual and gender minorities associations, and also in several trade union magazines. In these cases, the contact details of the researchers were given, in order to request a questionnaire and a pre-paid envelope. A possibility to anonymously fill a web-based form was also given. In addition, the local sexual and gender minorities associations cooperated by sending the questionnaire to their members. During the middle of the collection of the material, an analysis of its representativeness was made, and it was noted that respondents below the age of 30 were over-represented, as well as people from southern Finland. After this, efforts were targeted to reach respondents from the northern part of Finland, as well as older age groups (Mustola & Vanhala 2004, 26-28; Mustola 2004).

The challenge in the use of the snowball method is that it may result in respondents who are eager to participate, and who are included in the sexual and gender minority networks. In addition, because the internet

was used in distributing the questionnaire, it may also result in over-representation of respondents who are educated and familiar with such technology. (Mustola & Vanhala 2004, 28; see also Rinne & Jauhiainen 2006, 188-190.) Even though an opportunity was given to respond anonymously, a risk exists that those who are the most closeted may not have participated. These characteristics of the material suggest that the results may tell about people who are in a fairly well-off position within these minorities.

For the quantitative part of my study, I utilised all the questionnaires, or alternatively made specific omissions, such as in some questions where I concentrated on those who were presently at work.[131] Because of the utilisation of the snowball method, the quantitative results cannot be generalised. Because of the above-mentioned risks, it is possible that this material would give an overly optimistic view of the situation in the labour markets. Mostly however, I utilised the questionnaires for qualitative reading. From the questionnaires, I picked all those who turned at least 45 years of age in the year of analysis (2003), which resulted in 97 questionnaires filled in by sexual minorities, and 47 transgender respondents, of who 32 identified as transvestites. The questionnaires included several open questions, which enabled reading them somewhat like an interview with fairly short answers. Thus, rather than merely concentrating on answers to specific isolated questions, I read the questionnaires one at a time and tried to form an understanding of the person's situation in the labour market by connecting the answers to different questions to each other.

I conducted the qualitative theme interviews by asking about the working life courses of fourteen of the participants who had left their contact details in the questionnaire. In the interview, an illustration of the participants' working life course was drawn, which included the twists and turns that they told were the most important. The definition of what belonged to 'working life course' was explicitly left open by the researcher,

[131] These are specified in article II.

by suggesting that it does not have to only include waged work. In practice, however, the participants concentrated mostly on waged work as well as on studies. I favoured that the participant drew this picture, but some participants preferred that I drew it according to their guidance. In addition, the discussion was tape-recorded. After the working life course was drawn, I asked how issues related to gender and/or sexuality figured in this working life course – if they figured. Most of the participants had already discussed these issues in the first round. In addition, I asked a few questions related to age, such as trying to find out whether the participant regards age as in any way significant in relation to their work, and what the person thinks about possibilities for early retirement or whether the participant thinks about staying at waged work until the old-age pension. The interviews were meant to resemble informal discussions, and hence I did not have specific pre-formulated questions but inquired about these issues with the wordings that seemed appropriate in each interview situation.

When analysing this research material, it has also to be kept in mind that the interviews focussed on the narratives, experiences and conceptualisations of heteronormativity from the perspective of the persons who belong to gender and sexual minorities. In these cases, other interviews were not conducted in the same organisations, hence these participants' situations cannot be analysed in their organisational contexts in a similar way to the age interviews. The incidents recalled by the participants might have been remembered or conceptualised in other ways by their workmates. However, if a person tells about changing a workplace because of, at worst, feeling the atmosphere 'as anti-gay as it gets' (article II, 104; Charpentier 2004, 113), this feeling of heteronormativity has affected the working life course, even though the workmates would not have even noticed such an atmosphere. The fruitfulness of these interviews is specifically in that gender and sexual minorities see and feel the heterosexual saturation that might be left unnoticed by those who fit into that atmosphere as comfortably as sinking in one's favourite armchair (Ahmed 2004, 147-148; see also Chapter 6.1). In many cases, the interviewees carefully contemplated and questioned their own

interpretations, in other words, whether a specific situation at work had to do with sexuality/gender or something else. Sexuality and gender are not separate from the person's personality, style and other issues that have an effect on communication and contacts at work, but this is not merely a problem of the study but, so to say, the nature of gender and sexuality at work (see also Hearn & Parkin 1987). As I suggest in this study, a crucial point is that sexuality and gender cannot be separated from the mundane, every-day practices and persons at work, no matter how the actors identify themselves.[132]

Newspaper material

I first began collecting the newspaper material when I started to work in the project *Age, Work and Gender* in the year 2000. First, I collected everything that seemed even remotely related to my study of gender and ageing at work, or to the fields that the work organisations studied in the *Age, Work and Gender* project were situated. I concentrated mainly on the daily newspaper that I followed – *Helsingin Sanomat* – but I also collected material from other newspapers that I came across. It was however, only after several years that I decided to write something about this material. Of the articles collected on the way, those published in 2007 were the last to be included. I figured, however, that I would rather have 1997 as a starting year of the collection, when the *National Programme on Ageing Workers* was launched, because I analysed the bulletin of the programme as well. Therefore I went to the archive, restricted the focus to *Helsingin Sanomat* and read systematically the front page, leaders page, domestic news, letters to the editor, as well as from Sunday editions, the 'Sunday pages' from 1997 until the end of 1998.[133] By this time I thought that the themes were saturated to the extent that I restricted the reading to only four months of the year 1999, i.e. January, May, September and December. I did

[132] For more details about the research material, see Lehtonen & Mustola eds. 2004.
[133] First I went through the whole newspapers, but it turned out that these were the pages in which ageing was mostly discussed, and therefore I restricted the reading to these pages.

not copy or print all the articles by this time, but took notes. At this stage, step-by-step, I restricted the concentration on the following four points:

1) The ageing population as a societal question (that is, its perceived consequences, or what actions are needed because of it).

2) Discussions about the position and strengths of older people.

3) Older age in relation to the labour market, and included in this, older age as an asset in the labour market.

4) Articles that dealt with migration or ethnic minorities alongside the question of older age, or that referred in some other way to the discourse of the ageing population (such as claims that migrants are needed to answer the labour shortage, which, it is assumed, will result when the baby boomers retire).

This restriction left out, for example, birthday interviews, news about accidents that have happened to people at a certain age, articles about young people in the labour market as well as articles that seemed to tell about a midlife worker without, however, thematising the issue of age. In addition, articles about ageing in other countries and continents were left out. The number of articles that I consider to be part of the research material totals circa 750, from the years 1997-2007. The circulation of *Helsingin Sanomat*, which is the leading Finnish-speaking daily newspaper in Finland, was circa 475 000 in 1997 and 420 000 in 2007. The circulation of Sunday issues has changed during the period from 550 000 to 475 000. When the internet site of the newspaper is included, the number arises to more than one million in the beginning of 2008.[134] The systematic reading and making notes from the newspaper between 1997 and 1999 concerned 436 articles related to the points above. Since 2000, I have circa 700 texts related to ageing, of which I chose 319 by focusing on the above-mentioned four points. This means that, after 2000, the collection has not been systematic; otherwise my collection would certainly include many more articles about these issues, because it is not likely that a dramatic

[134] KMT Lukija S07K08, TNS Gallup / LT 2007, Levikintarkastus Oy, http://medianetti.helsinginsanomat.fi/mediatiedot/ and http://www.levikintarkastus.fi/mediatutkimus/KMT_Lukija_S07-K08_paakohderyhmat.pdf [accessed January 28, 2009], and microfilm of Helsingin Sanomat 11.4.1997.

decrease in discussion about ageing would have occurred. This data thus does not allow for quantitative measures such as exactly how many times a certain argument about ageing was reiterated in *Helsingin Sanomat* during this period. However, the material is broad enough to sort out the mainstream ways in which age and ageing have been discussed within this period in relation to the four points mentioned. Because of the restrictions of this material to the particular newspaper, it speaks little about ageing within fields such as popular culture, fashion or tourism, and it does not enable an analysis of the north/south or rural/urban distinctions within Finland. However, because of the qualitative approach in my study as well as my concentration on ageing and work, neither quantitative measures nor focus on, for example, life style magazines is necessary.

List of research materials

Age, Work and Gender – Management of Ageing in the Later Working Life project

Qualitative theme interviews from ten work organisations: a bank, a public services institution, a municipality, a public hospital, a food industry company, a transportation company, a metal industry company, a newspaper, a restaurant, a retail store:

* 40 employees of ages 56-65, 20 women, 20 men
* 10 personnel managers
* 10 shop stewards

* Documents, such as annual reports, information of the usage of early exit pathways, and gender and age distributions

* Collected in 2000-2001

Sexual and Gender Minorities in Working Life project

* 14 qualitative theme interviews, ages 45-62
  2 transgender women, 12 belonging to sexual minorities
* Sexual minorities questionnaire (n=726)
* Transgender questionnaire (n=108)

* Collected in 2002-2003

Newspaper material

* 750 newspaper articles, letters to the editor, columns, and editorials from *Helsingin Sanomat*, published between 1997 and 2007
* Bulletin *Hyvä ikä* published by the *National Programme on Ageing Workers* during 1998-2002

Appendix II: A note on techniques

The methodology of this study focuses on a discussion of Karen Barad's agential realist approach. I develop the agential realist approach in order to answer one of my research questions, which concerns accounting for the biological as well as the cultural within the study of ageing and work. In practice, most of my discussion in the later chapters (especially 4, 5 and 7) is concerned with what could be called *methodology*, that is, the broader theoretic-methodological assumptions and issues that have been at stake when this study was conducted. These include how to formulate an anti-foundationalist approach while being willing to take account of biological aspects of bodies, how to understand intersectionality as a meaningful project that does not get drowned in its own impossibility (cf. Davis K 2009), and a discussion of what an agential realist approach entails in a social science research project. In articles III, IV and VI, I explicitly mention agential realism as a methodological background of the analysis. However, in the empirical analyses I have also utilised more specific methods or *techniques* that I take to be compatible with the overall methodology, that is, the agential realist approach. These techniques include first, discourse analysis that is inspired by conversation analysis (see articles III and IV). Here my techniques differ from the other studies that partly work with the same interviews (Julkunen 2003; Julkunen & Pärnänen 2005). Most clearly, this difference shows in that I pay attention – in addition to what is said – to ways of speaking and to details that may seem insignificant from the perspective of a different approach. For example, in article III, my interpretation utilises the word 'I' (mä), which has been deleted as insignificant when Raija Julkunen cites the same transcription (see Julkunen 2003, 96-97; article III, 185-186; Charpentier 2007, 130-131).

In addition to discourse analytic strategies, in some cases when my research material has enabled it, I have utilised quantitative methods, such as counting percentages of women or men in a particular work organisation (articles III and VI) or the percentage of a certain answer to a

question in the questionnaires (article II). I have also analysed the interviews and other research material by thematising them (articles II and V). In article V, I thematised the newspaper articles in order to explore the different ways in which ethnicity and racialisation are intertwined in the discussion of the ageing population and in the accounts about ageing workers. For the analysis in article II, first I read the research material by asking which issues related to heteronormativity seem to have had the most significance in moulding the working life courses of the interviewees. Then, I grouped these under specific themes according to which I organised the writing of the article. In addition to utilising quantitative analysis in this article and reading the interview transcripts, I also read the questionnaires qualitatively. This means that I read the answers given to each questionnaire, in order to form a more complete understanding of the participant's situation in working life in relation to heteronormativity than I would have gained by only picking answers to individual questions and thematising them. This qualitative task was facilitated by that the questionnaires included several open-ended questions, which put flesh on each other. Such a reading gave me better opportunities to also see moves in a particular participant's working life course, in addition to that I wrote about specific situations which were repeated in several participants' answers (such as recruitment, promotion, retirement) and analysed how heteronormativity matters in these situations.

In articles III, IV and VI where I analyse the age interviews, the analysis is conducted from several perspectives. First, I looked at what the participants answered to the interview questions, second, how the participant was situated within the organisation, and third, how the answers were situated within the stream of the discussion in the interview (see especially articles III and IV). Hence, I did not only pay attention to what was said, but also to how the interviewee's utterances were answers to my previous questions (Raevaara 1998; Ruusuvuori & Tiittula 2005) – and more broadly – products within an apparatus that included gendering practices in the work organisations and the research process (article IV; Chapters 5.1 and 5.7). In addition, I have explained the differences in the accounts related to ageing between the interviewees from different

organisations by differences in gender segregation or the organisation's locatedness in the public or private sector (especially articles III and VI).

I formed an understanding of gendering practices in the work organisations by connecting what was told in several interviews. In some cases, the other material collected from the organisations was also of help. For example, in one case the opportunity of calculating the approximate relative amounts of female and male workers in different occupations helped to understand how the talk about age structure as a problem focussed on women's ageing rather than men's (article VI, 676). In most cases, the accounts of different interviewees from the same organisation complemented each other. If the accounts of the interviewees seemed incompatible, I have explained these differences by the speakers' different positions in the organisations. For example, in articles III and IV, I have explained the differences in the interviewees' talk by the specific gendering practices, as well as by the position of the interviewees in the hierarchy of the work organisations. From this perspective, gendering practices may mould the position of the employees beyond their official hierarchical status or work task in the organisation. The point about how gendering practices and other forms of power mould the position of the employees is inspired by various earlier studies of gender in work organisations (e.g. Korvajärvi 1998; 1999; see Chapter 2.2).

In my analyses, I have related the person's position in the organisation, which is moulded by gendering practices, to the positions that the participants take in the interview conversation. I suggest that a possibility to situate oneself affirmatively within the position of an 'ageing worker' is formed within a broad apparatus that includes, for example, status given to certain education, gendering practices, and meanings given to ageing in particular work organisations. Hence, I interpret the utterances about ageing in relation to these practices, including the research apparatus. As the scholars using discourse and conversation analysis suggest, a position of the speaker is not to be understood as stable, as it may vary along the course of the conversation (e.g. Jones 2006; Nikander 1995, 2002). In my analysis, I have not been interested in the positioning of the speakers in

the interview or the variability of these positions *as such* (Jones 2006; Nikander 1995). Rather, I utilise the positioning of the speakers in conducting 'temporarily frozen' (see Chapter 7.2) accounts of how *ageing apparatuses* enable the existence of certain phenomena, such as the 'troublesome ageing women' that I analyse in two articles (III and VI). Hence, utterances about ageing become understandable in relation to the questions of the interviewer, to the broader course of the interview and the research project – such as the invitation to participate – and they may also be enabled by the person's gendered position in the work organisation. Therefore, I use the situatedness of the participant in my analysis to also account for differences in the ways of speech between participants ('confident' or 'defensive', see article IV). Analysing positions of the participants is hence a tool that enables accounting for how several forms of power are enacted when accounts of ageing in work organisations are given.

My focus on gendering practices, as well as my aim to account for the situatedness of the speakers, seems to sometimes collide with other readings of the same interviews. Julkunen (2003), who partly analysed the same interviews, was satisfied with mentioning the occupation and/or education of the interviewees. She hence did not analyse the utterances about ageing in relation to how these more stable markers of position (occupation or education) are moulded by, for example, gendering practices. The differences in our approaches show, for example, in Julkunen's comment that for her, contrary to how I suggested, the man who works in public administration and whose interview I analysed in article IV, seemed to not enjoy a very good position at his workplace. By contrast, in Julkunen's reading of the interview, the man rather seemed tired, marginalised or even miserable in his work.[135] My analysis of gendering practices hence raised a perspective on this man's position that seemed to have been left unnoticed in a reading that did not focus on gender. In this case, accounting for gendering practices helped me to explain why the participant was able to conceptualise ageing in such an

[135] An email comment by Raija Julkunen, September 2, 2006.

affirmative way, in comparison to a particular woman participant, who seemed to have been situated higher in her organisation's hierarchy, and hence, at first glance would have seemed to have a more well-off position in the organisation than the man (article IV). There is also a difference in claiming how a person feels about his or her work (for example, tired or miserable, as Julkunen interpreted of the man), and arguing about how gendering practices mould the person's position. However, I do not see that these different focuses necessarily lead to incompatible results. Rather, they account for different aspects of the person's situation. Another example is when Julkunen interprets that one of the women interviewees is 'age sensitive', that is, aware of age issues in working life (Julkunen 2003, 214-215; about this as an example of age sensitivity, ibid, 213), as well as that, for her, *age* brought confidence in her work (ibid, 180). From the perspective of gendering practices and the positions of the interviewees, I stress in my readings that 'confidence' in the sense analysed here is not only a result of chronological ageing or long work experience, but instead, a fairly well-off gendered position in the work organisation (article IV). This interpretation further illustrates that my analysis of gendered situatedness also includes power asymmetries between women, and that an analysis of gendering power does not mean that favourable positions exist only for men (article IV, 66-67).

I see the differences between my and Julkunen's readings as the results of alternative research apparatuses, which freeze the interview material in different ways, rather than as 'right' and 'wrong' readings. My focus on the interviewees' positions is a form of intersectional analysis, in which the participants of the age study are not only analysed according to age, but also according to gender and class. Here however, the aspect of class does not refer to occupation, or employee/employer distinction (cf. Weston with Rofel 1998), but to how the speaker's position is formed within the practices and hierarchies of the particular organisation. In the case of gender, such an analysis concerns the moulding of gender within the intra-actions of several forms of power, rather than an analysis of merely the opposition between women and men. The practices in the studied

organisations vary considerably in relation to how gender and age matter. This variability is also related to whether this research material tells mostly about women's situations in relation to men (such as the metal factory, see article VI), or whether differences between women seem to have great significance (such as the hospital, see article VI).

Appendix III: 'They could bloody well do it' and other translations

'In an important sense, it is not so much that I have written this book, as that it has written me. Or rather, 'we' have 'intra-actively' written each other ('intra-actively' rather than the usual 'interactively' since writing is not a unidirectional practice of creation that flows from author to page, but rather the practice of writing is an iterative and mutually constitutive working out, and reworking, of 'book' and 'author'). Which is not to deny my own agency (as it were) but to call into question the nature of agency and its presumed localization within individuals (whether human or nonhuman).' (Barad 2007, ix-x.)

One of the things that surprised me in this research process was how apt such an account about an intra-active production of a text is. I have already mentioned how the reviewers' comments have helped to intra-actively produce the articles included in this study (see Chapters 5.4 and 5.7). In addition, as the acknowledgements suggest, many people have contributed to the inspirations, as well as to the economic and spatial conditions that have enabled the materialisation of this study, in addition to those who actually participated as interviewees. Such a process exemplifies how these intra-actions work as power that *enables* a research process. Here, I go further to analyse how power also means subjection to the multi-faceted agential realities involved in the making of texts, and how such subjection may also produce unexpected results. In my case, the 'I', in the sense of identifying myself as an autonomous writer, has been challenged mostly in relation to translations. In addition to that translations may help to gain power, which I have discussed along this study (Latour 1993; Chapter 6.3), translations are challenging at least in two senses, in translating research material (Nikander 2002), and in the travelling of theoretical concepts (Kekki 2006; Knapp 2005; Mizielinska 2006; Peltonen 2009).

The greatest challenge related to travelling concepts in my study has involved the terms gender and gendering practices. This is because the

legacy of the sex/gender distinction entails that gender can be understood as a social aspect in comparison to a separate biological aspect, sex. Using the term for gender (sukupuoli) in the Finnish language does not assume such an inherent difference between the social and the biological (even though it includes a problematic understanding of two sexes in its notion of 'half' ('puoli'), see Pulkkinen 1999, 63). The sex/gender distinction travelled to the Finnish language as the practice of adding the words biological and social to the term sukupuoli, hence: 'biologinen sukupuoli' and 'sosiaalinen sukupuoli'. I assume that it was the questioning of the sex/gender distinction in the international discussion, when the prefixes to the term sukupuoli were dropped. Hence, mostly, only the term sukupuoli is used in the Finnish-speaking feminist studies, and it includes both of what is meant in the Anglo-American discussion by sex and gender.[136] Hence, I have felt considerably uncomfortable in translating the term sukupuoli into English, when the alternatives in the theoretical discussions that I am mostly taking part in are sex and gender, both of which carry the connotation of either biological or social, rather than including both of these aspects. The way in which I use the word 'gender' in this study is a translation of the word 'sukupuoli' in the sense that I do not assume gender to be a social aspect entailing an existence of another, biological aspect. Hence, I do not think of 'sukupuoli' as separated into two entities or separate layers of which the one is social and the other, biological. In my study, the terms sex and gender are hence used synonymically (see also note 54). Despite the challenges in translating, I satisfy myself with the term gendering practices and with the other similar terms that utilise the word gender in the study of the labour market. My agential realist focus however, also suggests that the biological matter of bodies is at work in the gendering apparatuses (see article III and Chapters 4 and 6).

In addition to translating theoretical terms, the challenges in translating research material have been noted by non-native English speakers who publish their analyses of Finnish conversational material in English

[136] See also an analysis of the Swedish language debate in which the development was different, resulting in a persistent kön/genus (sex/gender) difference and the stabilisation of 'genus' as the dominant term (Peltonen 2009).

(Nikander 2002, 218-224). Obviously, these struggles are part of the dominance of English language in the contemporary formation of the scientific world. Like Nikander, I have chosen the level of provided details in the transcriptions of the interviews according to the analytical questions. Hence, the level of details in the transcribed accounts varies from article to article. In addition, I have aimed towards 'acceptably accurate' translations, rather than seeking or claiming perfection – whatever that might mean (ibid, 223-224).

The process of producing translations has been intra-active not only in my meshing with two languages, tapes and transcripts, but also in the sense that the work of several proofreaders, editors and translators, and their comments, have become part of my texts. Without these actors, publishing in English would not have been possible, and hence, as I have stated in the acknowledgements section, this work has been most invaluable. Of the countless numbers of enactments, that is, the changes and modifications to my texts that these other actors have enabled, two instances must be analysed here, in order to be able to claim the 'acceptable accuracy' of translations. This analysis also aims to illustrate the contradictory workings of power inherent in the intra-active production of texts by using my study as an example. These enactments concern the production of article VI.

In the case of article VI, I worked with the journal's proof-editor by answering her queries and suggesting minor corrections to the text. The proof-editor had also corrected my language to more fluent English, and some of my corrections involved additional changes to her corrections, in order to achieve the acceptable accuracy of the translations of the interview transcripts and my interpretations of them. The proof-editor accepted all these corrections, except for two, which, according to her, were against the house style of the journal. Those two, however, were crucial in the sense that they shifted the meanings of the Finnish texts into a direction that boosted my interpretations. One of the controversial translations concerns the last sentence in one of the quotes in the introduction: 'Many times it is precisely women who become extremely

difficult in our workplace.' My initial translation ended 'in *the* workplace', rather than 'in *our* workplace'. The latter version supports my interpretation, because it suggests that these difficult women are part of the practices in the particular workplace (as I claim in my overall analysis in that article), rather than suggesting an interpretation that the utterance merely reiterates a stereotype that can concern any workplace. My version of translation went accepted through the first professional editing of my English – which suggests the fine line in defining what is accepted as 'fluent English'– but it did not escape the eye of the proof-editor of the journal. Again, I tried to change 'our' into 'the' at the proof-editing stage, but this formulation was not accepted. Another question of house style was the translation of one of the food factory employees' utterances; I initially translated a part of this in the following way: 'at the end you always growl that they could…' This version again, survived the first professional editing, but the three dots proved to be against the journal's house style, and the end result was: 'at the end you always growl that they could [bloody well do it]'. This is 'my formulation' in the sense that it is constructed on the basis of my answer to the proof-editor's query about the meaning of this sentence: 'Please make the meaning of this remark clear' [points to the sentence]. My answer was:

'The end of the remark means 'at the end you always growl that they could bloody well do it!' or something like that, but this meaning is only implied in the way the interviewee speaks, that is, these words do not exist, so I cannot really write them like that. Could it be formulated for example, in the following way: 'When you look at that for many months, you get edgy, then at the end you always growl that they could…!' Please let me know if you have a better suggestion.'

My attempt to hold on to my initial translation did not succeed, and the final version was constructed by the proof-editor. Even though the 'bloody well do it' was my interpretation of what the utterance 'meant', and hence part of my interpretation that women become angry and irritated because of what happens in the work organisations, I remain uncomfortable with it carved on paper. This addition reinforces my interpretation, despite that I wanted to let the reader decide how this utterance should be interpreted,

and hence, whether my reading of it is credible. Even though these words are in parentheses, a reader could, for example, believe that similar words were uttered in a longer sentence, which I have only crystallised by these words. Obviously, I do not mind my language being corrected to more fluent English, even if in some cases it results in that I am not able to convey exactly what I wanted. This is the necessary condition for participating in the international field dominated by the English language, and taking part in this field is a condition for doing university-based research at all. Struggles with meaning and translations are not limited to translating from another language; in fieldwork many are familiar with the challenges involved in understanding the different meanings given to concepts that, at first, seem familiar to the researcher (Wichroski 1996). The working conditions of editors, the assumedly great amount of work and strict time tables, as well as the use of email in these discussions are also part of the apparatus of producing the published versions of the articles. These various intra-actions may not always prove effective enough in conveying, for example, how important a certain small change (such as whether the word is 'the' or 'our') is to the author.

Performativity, in the sense of ambiguous and shifting meanings, is part of working with(in) language in general, in every phase of the research process. In this study, this also pertained to the interview situation, in which words carry meanings that might contradict the intentions of the speaking researcher. What is heard from the tapes is sometimes also a matter of interpretation, as I suggested in relation to the intra-actions of feelings and the tones of voice in Chapter 5.7. The different qualities of the tape recordings of the interviews was another instance for shifting meanings that I struggled with, when listening to and rewriting the transcriptions used in article II. Not to mention the choices in editing the transcripts, in which a word that, for one researcher, may be crucial in the interpretation of what a fragment means, may seem insignificant for another who deletes it in the process of editing, if it has not already been left out of the transcription at the stage of the initial transcription process. The two formulations analysed here, which became part of 'my' text, make

me uncomfortable because they could be regarded as my work of moulding the transcriptions in order for them to better suit my interpretations, at the expense of the accuracy of translations. This is posthumanist performativity at work, in which meanings do not stay still, and the intentionality of the author loses its determining force, when all the enactments of speech, tapes, emotionality, transcription, texts, translation, correction, email facilities, economic and working conditions, author, editor and house style have performed their tasks as part of the materialisation of the final text. In these cases, then, the intra-active writing and translating process simultaneously questioned my autonomous agency as a writer, and helped my argument to gain power. This further demonstrates the contradictory, and implicit, workings of power in a research process.

Svensk sammanfattning

Åldrande i arbete: Tvärvetenskapliga förhandlingar kring kön, ålder och materialitet

På 1990-talet har det konstruktivistiska kön/genus tänkandet kritiserats för att det innehåller ett problematiskt isärhållande av det biologiska och det sociala, där det biologiska antas vara oföränderligt och statiskt. Flera feminister har sedermera strävat efter att förstå relationen mellan det biologiska och det sociala på andra sätt. Målet har varit att visa att det biologiska och det sociala inte är varandras motsatser, utan snarare sammanflätade med varandra. Å ena sidan har man velat framhäva att det biologiska inte går att skilja från det sociala, eftersom kulturella betydelser och omständigheter aktivt formar det vi uppfattar som biologi. Å andra sidan har man betonat att biologin inte bör förstås som ett passivt underlag där kulturen ristar in sina betydelser. I stället kan biologin betraktas som en aktör i processen där verkligheten utformas. Min studie tar avstamp i dessa feministiska 'förhandlingar om materialitet', särskilt i Karen Barads agerande realism, och analyserar på vilka sätt den så kallade 'åldrande arbetaren' materialiseras i början av 2000-talets Finland. Min forskning baserar sig också på åldersstudier som ifrågasätter synen på åldrandet endast som ett kroppsligt förfall, och betraktar snarare åldrandet som en process bestående av kulturella betydelser, maktformer, motstånd, kategoriseringar, och kroppsliga erfarenheter. Karen Barad gestaltar ett synsätt på kroppar och materialitet som tar kvinnors biologiska kroppar på allvar, men som inte studerar dem som separata objekt utan analyserar hur de produceras inom en bredare materiell-diskursiv apparat. När Barads angreppssätt tillämpas på feministisk

åldersforskning kan man påstå att till och med biologiskt åldrande inte är en fråga om den separata individen(s kropp). Det väsentliga är att ett agerande realistiskt synsätt inte betraktar 'kontext' och 'åldrandet' som åtskilda från varandra. I stället är det vi uppfattar som 'åldrandet' ett resultat av olika apparater; sammanflätade teknologiska, materialiserings- och betydelseskapande praktiker.

I denna studie definieras feminism som ett intersektionellt projekt. Detta betyder att kön inte endast förstås som en relation mellan kvinnor och män. I stället formas själva figuren 'kvinna' samt kvinnors olika livssituationer av olika maktasymmetrier, såsom 'ras'/etnicitet, ålder, heteronormativitet och klass. Det finns olika tolkningar av vad en intersektionell analys betyder, och dessa tolkningar är på olika sätt kopplade till den feministiska forskningens historia och till maktasymmetrier inom den feministiska forskningen. Därför är det inte självklart vad ett intersektionellt feministiskt perspektiv på ålder innebär. Utöver och relaterat till diskussionen om feministisk forskning om ålder som ett intersektionellt närmandesätt diskuterar avhandlingen följande forskningsfrågor:

* På vilka sätt är 'den åldrande arbetaren' könad? Vad innebär sammanflätandet av kön med andra maktasymmetrier för frågan om åldrandet i arbetslivet?

* Hur kan åldrandet i arbetsorganisationer studeras så att man för det första betraktar könande praktiker som en del av de apparater som konstituerar vad ålder innebär i en särskild organisation, för det andra, tar i beaktande det kroppsliga åldrandet, och för det tredje, att 'kroppar' inte kan diskuteras utan betydelseskapandet?

Den sistnämnda frågan följer av att jag inte har velat diskutera uttryck om åldrande kvinnokroppar bara som stereotypiskt tal, utan som en del av de mångfaldiga apparater som inkluderar betydelseskapandet, biologiska processer samt könande praktiker i arbetsorganisationer. Teoretiskt och metodologiskt leder denna fråga till vad jag kallar *feministiska förhandlingar om materialitet.* Tillsammans med andra begrepp, har framför allt Judith Butlers 'materialisering'haft stor betydelse i feministiska studier om kroppar. Jag föreslår dock i min studie att Barads

agerande realistiska närmandesätt är mera fruktbart för att behandla frågan kring kroppar och kroppslighet, ifall forskaren vill ta i beaktande att kroppars materialitet också handlar om biologiska processer. Därför diskuterar jag Barads och andras liknande kritik av Butler. Inom de feministiska förhandlingarna om materialitet finns det en mängd kritiska inlägg på Butlers begrepp, och Barads och övriga naturvetares kommentarer är bara en del av dem. I min studie föreslår jag också att en särskild 'materialitetspolitik' (politics of materiality) kan läsas ur dessa diskussioner. Detta betyder att maktasymmetrier också utspelas i dessa diskussioner, och jag föreslår att de delvis handlar om maktasymmetrier mellan olika vetenskapsgrenar. Därför har jag formulerat ytterligare en fråga som tar hänsyn till denna materialitetspolitik:

* På vilka sätt definieras materialitet, och vilken slags politik skapar dessa definitioner i de feministiska tvärvetenskapliga materialitetsdebatterna, särskilt Barads kritik och omdefiniering av Butlers begrepp materialisering? Hur skulle ett agerande realistiskt närmandesätt se ut i en samhällsvetenskaplig studie, och vad bidrar Barads tänkande till sådana studier?

Det empiriska forskningsmaterialet för denna studie har insamlats från tre sammanhang. För det första har denna forskning varit en del av ett projekt kring åldrande och kön i det finländska arbetslivet som hette *Ålder, arbete och kön – behärskning av åldrandet under de sista arbetsåren*, och som leddes av docent Raija Julkunen vid Jyväskylä universitet. Inom ramen för detta projekt intervjuades fyrtio 56-64-åriga vita kvinnor och män som jobbade i tio stora arbetsorganisationer inom både den offentliga och den privata sektorn. Intervjuerna utfördes 2000-2001. Informanterna arbetade i olika tjänster, med olika arbetsuppgifter och på olika nivåer i arbetshierarkin. Därtill gjordes tjugo intervjuer: från varje organisation intervjuades en personalchef och en förtroendeperson för att få information om organisationens praxis och politik vad gäller åldrande. Som intervjuare fungerade författaren och Anna Pärnänen. Pärnänen har gjort 23 och författaren 17 av intervjuerna med arbetarna. Pärnänen har

gjort alla intervjuer med förtroendepersonerna och personalcheferna, och samlat annat material om organisationerna.

För det andra har jag deltagit i Jukka Lehtonens och Kati Mustolas projekt *Sexuella och könsminoriteter i arbetslivet*. Inom ramen för detta projekt insamlades både kvantitativt och kvalitativt forskningsmaterial. Två frågeformulär utformades: ett för sexuella minoriteter och ett annat för könsminoriteter. Jag använde enkätmaterialet, och därtill genomförde jag fjorton kvalitativa intervjuer med 45-62-åriga kvinnor, män, och transsexuella kvinnor, som alla var vita.

För det tredje samlade jag in tidningsmaterial kring åldrandet i arbetslivet mellan åren 1997-2007. Detta resulterades i cirka 700 artiklar, debattartiklar och ledare från den ledande finländska tidningen *Helsingin Sanomat*. Jag samlade också in tidningsmaterial från informationstidningen *Hyvä ikä* (kan översättas som Bra ålder) som utgivits åren 1998-2002 av det finländska Nationella Åldersprogrammet. Analysen av forskningsmaterialet har inspirerats av konversationsanalys och performativitetsteorier, i anknytning till Barads ageranderealistiska närmandesätt. Dessutom har jag utnyttjat innehållsanalys samt teoretisering av kön och sexualitet i arbetslivet för att granska könande och sexualiserande praktiker som en del av de 'apparater' (Barad 1998) som producerar 'den åldrande arbetaren'.

Min studie består av sex artiklar och en analytisk diskussion. I artikeln I, på svenska *Åldrandet, det postmoderna perspektivet och skillnader* diskuterar jag kontroversen mellan så kallade postmoderna teoretiker inom ålderstudier och de som argumenterar att postmoderna teorier förnekar den erfarenhet samt de kroppsliga förändringar som åldrandet för med sig. Artikeln tar avstamp i denna diskussion för att skapa ett teoretiskt synsätt som möjliggör att både kroppsliga förändringar tas på allvar men som *också ifrågasätter synen på* ålderdom som något som endast 'sker' i verkligheten.

I artikeln II, på svenska *Heteronormativitet och 'arbetslivsloppet' (working life course) i berättelser av över 45-åriga personer* analyserar jag hur heteronormativitet formar de över 45-årigas arbetssituationer dvs. de som den administrativa diskursen kallar 'åldrande arbetare'. Jag hävdar i

artikeln att sexualitet på liknande sätt som kön inte bara handlar om de anställdas identitet och hur de accepteras i arbetslivet, och argumenterar för att heteronormativiteten även har materiella konsekvenser för hur 'arbetslivsloppet' formas. Jag påstår att heteronormativa förväntningar på livsloppet samt antagandet att de anställda framställer kön på vissa, binära sätt kan ha stor betydelse för hur arbetslivsloppet formas. Dessa kan till och med påverka ålderdomen på ett ekonomiskt sätt, eftersom pensionen beror på lönen, och lönen påverkas av de vändningar som arbetslivsloppet tar.

I artikeln III, på svenska *Ilska som klimakteriesymtom: Om individualiseringen av menopaus i arbetslivet* föreslår jag en ageranderealistisk metodologi för en analys av klimakteriet i arbetslivet. Jag fokuserar på antaganden som framkommer i några intervjuer om hur ilska är ett potentiellt drag hos äldre kvinnor i arbetslivet, och särskilt på kommentarer som kopplar ihop denna ilska med klimakteriet. Betraktat ur ett ageranderealistiskt synsätt är klimakteriet inte endast en 'hälsofråga', och inte heller en fråga som kan reduceras till individuella kvinnokroppar. Artikeln argumenterar för att ilskan berättar något om kvinnors position i arbetslivets könande praktiker, och att det finns en risk att olika arbetsrelaterade problem individualiseras och att kvinnors motstånd definieras som klimakteriesymtom. Artikeln föreslår att klimakteriet kunde betraktas som en produkt av en bredare apparat som inkluderar även könande praktiker i arbetslivet, och inte bara ses som ett 'kroppsligt' fenomen, fristående från omgivningen.

I artikeln IV, på svenska *Försvar och säkerhet: Den 'åldrande arbetaren' i forskningsprocessen och könande praktiker i arbetsorganisationer* analyserar jag den känsloladdade atmosfären som karaktäriserade delar av några intervjuer samt de intervjuades sätt att tala i intervjuer som ett tecken på makt i görandet, dvs. hur makt formas i olika mångfacetterade processer. Artikeln fokuserar på två sätt som de intervjuade besvarade på frågor: ett som kunde kallas försvarsställning, och ett annat som framställer talaren som säker på sin position som en 'äldre arbetare'. Jag analyserar de två sätten att tala som produkter av flera sammanflätade

apparater. En av dessa är forskningsprocessen, särskilt inbjudningsbrevet som skickades till de intervjuade på förhand och som positionerade dem som 'äldre arbetare', samt vändningar i själva intervjuerna. De sammanflätade apparaterna består också av aktuella offentliga diskurser kring åldrandet, den intervjuades position i sin arbetsorganisation, och könande praktiker som formar betydelser av åldrandet i en särskild arbetskontext. Enligt min analys är den 'åldrande arbetaren' inte ett oskyldigt begrepp som endast skulle hänvisa till arbetare som befinner sig i en särskild kronologisk ålder, utan kan snarare ses som en produkt av varierande apparater. I artikeln påpekar jag att analysen bör granska den makt som formar åldrandet, till exempel hur någon anses vara 'erfaren' och någon annan en 'krånglig klimakteriekärring' för att kunna förändra och omdefiniera de besvärliga betydelserna av åldrandet i arbetslivet.

I artikeln V, på svenska *'Erfarenhet är nationellt kapital': En postkolonialistisk läsning av åldrandet i arbetslivet* analyserar jag hur kön, ras och etnicitet formar diskussionen om åldrandet av befolkningen samt de antagna egenskaperna av den 'åldrande arbetaren'. Jag analyserar artiklar och insändare i en finländsk tidning och påpekar hur till exempel ålderism (ageism) mobiliseras i kritiken av den begränsande europeiska invandrarpolitiken och hur invandring i detta sammanhang ses som en lösning på den finländska befolkningens åldrande genom att invandrarna (som antas vara unga) skulle betjäna de åldrande finländarna. Därtill diskuterar jag motståndet mot nedskärningen av välfärdstaten, en nedmontering som ses som nödvändig i den dominerande politiska diskursen på grund av att den åldrande befolkningen medför ökande kostnader för staten. Jag argumenterar för att motståndet mot nedskärningarna formuleras i termer av försvar av 'våra äldre', dvs. med ett nationalistiskt uttalat 'vi', som utesluter de äldre som inte tillhör den generation som anses ha byggt upp och försvarat det självständiga Finland. I min analys påpekar jag att diskussioner om åldrandet i arbetslivet samt debatter om den åldrande befolkningen är sammanflätade med nationalism och till och med rasifiering, och att det behövs mera analys av ålder utifrån dessa synpunkter.

I artikeln VI, på svenska *Krångliga gamla kärringar? Irritation, motstånd och könande praktiker i arbetsorganisationer* frågar jag vilka apparater som producerar det fenomen som några informanter kallar 'krångliga åldrande kvinnor'. Jag anser att dessa uttryck inte endast är negativt stereotypiskt tal om kvinnor, men de berättar inte heller sanningen om åldrande kvinnor i arbetslivet. Analysen i artikeln fokuserar på könande praktiker i tre arbetsorganisationer och föreslår att 'krångliga åldrande kvinnor' inte 'kvinnokroppar' utan utgör ett bredare *fenomen* (Barad 1998) som produceras inom mångformiga apparater. Dessa apparater består av varierande könande praktiker, såsom könad arbetsfördelning och synen på organisationens åldersstruktur som problematisk med anknytning speciellt till kvinnors åldrande. I dessa apparater ingår också de västerländska biomedicinska föreställningarna om kvinnors överdrivna känslosamhet, som blir en del av organisationernas könande praktiker. Jag påpekar att dessa apparater möjliggör att varierande praktiker och problem i arbetsorganisationer individualiseras och antas gälla kvinnors åldrande, fastän dessa praktiker också skapar möjligheter till motstånd.

Ett agerande realistiskt perspektiv innebär både att natur-kultur distinktionen ifrågasätts, men också att analysen tar hänsyn till 'materialitetspolitik'. Den sistnämnda är en omformulering relaterad till Barads agerande realism. Ordet materialitet har fått många betydelser inom feministiska studier. Materialistiska feminister har analyserat ekonomiska faktorer samt olika vardagliga och också arbetslivets könande praktiker och betraktat dessa som 'materialitet'. För naturvetenskapliga feminister betyder analysen av materialitet att man fokuserar på biologiska processer i kvinnokroppar, materialitet i utommänskliga kroppar eller materialitet som suddar ut kroppars gränser, t.ex. medicinska teknologier eller djur. Från detta perspektiv har till exempel Butlers begrepp materialisering kritiserats för att den endast beaktar 'ytan' på mänskliga kroppar. Jag hävdar dock att en sådan kritik är möjlig endast eftersom denna feministiska diskussion är tvärvetenskaplig, och den skapar maktasymmetrier mellan discipliner genom att den sätter en särskild, naturvetenskaplig definition av materialitet som norm.

Samhällsvetenskapliga perspektiv på materialitet är inte bristfälliga på ett problematiskt sätt bara för att de inte diskuterar kroppars biologiska processer eller andra 'naturvetenskapliga materialiteter'. Problematiskt är bara att argumentera att ett fenomen *är* socialt konstruerat om man inte diskuterar argument utöver det sociala, eller att hävda att man har suddat ut gränserna mellan biologi och kultur bara genom att till exempel hänvisa till Butlers begrepp materialisering.

Denna studie antar att natur-kultur gränsöverskridningar i samhällsvetenskaperna innebär att man tar del i tvärvetenskapliga diskussioner. Från ett agerande realistiskt perspektiv innebär detta att man inte bara iakttar de nyaste resultaten eller det som presenteras som 'fakta' inom en särskild naturvetenskaplig disciplin. I min tolkning kräver ett agerande realistiskt perspektiv i stället att man blir medveten om 'stängda lådor' (Latours svarta lådor) som konstituerar argument om t.ex. biologiska processer. Därför handlar frågan inte bara om att man skulle använda t.ex. evolutionsteoretiska perspektiv inom samhällsvetenskaperna. I stället består frågan av vilka lådor som man skall hålla stängda, vilka rörelser och handlingar – både i biologiska processer och i vetenskapliga debatter – skall man frysa fast när man konstruerar ett argument om biologi, och använder det inom en analys om till exempel, uppfattningar om kvinnokroppar i arbetsorganisationer. Därtill kan inte argument om biologi omintetgöra apparater såsom könande praktiker i arbetsorganisationer, som består av mycket mera än biologi i görande.

Å ena sidan hjälper Barads agerande realistiska perspektiv att behandla argument om biologi, eftersom detta synsätt diskuterar vad materialisering innebär när man tar hänsyn till biologiska processer och andra 'naturvetenskapliga materialiteter'. Å andra sidan kan ett agerande realistiskt perspektiv, såsom andra vetenskapsstudier (science studies), inspirera samhällsvetenskapliga forskare att 'se' och iaktta i sina studier materialiteter som man inte tidigare sett. Min diskussion om materialitet av intervjuerna samt förslag att könande praktiker kunde ses från ett posthumanistiskt perspektiv är exempel på detta. En av de viktigaste poänger i ett agerande realistiskt perspektiv är ett försök att ha tvärvetenskapliga diskussioner utan att skapa en orättvis och karikerad

kritik av andra vetenskapsdiscipliner. Det är vad jag har strävat efter i min diskussion om Barad och de andra tvärvetenskapliga feministiska förhandlingarna om materialitet.

Discussions about materiality, transdisciplinary encounters as well as analyses of power and differences have become key issues in contemporary feminist and gender studies. This book explores these questions by analysing ageing 'at work'. This entails seeing ageing workers not as individual employees but as phenomena that emerge within 'ageing apparatuses'.

The book offers an introduction as to how materiality is approached in contemporary feminist theory, and discusses how to account for biological bodies in social sciences, while holding on to an anti-foundationalist approach to bodies and sexes. Irni also critically explores the politics of materiality involved in transdisciplinary encounters, as well as intersectional methodology and the material aspects of conducting interview research.

The book is relevant to those who are interested in encounters between social and natural scientists, qualitative research, the rethinking of ojectivity, discussions of materiality and intersectionality within feminist studies, as well as gender perspectives on age studies and ageing in the labour market.