

Academic Excellence and Gender Bias in the Practices and Perceptions of Scientists in Leadership and Decision-making Positions¹

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Abstract: How to assess quality has become one of the central concerns for contemporary research, not least because of the proliferation of research assessment systems around the globe. Concomitant with this has been the growing attention to factors that compromise the credibility of assessment, especially gender, ethnic, racial and geopolitical bias. In this paper I analyse how lab leaders and research managers in the natural sciences specifically construct excellence and relatedly the demands of the research profession, and how gender bias plays out in these imaginaries. The material for the study comes primarily from two highly successful public research institutes of the Czech Academy of Sciences and specifically from individual and group interviews with lab leaders and research managers on topics of research governance, assessment, and quality. The focus is on the natural sciences because the discipline has driven the introduction of research assessment in the country as well as research and innovation reforms more broadly since the new millennium. Building on the distinction between the logic of choice and the logic of care developed by Annemarie Mol (2008), I explore the limits of individual choice for conceiving excellence and the gendered outcomes it produces.

Keywords: gender bias, excellence, care ceiling, glass ceiling, research profession

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Introduction: quality assessment, gender bias, and the rise of new research governance

Assessing quality has long been a central concern in research and has gained in importance with the recent proliferation of research assessment systems. The standard notion has it that what matters in research is quality and that its assessment is value-free, impartial, and untainted by other factors and considerations. This meritocratic ideal continues to be a universal value (Deem 2007: 616), and the opinion often prevails that excellence is self-evident and experts in their field recognise it when they see it (Lamont 2009). Originally referring to exceptionally high quality and excelling over others, excellence has recently come to be associated with the rise of new research governance revolving around competition, managerial practices, and efficient use of public funding (Deem 2008). Increasingly, researchers are assessed based on their productivity and, specifically, on their impact factor publications, citation index, and ability to bring in competitive funding (Linkova 2014; Morley 2016). If meritocracy is concerned with defining boundaries around what constitutes merit, excellence is about the process of defining merit in very particular terms (Felt, Stöckelová 2009).

From the early sociology of science, scholars have examined factors that compromise the ideal of meritocracy. With the Matthew Effect of cumulative advantage in research, Merton explored some of the facets of unequal distribution of worth in research (Merton 1968). Referring to this early work Rossiter (1993) looked specifically into the inherent under-recognition of women researchers and coined the term the 'Matilda Effect'. Since then research has unequivocally shown that the work of men is consistently judged as superior, by both men and women, even when the only thing that differs is the name (Reuben, Sapienza, Zingales 2014; Steinpreis, Anders, Ritzke 1999). With their pivotal study of postdoctoral grants from the Swedish Medical Research Council, Wenneras and Wold (1997) demonstrated that women needed to publish significantly more than men in the most prestigious journals in order to be evaluated equally (for similar results in the Dutch system, see Benschop, Brouns 2003). Studies carried out in the United States suggest that both men and women view women applicants, with identical qualifications as men applicants, as being less capable and as deserving a lower salary (Moss-Racusin et al. 2012).

The existence of potential gender bias in research assessment has gained in prominence with the rise of what has been variously termed the audit culture (Power 2003; Strathern 2000), new managerialism (Deem, Brehony 2005), or neoliberal university (Shore 2010). This shift entails heightened competition revolving around the growing importance of research assessment and competitive funding as alleged safeguards against the inefficiency of public research and higher education (Shore 2010; Shore,

Wright 2015; Wright, Ørberg 2008). These changes in the governance of research have had a profound effect on how excellence is defined. The contemporary notion of excellence revolves around autonomy, individual performance, efficiency, competition, competitiveness, speed, and primacy (Matonoha 2009), and it thus entrenches the historical masculinity of the culture of science. Van den Brink and Benschop argue that excellence is 'an evasive social construct that is inherently gendered' and that substantial inequalities are embedded in its construction (2011: 1).

In this paper, I examine the gendered constructions of an excellent researcher against the backdrop of the recent changes in research governance. Specifically, I analyse how lab leaders and research managers envision the research profession and its demands and their implicit and explicit notions of an excellent researcher. I discuss these notions against recent organisational shifts, primarily embodied by the fragmentation of the research career and the expansion of competitive funding, and examine whether their constructions of an excellent researcher carry gender bias. In conclusion I consider the effects of the ethos of the research profession combined with the new governance system and consider whether opportunities exist for reducing gender bias (Morley 2003). Essentially, I seek an answer to what is excellence, what the boundaries around excellence are predicated on and how to think excellence in more inclusive ways.

The results presented in this study are based on my long-term interest in the organisation of research, research assessment, and gender. I focus specifically on the natural sciences because they have been at the forefront of the changes outlined above, forming the heartlands of research assessment (Garforth, Stockelova 2012). The data come primarily from research studies performed at two natural science institutes of the Czech Academy of Sciences, the major public research organisation in the country, and additional interviews with research managers and policy makers, several of them originally also from the natural sciences. Arguably, the situation in the Czech Academy of Sciences is different from universities, which perform the dual role of teaching and research. Research assessment systems have taken a stronger root in the institutes of the Czech Academy of Sciences (and not only in the natural sciences), whereas the situation at universities is more varied, even from faculty to faculty. Because the institutes of the Czech Academy of Sciences can be more easily interpolated by the logic of competition than universities with their dual mission of teaching and research, they offer a particularly suited ground for examining potential gender bias in research assessment.

In this context it is worth noting that men academics, particularly in STEM fields, have been found to evaluate the results of research studies unveiling gender bias as less meritorious than women (Handley et al. 2015). Thus, contrary to the common belief that academics and research managers will be persuaded to take action to

correct gender bias if presented with scientific evidence, this study shows that scientific evidence may be disregarded by people in positions in which they can effect change.² For this reason, I focus on senior academics in leadership and decision-making positions who act as gate-keepers (Aiston, Jung 2015; Husu 2004). Given the predominance of men in these positions in the Czech Republic, my research sample consists almost exclusively of men. This focus is all the more pertinent because one of the research institutes of the Czech Academy of Sciences where I did interviews is currently implementing a gender equality action plan within the framework of a European structural change project, and thus some of the men I interviewed are currently directly responsible for addressing the issues I discuss in this paper.

Gender culture of organisations

Gender is embedded in organisational culture (Acker 1990, 2012) and permeates practices and values in organisations. In contrast to the explicit culture of science which alleges impartiality and value neutrality, the theory of gendered organisation underscores the implicit and unarticulated values, expectations, and practices that are usually rendered invisible, part of how things are done at organisations. The gender culture in research takes many forms: from the idealised image of an absolutely dedicated researcher with no concerns outside science, the related culture of long hours, the prevalence of gender stereotypes and double standards to a possible hostile, competitive, and dog-eat-dog environment, to name a few (Itzin 1995). These values and practices impose 'a set of masculinized expectations' and embody a masculine standard against which women are measured and found wanting (Bevan, Learmonth 2012; Wajcman 2000). In other words, the attributes stereotypically labelled as 'masculine...are valued more highly and taken to be the natural norm' (van den Brink, Benschop 2012: 10).

Research demonstrates that gender differences in attribution of merit and competence stem from persistent stereotypes that portray women as less competent and emphasise their warmth and likeability compared with men (Krefting 2003; Moss-Racusin et al. 2012; van den Brink, Benschop 2011). For example, expressions used to evaluate women and men researchers differ in tenure awards, with men described as analytical, competitive, independent, and individualistic, and as leaders and risk takers, and women as understanding, sensitive, and submissive (Marchant, Bhattacharya, Carnes 2007). Similarly, letters of recommendation for women tend to be shorter,

² This can pose a threat to structural change initiatives such as the NSF ADVANCE programme or the European Commission's structural change projects because top management and research leaders are seen as crucial to the success of such initiatives (European Commission 2012).

contain more doubts, and more frequently refer to the women's personal situations, whereas letters for men more frequently emphasise their research and publications (Trix, Psenka 2003).

Women's professional advancement is further affected by the perceived role incongruity between femininity and positions of authority and leadership (Eagly, Karau 2002; Heilman, Eagly 2008; Heilman et al. 2004; Morley 2013). When women do adopt behaviours typically associated with men and seen as crucial for success, they are penalised:³ they are perceived as bossy, too assertive, competitive, and aggressive, in short, not likeable (Valian 1999; Williams 2005). Gender-stereotypical perceptions of women's and men's capacities and roles then undermine a fair assessment of women researchers and relatedly their ability to progress to positions of authority in the research hierarchy.

This is compounded by an additional gender bias related to mothers – the 'maternal wall' – where researchers who are mothers are regarded as less competent and dedicated and where motherhood and research excellence are regarded as mutually exclusive (Smithson, Stokoe 2005; Williams, Dempsey 2014). Women researchers thus often hide their family commitments in an attempt to avoid bias (Bardoel et al. 2009). This is linked to the traditional notion of the research profession as a care-free zone (Lynch 2010) where women in particular hit *the care ceiling*, which this author argues has been exacerbated by the new managerialism. The intensification of the demands placed on researchers and growing competition in the research system are said to breed egocentrism and a declining sense of responsibility and to accord a moral status to carelessness.

Carelessness has not appeared in research with the recent changes in its governance but is deeply embedded in the culture of scholarly work and science that builds on the separation of emotion and feeling on the one hand and rational thought (Anderson 2015; Lynch 2010). The current organisation of research has reshaped this traditional scientific culture and the stress on the rational autonomous subject. This individual, unencumbered by caring responsibilities, fully mobile, available 24/7, and concentrated only on performance has become the implicit actor of science policies in the EU as in the Czech Republic (Linková 2014, chapter 5). Such an individual fits neatly within the logic of choice that organises the imaginaries of the Western public space (Mol 2008). Seeking an answer to the question of what constitutes good healthcare, Mol contrasts two logics, the logic of choice and the logic of care. In the former people dispassionately weigh options and make rational decisions. Their

³ These findings underscore the limits of approaches such as those promoted by Sheryl Sanberg's *Lean In* (Sandberg 2013) and other 'fix the women' approaches. Clearly, a simple fix of women won't do the job.

choices are individual, cut from the larger social milieu. The boundaries between the private and public are firmly drawn. The latter is messier, the boundaries cannot be firmly drawn, and making a choice is not a meaningful option. The two logics co-exist, each more pertinent in different contexts. What I want to explore here is the extent to which the logic of choice organises the current notions of the excellent researcher and what its limits are, and whether and how we can think of excellence in the logic of care. After all, the big issue is good research.

The research context: an organisational change in the natural sciences and growing precarity

The Czech research system is no stranger to the developments outlined above. Research assessment at the national level was introduced in the Czech Republic in 2004 and natural scientists at the Czech Academy of Sciences played a pivotal role in this process (Linkova, Stockelova 2012). Its introduction held the promise of breaking nepotistic ties because it was based on a seemingly objective points-based system (for details, see Linkova, Stockelova 2012). The natural sciences have also set the tone for larger cultural and organisational changes in Czech academia aimed to increase competitiveness and economic returns on investments in research (Linková 2014; Linková, Červinková 2013). One of the instruments for achieving this has been an increase in competitive funding, to the detriment of the previously dominant institutional funding. The Czech Republic experienced a rapid change in the ratio between the two in the last 15 years. In 2008 when the Czech Government adopted its research and development reform, the plan was to achieve a 50:50 ratio (Vláda České republiky 2008). This goal has been exceeded by a wide margin. At some higher education institutions the institutional funding came to account for only 20% of total financial resources (Dvořáčková et al. 2014: 139). In the Czech Academy of Sciences, which is my focus here, the percentage of institutional funding in total expenditures fell from 63% in 2007 to 34% in 2016 (Akademie věd České republiky 2017).

Gradually, assessment systems were implemented at the institutional level, and in some cases steer the allocation of institutional funding and other resources. The research career is now organised linearly from PhD to postdoc to junior and senior leadership, with some institutes of the Czech Academy of Sciences in the natural sciences having introduced exit rules after the completion of a doctorate to prevent institutional inbreeding.

It is, however, necessary to consider the attendant effects: Performance-based funding fragments the individual career into stages, each with its own competitive sources of funding, again distributed through a system of assessment. The changes in the Czech research system have created precarity, particularly in the early stages

of a career, as well as strong feelings of disconnection and frustration among early-career researchers specifically (Cidlinská, Vohlídalová 2015; cf. Shore, Wright 2015). Today, there is a growing recognition of the detrimental effects of the current state of affairs overall, and the updated National R&D&I Policy 2016–2020 claims that institutional funding should form a dominant part of public research and higher education budgets (Úřad vlády České republiky 2015: 126). This has yet to translate into the actual research and development budget.

Relatedly, competitive funding underlies the repetitive conclusion of work contracts for academics in the face of uncertain funding, with universities and research institutions claiming an exception from the Labour Code. Academics are thus at a greater risk in motherhood and parenthood compared to some other groups of employees.⁴ On an institutional level, the short-termism combined with competitiveness creates avenues to terminate work contracts, and the statistics on the attrition from academic careers in natural sciences suggest that women are at a much greater risk than men. In 2015 women accounted for only 25.8% of a population of 16,376 natural scientists, but the proportion of women among master's students in 2015 was 41.7% and among doctoral students it was 45.7%. The gap closed the most among PhD graduates, where women accounted for 42.2% in 2015, up from 37.1% in 2005. The biggest drop in the proportion of women making the transition into an academic career from a postdoctoral position is in the natural sciences of all the disciplines: in 2015 it was 15.4 percentage points, up from 11.3 percentage points in 2005 (Národní kontaktní centrum – gender a věda 2017). Clearly, women are being trained in the field, but this is not reflected in the profession, and the situation is deteriorating.

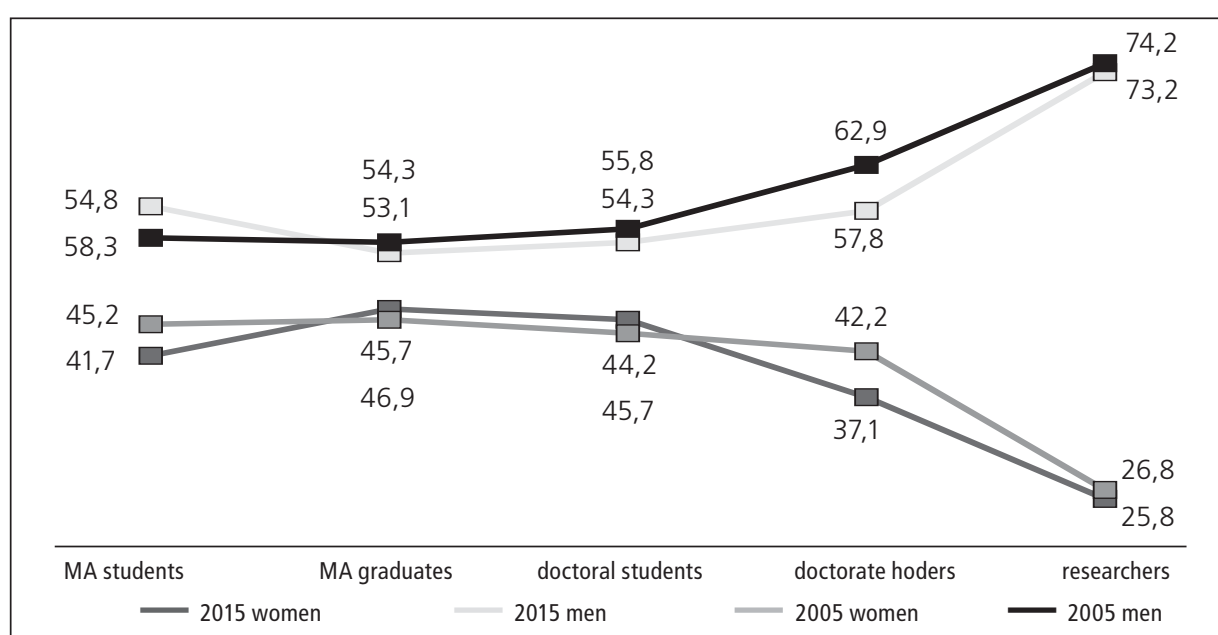
One of the attendant factors may be the Czech family policy and the ideology of motherhood extant in the country. Currently, in addition to a 28-week maternity leave reserved for mothers prior to and after childbirth, there is a three-speed system of parental leave with two-, three-, and four-year leave alternatives. Although the parental leave is available to both fathers and mothers, the frequent and expected practice is that women will spend three years on parental leave.⁵ This is often involuntary due to the scarcity and unaffordability of day-care facilities, especially

⁴ The Labour Code stipulates that temporary contracts can be consecutively concluded only three times, with each contract for a maximum length of three years. It presupposes that if the employer wishes to keep the employee, they will employ him or her on an unlimited contract. Studies in the country show that this is particularly problematic for women planning or having a family because if their contract expires during the maternity or parental leave they are not entitled to the job protection enjoyed by women working on an unlimited contract, which continues to be a dominant form of employment in the Czech Republic, especially among people with higher qualifications but not in the academic sector.

⁵ In 2016 men accounted for 1.86 recipients of the parental allowance (Czech Statistics Office 2016: 180, Table 5-7).

for children under two (Vohlídalová 2013, 2014). Thus professional advancement of women researchers is thus jeopardised by expectations and norms of parenting because women often hit, quite literally, the maternal wall represented by the lack of childcare, terminated work contracts, and unequal distribution of domestic work, which is further reinforced by the long parental leave which is further aggravated by the long parental leave (Vohlídalová, 2017, 2013). Examining the value judgements of people in positions of authority and power may thus shed light on some of the reasons why women are not thriving in the field.

Figure 1: The ideal-typical path in 2015 and 2005 in the natural sciences (%)



Source: Národní kontaktní centrum – gender a věda (National Contract Centre for Gender & Science) 2017: 23.

Research data and methodological concerns

The projects from which the data informing my analysis were collected all focused in some measure on gender in research and advancing gender equality in research.⁶ The fact that these projects span a decade make them an ideal source for examining the changeability/durability of constructions of an excellent researcher and what it

⁶ Owing to anonymisation issues and a confidentiality agreement with one of the institutions, I do not provide a detailed specification of the projects as it would identify the institutions. Two of the projects were conducted under the EU's 6th Framework Programme, one under the 7th Framework Programme, and one with the support of the Grant Agency of the Academy of Sciences of the Czech Republic.

takes to succeed in research. The first project started in 2004 when a research assessment system was first introduced in the country and the most recent one is finishing at a time when the research community and policy makers are debating the unanticipated negative consequences of the changes outlined in the section above.⁷

The two institutes where I carried out a longer-term study are seen as excellent and have a strong international standing. They are also highly successful in generating external funding either from the private sector or competitively. While they have a strong interdisciplinary component, they have been historically located in chemistry and environmental change.

Project	Individual interviews (M/F)	Group interviews (M/F)
EU FP 6 – 1: data collection 2006-2007	7/1 lab leaders	1/2 lab leaders
EU FP 7: data collection 2015-2016	4/0 research managers 2/0 lab leaders	
EU FP 6 – 2: data collection 2006	5/0 policy makers and politicians	
Grant agency of the Czech Academy of Sciences: data collection 2008-2009	9/0 high-ranking researchers involved in Czech science policy-making through membership in the Research, Development and Innovation Council and ministerial expert bodies	

My analysis here builds primarily on individual and group interviews with natural science lab leaders, research managers (directors, executive directors, scientific secretaries), and policy makers. Given the predominance of men in leadership, managerial, and decision-making positions in the country and specifically at the institutes studied, a large majority of the research participants were men. In the two projects where women held lab leadership positions, they were interviewed. No woman held a managerial or high-ranking policy position at the given time.

My sampling for this study was purposeful; the lab leaders, research managers, and policy makers are figures in positions and power, with a wide and strong reach

⁷ One of these projects entailed an ethnographic study, which allowed me to study in detail the changes in the organisation of research in the Czech Academy of Sciences and particularly in the natural sciences (Linkova 2014; Linková 2014).

to shape the practices and values of the profession. As van den Brink and Benschop (2011: 12) argue: 'Standards of merit are constructed by powerful academics who stand to benefit from a construction that is presented as a precise, objective, and univocal measure of excellence.'

Given the difficulty of the topic of gender equality, I opened the interviews with more neutral topics, ones that I knew would have traction among my research partners. In the earlier projects the opening question asked about major changes in research pre- and post-1989, the year of the political change in the country, which marked a major turning point in the organisation of research. In the more recent projects, the interviews opened with questions about what constitutes research quality, how my interview partners recognise it, and how it relates to excellence. Through gradual reflection on research assessment and the assessment system instituted in the country and how it relates to excellence, I steered the interviews to questions about women's under-representation in research, whether there are any barriers to women's professional advancement in research, the neutrality of the research assessment system, and who is responsible for the improvement of women's career opportunities, including women's representation in decision-making positions.

In numerous instances the age difference between my interview partners and myself proved extremely useful in that I was treated as a younger colleague who needed to be explained how things *really* work. This made my interview partners very explicit about the values they profess in how they manage their teams and institutions and what they consider necessary for research success. My junior position also allowed me to ask supplementary questions which in other settings might be seen as uninformed.

I used Atlas.ti to code and organise the data through a multi-stage inductive approach. Starting with open coding for 'success', 'successful researcher', 'research assessment', and 'research career', in the second step I refined the codes into categories that related to various aspects of success and barriers to success, such as time demands, cognitive demands, and performance demands, and employed critical discourse analysis to identify gendered notions embedded in the participants' statements.⁸ The analysis in this paper builds on my previous work where I examined the notions of success among women and men natural scientists and how they are gendered and affected by position in the institutional hierarchy and career stage (Linková 2009). Focusing here only on people in positions of power allows me to address how particular (in this case gendered) notions can be institutionally maintained and reproduced.

⁸ This type of coding is facilitated by the Czech language and its use of the generic masculine.

Masculine gendering of the research profession

I now turn to the presentation of my findings, and focus on analysing the categories generated through the coding process. First I look into how the research participants enact the culture of research and with what gendered assumptions, and second I examine the particular assumptions about researchers-mothers and women's and men's alleged skills in relation to research excellence. Interestingly, these statements reflect the growing managerialism and importance of research assessment only in relation to the growing importance of impact factor publications and other indexes but not, for example, in relation to the complexity of leadership skills identified by van den Brink and Benschop (2012).

My research participants discuss the demands of the research profession primarily in terms of dedication and the demands of the research profession that underscore the persistence of the idealised notion of science as a mission. The binaries that arise from their statements – embodied/disembodied, complementary, and hierarchically ordered women's and men's skills – were the only ones discussed by the research participants. This is significant because they locate unequal position and access to power and leadership in women, their bodies, and related responsibilities as primary carers and mothers.

To illustrate the conflicting ideologies of the fully dedicated researcher and the ideology of motherhood applied to women researchers, I will discuss at greater length an excerpt from an interview with a prominent lab leader, as it captures in a comprehensive manner the opinions and values other research participants discussed in less intertwined manner. This is how he described the demands of the postdoctoral stage:

A postdoc cares about one thing only. He wants to launch his career and he needs – in that year or two he will be here – as many publications as possible. A postdoc will give his soul. A postdoc will give his soul to science.

This absolute dedication, surrendering oneself to the demands of the profession, is in practical terms linked to the culture of long hours, to being constantly available.

Saturdays, Sundays, there is always work. Some call this workaholism but there is no other way. Either it gives you joy, and if it doesn't, you have to abandon it...I expect this sort of effort, whoever doesn't want that shouldn't be here.

In this account, science subsumes all parts of an individual's life. This sort of work ethic must be enjoyed; anything less is a compromise. It introduces a moral against which individuals are judged. In other accounts, too, lab leaders and research managers espouse the notion of a researcher as a disembodied worker (Acker 1990)

revolving around total concentration on work, repeatedly described as 'being ablaze' and 'having the flame'. In their responses, motherhood and professional breaks are a postscript, an addendum that does not figure in their description of the fully dedicated researcher. When I inquired in the research interview quoted above whether the same rules and demands on work ethic apply to people who have children, the same group leader immediately replaced the ideology of the disembodied worker with an equally exclusionary, though differently so, ideology of motherhood when he continued:

Nothing can be done. Now we're dealing with this, a great female PhD student, she is happily married. There is nothing, no higher priority, you can't forget about family just for a scientific career, family must come first, support from the family is necessary; my children can't imagine that I would do anything else than work...
(all three quotes from a lab leader, male)

This excerpt is interesting for several reasons. The first part of the quote before my insertion about family presumes that a great deal of exertion is required to develop a scientific career that will lead to an independent position, which is regarded as the ultimate goal of a research career in the natural sciences. The individual researcher stands here alone, cut off from the social, family, or geographical milieu, and always available. Although I did not use an explicit reference to motherhood or women scientists when I formulated the follow-up question about children and family, the lab leader's answer did. It excludes men from the possibility of being the ones entangled in relationships of caring, and it is explicitly formulated from the perspective of women (e.g. a 'great female PhD student'). Smithson and Stokoe (2005: 156) use the term 'generic female parent' or 'generic she' to describe how discussions of parenthood presume that only women and not men are concerned. Noteworthy about the quote is also the importance attributed to women's parenthood (e.g. 'no higher priority', 'family must come first'), which was shared by other men in the sample. In the case of women researchers there is, thus, not only the presumption that they will want to dedicate themselves to the family, but there is also a value judgement that assigns the most value to women's motherhood. The morality against which a postdoc is judged is incompatible with the morality against which women fulfilling their womanhood through motherhood are judged.

In view of the fact that this quote was framed by a question regarding when and how many hours the group leader worked, it is telling how he returns to his *own* family in the close of his answer: 'My children can't imagine I would do anything else than work.' He evokes here the original notion of the highly consuming work deployment which he demands from members of his group and himself. The insert that came

in response to my question thus underlies the Otherness of active/caring parenthood in the lab. His notion of paternal parenting is *a priori* that of a distant father, a father who is absent from the private sphere, focused solely on his achievement in the sphere of paid work.

In the new competitive organisation of research, research performance takes on the particular form of building a publication track record and a competitive CV with fellowships abroad. This is, in fact, what the postdocs will give their soul for. To return to the quote, in the forefront we see a father who is absent from his family and fully devoted to his work and who claims that his family could not even imagine it otherwise. Active/caring parenthood and concerns of care are invisible, displaced from the lab, thereby making it possible to insist on the extreme individualised work exertion that is expected particularly in the early stages of the research career. These value judgements are then used to judge the work dedication and career prospects of women and men researchers. As Williams and Segal (2003) Williams & Segal (2003: 80) argue, it is this notion of 'an ideal worker who has a man's body and men's traditional immunity from family caregiving [that] discriminates against women'. Because of the supreme value attributed to women's motherhood in Czech society, professed repeatedly by the interviewed lab leaders and managers, and because of the strongly embedded notion of research as a mission and sacrifice, it remains particularly difficult to carve out a space where the issue of work-life balance can be addressed as an institutional issue. From their perspective, there is nothing they can do and *de facto* they do not see much meaning in the projects focused on advancing gender equality in research or on understanding gender inequity because the innate and naturally given facts of women's and men's life cannot be changed.

The care ceiling: motherhood as the natural handicap

I will now turn to how lab leaders and research managers regard motherhood and the ability of researchers-mothers to perform the scientific ethos discussed above. Explicitly, researchers-mothers were discussed as unavoidably unable to commit fully to science because they must dedicate themselves to children. In the interviews, practically all lab leaders and managers framed scientific excellence as mutually exclusive with motherhood. Being a good mother requires a whole person and her mind, just like being an excellent researcher does. No such demands were placed on fathers and it was even reflected that fathers have an easier way out, while they also lose out in terms of time spent at home with their children. Women scientists were thus implicitly excluded from imaginaries of an excellent researcher.

It is true that, really, a woman cannot think 100% about science, especially if she has a family, and, simply, I know this isn't right but that's the way it is. (Top management, male)

It is difficult because scientific work is something else, it can't be postponed. And equally, mothering care can't be postponed either ... Here I see the biggest problem, because I was really able to totally ignore childcare because I knew that I could rely on my wife ... and I see the biggest problem in the switching – that childcare needs to be thought about constantly and scientific work does, too. (Top management, male)

In their responses, motherhood is mentioned as the single most important barrier to women's professional advancement in science. Motherhood is a 'natural handicap' that cannot be overcome; it is innate and takes women's energy and ambition away from research. Furthermore, women can never make up for the time 'lost' caring for children, and continue to be handicapped for the rest of their professional life. Some lab leaders and top managers thus propose alternative career paths for women, though when judged against the scientific ethos discussed above such a strategy would clearly trap women at the lower rungs of the professional ladder in auxiliary positions. Such a proposal also begs the question whether the alternative path is at all viable in the competitive research landscape predicated on a succession of short-term contracts, as discussed above.

All the interviewees variously discussed the impact of motherhood on women's research advancement and recognised the consequences of the gendered distribution of roles and responsibilities between mothers and fathers. Despite this recognition, many of the lab leaders and research managers I interviewed continued to envision the advancement of a research career as an individual choice a woman either makes or not, irrespective of the symbolic, structural, interpersonal, and individual conditions facing women and men in their careers. In line with the logic of choice (Mol 2008), they pit the public and the private against each other and at the centre of their argument is individual choice.

On the one hand, these men then assign a high value to motherhood and consider it proper for women to sacrifice career advancement for childcare; on the other hand, they place the responsibility for the failure to fulfil the demands of a research career on the woman. In their accounts, though, science is enacted as immune to these 'external' concerns, which they locate in social policy, in the family, and in accessible childcare facilities. These areas are regarded as of no concern to these top managers and lab leaders, who refuse the notion that the research institution or they in their capacity have any responsibility for creating non-discriminatory working conditions. It is remarkable that these interviewees should place so much stress on the women's

individual agency and responsibility, yet completely reject their own responsibility as leaders and managers.

This displacement is possible through the separation of the domain of science with its demands from the demands of other social institutions and their collectives (for example, the family). Researchers and research managers manage to maintain the separation between science and work-life balance issues by mobilising a particular notion of science, 'an incredibly specific activity' that demands 'huge personal sacrifices'.⁹ Operating according to the logic of choice allows them to create space to shift the blame for the low numbers of women in science to women researchers themselves. It allows them to argue that women opt out by having different life priorities and that they should not be forced to give up their 'womanhood'. Thus, they can maintain that the organisation of research is neutral and its practices not gendered. Conditions in the scientific labour market are regarded as uniform and as placing equal demands on women and men; it is up to women whether they can take advantage of these equal conditions and whether they can make the right choices.¹⁰ When they do, there is nothing to stand in the way of their success in research. This hyper-visibility of work-life balance contributes to reinforcing gender stereotypes. It effectively stops any further discussion about gender inequalities in the organisation of research. With the concept of the policy of inactivity (Tenglerová 2014) examines discursive practices mobilised by policy makers as a strategy that allows them to not take any action to combat gender inequality in research and research institutions. The lab leaders and research managers I interviewed adopt such a policy of inactivity,

⁹ At the same time, research is often discussed in the Czech Republic as a profession that is suitable for women thanks to its large degree of flexibility in terms of being able to choose work hours. While this may be true in general, my research suggests that when flexibility is discussed specifically in relation to combining work and personal life, issues of mistrust and control of work performance come to the fore. Clearly, the advantage of flexibility is regarded differently in relation to different situations and needs. Moreover, the alleged suitability of the flexible academic work must be understood in the context of their other statements about full dedication and concentration. This looseness to the way flexibility is applied to academic work and women and men academics reinforces the perception that one is responsible for one's own performance and failure.

¹⁰ In a recent discussion of a newly proposed mobility scheme in the Czech Republic, I highlighted the fact that a six-month postdoctoral fellowship will pose barriers to women's uptake, as research has already shown, and that there should be an opportunity to the scheme into two parts (the way the Czech Science Foundation does with Junior grants). The response was that the aim was to support excellence exemplified through the duration of the fellowship, and that the scheme will offer funding for family relocation. When I then asked how many men the auditorium knew who would be willing to relocate with their partner-researcher to take care of children so that the woman could devote herself to the long hours expected from postdoctoral fellows, there was silence. Clearly, the implicit masculine model has a firm hold on the imaginary of the mobile researcher and continues to orient research policy.

too, as a strategy to deny the relevance of gender differentials in science, with the consequence that the high attrition rate of women from science especially in the postdoctoral stage remains on the margins, if not outright outside their concerns as research managers and lab leaders.

The glass ceiling: gendered notions of leadership skills

The motherhood-related barriers to women's career progress are compounded by the persistence of gender stereotypes related to qualities a person allegedly needs for leadership positions and the perception of different skills and abilities that women and men researchers supposedly bring to research. These are related to being able to show masculine traits – being assertive, having sharp elbows, showing some aggressiveness, or being able to argue and communicate in male-only groups and enjoy risk-taking.

...Unfortunately, in leadership positions, not only here but generally, men predominate. She has to be a bit of a predator so as not to get lost because some of the guys are bulldozers. (Lab leader, male)

I can't and would never say that these qualities could not be found in a woman, but the atavism of aggression – a woman won't achieve this, I hope [laughter], sometimes the position of team leader is secured through some aggression, and I think that, taken generally, that's the way men have gotten there. (Top management, male)

The way I see it is that guys simply like risks so they submit grants, they have the time to devote to it at the weekends, and generally it is perceived that women don't devote so much to it... (Top administration, male)

In these accounts we can see additional gendered notions that bar women from professional advancement. Firstly, leadership is predicated on being aggressive and ambitious, being a 'bulldozer' that can withstand the culture of male-only groups. For some of them, however, women like that would be violating the code of likeability, and they express the hope that their women colleagues will not show signs of aggressiveness.¹¹ Secondly, leadership positions also presuppose energy and time, and women allegedly lack both. What is problematised here is not the masculine notion of leadership, but the perceived lack of it in women. The interviewed lab leaders and managers may have mentioned women's interpersonal skills, empathy,

¹¹ Two research participants made explicitly negative remarks about women colleagues who did not conform to traditional femininity, refused help, acted assertively, and insisted on recognition of their contributions to papers. This breach resulted in the women being penalized as unlikeable, which in one instance translated into unwillingness to cooperate with the woman.

and ability to negotiate. However, these positive aspects of a different leadership style are in the end undercut by the overriding need for toughness (cf. van den Brink, Benschop 2011).

Related to this are perceptions of the different cognitive styles of women and men researchers, which can be summarised as men having a synthetic approach to issues, having a 'bird's-eye view', and looking at problems globally. Women, in contrast, are allegedly analytical and fastidious, with attention to detail, suited for routine work. These qualities are regarded as complementary; one lab leader actually strives to have 'a gender balance in their teams', he claims, to make the most of this allegedly innate, sex-based difference between the scientific abilities of women and men.

I think we managed to change a team that was purely masculine into a team where it is half and half, the way I imagined it to be 10 years ago, because it has huge advantages. Even in our team I can see that female colleagues do not have the thrust and the initiative to go after a project or take up a new challenge. They're, let's say, analysts and people who do great experimental work, meticulous work, but they lack a bird's-eye view, which is something that male colleagues have. ... On the other hand, male colleagues have a tendency to see the whole, but that's why they do not see the details and often make mistakes, so it's ideal if these two approaches combine. But the synthesis approach, that's the one that creates grants, it's the one that puts teams together, so I think that it's partially given by, I don't know if it's a coincidence in our team, but really it functions in this way that women colleagues are analysts and male colleagues are the ones doing synthesis. (Team leader, male)

Generally it seems to me that women are sort of more meticulous, the guy has a bird's-eye view, but if he has to do more routine work for a longer period of time, it goes to pot... (Team leader, male)

These quotes illustrate the strongly embedded unconscious gendered presumptions about how women and men researchers work. This notion of complementarity of cognitive styles (analytical/synthetic) makes it possible to stress 'gender balance' within the team, but by distributing cognitive styles between men and women and associating one with leadership and vision and the other with meticulousness and routine, the unequal gender binary is reinforced while it is cloaked in the progressive language of diversity and gender balance. These attitudes create an obstacle located in women's cognitive styles against women's progress to positions of responsibility.

Here, again, we can see the problem being located in women. In this particular display of benevolent sexism, women do not even need fixing because the allegedly innate cognitive difference is useful for work distribution in the team. Completely absent from these statements is the recognition that if these lab leaders and

managers explicitly profess this division of roles in their teams and institutions, they may be, in fact, creating barriers for women, and especially early-career doctoral and postdoctoral fellows, to overcome the 'useless modesty' some of these men complained about. In the next section, I discuss the limits of individual choice, and what it obstructs from view when we think of excellence.

Research excellence and the limits of individual choice

The logic of care, Mol argues (2008: 89), is first and foremost practical. It is about improving – in this case improving science. Until recently, science did not have to defend itself; its benefits were seemingly self-evident. Since the 1970s, however, and especially in the last two decades we have seen the rise of new governance, which questions this self-evident good and has instituted controls to guard a particular version of the good that science produces – performance indexes, assessment systems, and competition as an organising principle. This change in governance is primarily located in the logic of choice and the performing individual, as if the efficiency of knowledge-making processes could be planned and controlled. This is the research culture we see in the narratives of lab leaders and managers, where people are regarded as making free autonomous choices for which they are individually responsible. In this way, the complexity of being in research is placed on the shoulders of the individual, and it is their fault if they crumble under the weight.

The autonomous choice serves to obfuscate other realities and values that permeate the research profession and our lives more broadly – collegiality, mutual respect, responsibility and recognition, fairness and justice, and sometimes even solidarity. It renders invisible the circumstances in which people organise their professional and private subjectivities. In this discussion section, I want to consider the vantage point of the logic of care. The use of the word *care* should not evoke some simple and gendered association of childcare and women. Rather, as Mol says, we always belong to collectives, and not just one but many, and we are responsible for our participation in these various collectives. Firstly, I will address what the logic of care brings into focus in terms of research performance, secondly in terms of research careers, and thirdly in terms of research management.

The new research governance has created a highly competitive culture of publish or perish, which propels the research culture towards heightened egotism with strong affective claims on individuals (Morley, Crossouard 2016). In the process, the Czech assessment system, and it is not alone, leaves out many activities: work for the academic community (such as organising seminars and conferences, supporting early-career researchers, critically reading colleagues' papers) or public engagement (through outreach, mentoring, contributing to public debates on major societal issues).

The research profession cannot do without these sorts of labour, as they either ensure its functioning or serve to build accountability towards society. The logic of care thus underscores the oft-repeated need to rethink the system of assessment, to be more cognisant of the varieties of work that go on in the research profession, what Longino (2008) calls 'care for excellence'. This would also valorise the type of activities and skills that women today tend to perform more than men researchers (Gibney 2017).

Secondly, the logic of care puts a spotlight on mutually constitutive, binary gendered relations, and makes visible a curious blind spot when considering research careers, one that is facilitated by gendered doublethink. On the one hand, we have seen that the research participants recognise their own career progress as allowed by their ability to exempt themselves from care and house work and its performance by their spouses. On the other hand, they frame women's career progress as a woman's choice to have or not have children and to make the proper arrangements at home. The individualised framing thus allows the research participants to disregard the contingency of men's professional advancement upon their partners' circumscribed aspirations and women's limited opportunities for advancement given the difficulty of negotiations of domestic work and childcare at home (on the notion of linked lives in relation to academics' mobility, cf. Vohlídalová 2014). It also allows them to disregard potential demand for alternative arrangements of men's careers to include caring commitments.

Thirdly and relatedly, the logic of care pushes to the forefront aspects of the managerial culture that are, in fact, positive: the responsibility of managers and lab leaders to lead well, to take care of their institutions and researchers, and for the induction of early-career researchers, and for creating equitable and non-exploitative work conditions. This would make them open to interpolation for their managerial skills by their subordinates, and in fact would make institutional leadership open to assessment not just in terms of publication performance but also in terms of the conditions they create for professional growth and development. Research policy and institutions and their representatives in the Czech Republic largely ignore this aspect of institutional development. We have seen that the research participants in my studies insist that they do not have any responsibility for creating fair and equitable conditions for professional advancement and women's representation in leadership positions. A move toward excellence conceptualised in the logic of care would thus require that we recognise that research and society are not separate, that researchers are part of multiple collectives in and out of science, and that this multiplicity of belonging makes an individual choice an ill-suited vehicle for drawing meaningful and equitable boundaries around excellence.

Conclusion: displacement of responsibility and care for excellence

In this paper I examined how excellence is defined by lab leaders and research managers in the natural sciences. Firstly, I attended to the masculine orientation of the research ethos, which builds on the notion of science as a mission performed by a devoted researcher with no commitments outside science. Given the rise of the competitive research assessment in the country, this masculine culture of research is reinforced by the stress on risk-taking, toughness and competitiveness. Secondly, I discussed how their notions of proper motherhood and the role of motherhood in women's lives amplify the perceived obstacles to women's excellence in research, making it *de facto* untenable. Thirdly, I discussed the perceived barriers to women's leadership skills embedded in their perceived softness and, importantly, in their allegedly innate cognitive properties.

Clearly, masculine culture and practices are not an all-encompassing explanation for the under-representation of women in these disciplines and their gendering; it is co-constituted at the intersections of public policy, the organisation of research, the organisation of domestic life, and individual subjectivities (Barad 2003; Morley 2016). Nevertheless, it is important to specifically analyse these presumptions because they create symbolic barriers for women to carve out spaces of excellence as these are, actively even if invisibly, circumscribed by the values and practices of these lab leaders and research managers.

My findings suggest that lab leaders and research managers define equality as equality in difference, where men and women are regarded as different by nature. Several interviewees stated that the differences between men and women are desirable and should not be abolished even as they admitted that they limited women's possibilities to advance professionally. This was also evident in their propensity to frame the complementarity of women and men in relation to different skills and capabilities, and their prioritisation of the alleged synthetic capabilities over the analytical ones. Thus, by framing equality as equality in difference and men and women as being complementary, many of the interviewees were able to confine the issue of gender equality to motherhood and to side-line issues of power and the inequitable distribution of recognition.

At the same time, these lab leaders and research managers continue to insist on framing researchers and their excellence in the logic of choice, as autonomous individuals that make independent decisions for which they are fully responsible. They are able to maintain the doublethink about the innate difference and sameness of women and men, which provides them with a powerful avenue through which to exempt themselves from their responsibility as research managers, leaders, and colleagues. In contrast, looking at excellence and research performance through

the prism of the logic of care allows us to see that this approach is inequitable and that it veils differential access to excellence for women and men researchers. It also allows us to insist on the leaders' agency and responsibility towards the research community they lead.

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