The First Encounter

Framing Research Collaboration Through Screens

Vedel, Jane Bjørn

Document Version
Final published version

Published in:
STS Encounters - DASTS working paper series

Publication date:
2011

Citation for published version (APA):
Vedel, J. B. (2011). The First Encounter: Framing Research Collaboration Through Screens. *STS Encounters - DASTS working paper series*, *4*(2), 175-202.

STS Encounters
Research papers from DASTS
Volume 4 · Number 2 · 2011

http://www.dasts.dk/

ISSN: 1904-4372

The First Encounter
Framing Research Collaboration Through Screens

Jane Bjørn Vedel

DASTS er en faglig forening for STS i Danmark med det formål at stimulere kvaliteten, bredden og samarbejdet inden for dansk STS-forskning samt at markere dansk STS tydeligere i nationale og internationale sammenhænge.

The First Encounter
Framing Research Collaboration Through Screens

Jane Bjørn Vedel

Much work in Science and Technology Studies (STS) assumes that scientists enter into research collaborations as entities characterized by difference. It is assumed that in order to collaborate these differences must be aligned. In this paper, I investigate the intriguing role of difference in collaboration by looking at an empirical case of research collaboration between a pharmaceutical company and a not-for-profit research organization. The case raises the question of whether sameness in collaboration is always necessary and, consequently, whether difference as such is a hindrance to research collaboration. I conclude the paper by suggesting that if collaboration is in fact not held back by dissimilarities this suggests a need to rethink the dynamics of science-industry relations.

Introduction

In recent years, research collaboration between academic and corporate scientists has become a matter of concern for policy makers as well as research managers in academia and industry. Often, both in public research policies and in university and company strategies, science-industry collaboration has been presented as a catalyst for advancing science for the benefit of society as well as for the involved collaborators. The same policies and strategies, however, often emphasize that science-industry collaboration is difficult and demanding due to inherent and often incommensurable differences between the respective goals and processes of academia and industry.

In the literature on research collaboration in Science and Technology Studies (STS), it is often assumed that research collaboration requires some kind of alignment of the differences in culture, theory and practice that scientists bring into collaboration (Knorr Cetina 1999; Fujimura 1987, 1996; Galison 1997; Stengers 1997, 2000). Consequently, the question of how to overcome these differences has been widely studied, and a variety of answers have been proposed. For instance, Peter Galison suggests that scientists' diverging beliefs and practices can be coordinated *locally* without at the same time homogenizing global differences between them (Galison 1997: 783). In what he calls local "trading zones", subcultures of physicists, for example, invent specific rules of exchange and detailed contact languages that temporarily allow them to *conform* to a common cause (ibid.). In Joan Fujimura's work alignment is not related to particular "zones" but rather to on-going negotiation and construction of standards (Fujimura 1987, 1996). She suggests that the making of a "doable" problem is related to endless "articulation work" and alignment around so-called "standardized packages" of theory and methods (Fujimura 1996: 187-200). Karin Knorr Cetina is interested in the wider epistemological and cultural mechanisms that hold scientific communities together. She suggests that scientists align differences within "epistemic cultures", where particular cultural arrangements decide what can be known in a given field. Consequently, collaboration within a culture is easier than collaboration between cultures (Knoor Cetina 1999). Isabelle Stengers has a similar interest in what links scientists and suggests that linking is only possible through interest. To interest a scientist in something is not easy, however, but requires that the scientist thoroughly *tests* the proposed hypothesis, a point to which I will return in the discussion. Together these examples from the literature on collaboration raise the intriguing question of how to analyse the role of difference in collaboration between academic and industrial scientists.

In this paper, I study the nature of difference and sameness in collaboration. I use an empirical case to explore this: a research collaboration between the Mayo Clinic in Florida, a not-for-profit research organization and Lundbeck, a Danish pharmaceutical company. My

interest in this particular collaboration developed during my fieldwork in Lundbeck from 2009 to 2011. Often, this collaboration was debated among research managers in Lundbeck as an example of some of the challenges that arise from collaboration with scientists in "academia" (as we shall see, what belongs to academia and what belongs to industry is contested in this case, where scientists hold positions at universities while working in industry). Also, there was some ambiguity as to whether this particular collaboration was a success or not. Although the first encounter with the Mayo Clinic had brought out more differences than compromises between the two research groups, it nonetheless led to a long-term collaboration that ran from 2007 to 2011. In my account, I use Deleuze's notion of "screens" (1993) to identify conceptual filters that frame knowledge, interaction and practice in particular ways. This allows me to explore how scientists from Lundbeck interpreted the first meeting with the scientists from the Mayo Clinic and how they constructed themselves as scientists in relation to them.

The following account is based on an ethnographic study of this collaboration *from the perspective of Lundbeck scientists and research managers*. My analysis takes its point of departure in a description of the first meeting between the Mayo Clinic and Lundbeck. I did not attend this meeting. Instead, I participated in internal meetings and discussions at Lundbeck that followed in the years during which the collaboration ran. My account of the meeting is based on interviews with the research managers from Lundbeck, who participated in this first meeting. Therefore, what I present in the following is a retelling of their accounts of what took place during the meeting.

First, I introduce the encounter between the Mayo Clinic and Lundbeck and describe how I intend to develop and use "screens" as analytical device for my study of research collaboration. Then I identify two types of screens that framed the first meeting between the Mayo Clinic and Lundbeck: an industrialist/scientist screen and a scientist/scientist screen. I give examples of screen changing. Finally I consider what we learn about the notion of the screen from the analysis and discuss the implications of "screen-mediated collaboration" for thinking more generally about the dynamics of science-industry relations.

The Meeting

In 2007, five research managers from Lundbeck travelled to the Mayo Clinic in Jacksonville, Florida. The trip had the purpose of discussing opportunities for future collaboration with the Neuroscience Research department at the Mayo Clinic. This included finding out whether the scientists at the Mayo Clinic were working on research questions of potential interest to Lundbeck. If this turned out to be the case, the research managers were interested in formulating a joint research project. For some time, they had been searching for a "strategic alliance" with a group of "academics" working in the field of neurodegenerative diseases. In their search, they had scrutinized the scientific literature on disorders in the central nervous system and the Mayo Clinic had caught their attention. They had noticed, for instance, that the names of several scientists from the Mayo Clinic appeared in connection with key discoveries concerning Alzheimer's and Parkinson's disease. Looking further into the Mayo Clinic's assets and organization, they also noticed that Mayo Clinic scientists had built up a strong toolbox for investigating particular biological mechanisms related to Alzheimer's disease, including transgenic animal models. The research managers now saw opportunities in getting access to these technologies and investigating new ideas with them. The Mayo Clinic seemed to be an interesting alliance partner that would potentially help the research managers make important future decisions about research.

In addition to finding out whether there were good reasons for collaborating with the Mayo Clinic, the meeting also had the purpose of getting a sense of what it would be like to work with scientists from the Mayo Clinic. In order to develop an impression of the Mayo Clinic, the head of research in Lundbeck had gathered a group of

experienced and scientifically strong managers. Besides the head of research, the group consisted of the divisional director of neurobiological research, a department manager within the same area, a senior scientist and a business developer.

According to my interviews, the group of research managers from Lundbeck were not exactly sure about the *kind* of arrangement they would prefer to set up with the Mayo Clinic. They had not, for instance, defined a specific research project that they would try to convince the Mayo Clinic scientists to work on. Rather, they had made a list of questions and experiments that they would guess needed answers in order to develop an Alzheimer's drug. Thus, they came to the Mayo Clinic with what one of the research managers described as "an open mind" and a broad interest in what the scientists from the Mayo Clinic would suggest. They were meeting the Neuroscience department at the Mayo Clinic. During interviews they said they expected this meeting to lead to a great deal of input and new insights that they could take guidance from.

Prior to the meeting at the Mayo Clinic, the head of research from Lundbeck and the department manager of Neuroscience Research at the Mayo Clinic had met to discuss collaboration scenarios. A business developer from Lundbeck and a technology-licensing manager from the Mayo Clinic also attended this pre-meeting. The head of research and the department manager had known each other for years and had often discussed various ideas for collaboration. However, until now they had not succeeded in defining a research project that would equally satisfy their interests. According to the head of research, the department manager at the Mayo Clinic was always looking for ways to get new funding for the research that already took place at his department. Getting funding had become more difficult, due to both general cut backs of grants from the National Institutes of Health and internal reorganizations between Mayo Clinic's research sites both of which affected the Neuroscience department at Mayo Clinic. Often in the past, the department manager had presented ideas that the head of research at Lundbeck had evaluated to be "too early" to engage with because the link to a potential drug was too vague. However, the head of research explained, the financial pressure on the Mayo Clinic seemed now to have become so severe that the department manager was willing to try out new types of collaboration with companies, even if this meant accepting more risks. Likewise, the head of research at Lundbeck had started thinking in new terms. New reports, such as Pricewaterhouse-Cooper's "Pharma 2020: Which path will you take?" had come out suggesting that the current business model of the pharmaceutical industry was both economically unsustainable and operationally incapable of acting quickly enough to produce the types of innovative treatments that global markets demanded. Ideas such as this had inspired the head of research to start formulating new research strategies that involved both engaging in research at stages that he used to think of as too early and engaging external partners in the process of developing new ideas. Thus, it seemed that the interests of the head of research and the department manager at the Mayo Clinic were starting to overlap.

At the pre-meeting, which took place at Lundbeck's American research site in Paramus, the head of research from Lundbeck and the department manager from the Mayo Clinic discussed ideas for a model for collaboration. The department manager proposed an arrangement in which there would be a clear distribution of roles. Scientists from the Mayo Clinic would be responsible for the research deliverables and Lundbeck would primarily participate by funding the work that took place at the Mayo Clinic. According to the head of research' account, the department manager from Mayo Clinic explained that he preferred that scientists from Lundbeck would not get access to the labs at the Mayo Clinic since this would only "complicate things". However, getting access to these labs was exactly what the head of research from Lundbeck was interested in. He suggested that the arrangement between the Mayo Clinic and Lundbeck would not develop into a "proper collaboration" before the two parties were working *together* on a specific research project.

It was his impression, he later explained, that the pre-meeting with the department manager led to a shared ambition of setting up such a "proper" collaborative arrangement. In line with this, he prepared his group of research managers for a meeting with the scientists at the Mayo Clinic in which they would discuss scenarios for a new type of collaboration.

The meeting between the two groups of scientists was planned as a one-day scientific seminar at the Mayo Clinic. According to my interviews, the group of research managers expected a presentation of the research that was taking place at the Mayo Clinic. In return, they had prepared a presentation of their research interests in neurodegenerative diseases. However, as I'm about to show, the group from Lundbeck was surprised by *the way* the department members presented their research. Especially, they were wondering about the way the presentations and the following dialogue suggested that the group from Lundbeck had particular "industrialist" interests in the data that differed from the Mayo Clinic researchers' "scientific" ones.

The meeting was hosted by the department manager from the Mayo Clinic. Most of the day, it took place in a large conference room at the Mayo Clinic. The five representatives from Lundbeck sat side-by-side facing a large projection screen. From the Mayo Clinic 10-20 scientists participated in the meeting. They came in, walked to the screen, put on their slide show and then left the room. Some of them would stay around for a while; listen to one or two presentations from their colleagues and then slowly get up and leave the room. In this way, there was a constant flow of people in and out of the room. After each presentation, the Lundbeck representatives asked one or two questions. At the end of the meeting, the Mayo Clinic department manager turned towards the Lundbeck representatives and said in a summarizing manner: "Well, this is what we got, what do you want?"

During an interview, one of the Lundbeck representatives in the room later explained that when the department manager asked this question she knew for sure that the two groups had completely misunderstood each other. However, in hindsight, she explained, several things during the meeting had already suggested to her that they interpreted the situation in very different ways. During the meeting she had, for instance, been wondering how they would eventually be able to have a joint group discussion of which research projects to pursue when the individual researchers from the Mayo Clinic left the room shortly after they had presented their own research. The research managers from Lundbeck and the department manager were the only ones, who sat throughout the meeting and listened to all of the presentations and were now able to compare them. However, she later suggested to me that the particular set-up of the meeting with the Mayo Clinic scientists entering the room and "slipping away" was maybe not as odd as it first appeared. It was, rather, illustrative of the fundamental differences between "corporate" and "academic" culture. As she argued, it might in fact be that she was wrong to expect that the academics from the Mayo Clinic would act as a group sitting in front of her group. As academics it was likely that each of them would have their own individual interests in a particular research topic. In contrast to this, her group was more open towards new ideas and had a broader interest in "whatever would turn out to be potentially of value for developing a new treatment".

What is going on in this meeting from the perspective of the Lundbeck research managers? And what do we learn about the making of difference and sameness in collaboration? In the following I explore the nature of the "misunderstanding" that the research manager from Lundbeck accounts for above. At first sight, it seems that there are multiple readings of the situation at play, and that they contrast in ways that are somewhat confusing to the research managers from Lundbeck. In my account, I want to go beyond the popular recognition that people meet each other with prejudice and projection, and that misunderstandings such as the one pointed out above are the results of individual psychological constructs. Instead, I am interested in understanding how this particular interpretation

of the encounter with the Mayo Clinic emerges. I am also interested in how "moves" are made with the purpose of changing particular interpretations. To do so, I use the notion of a *screen* as an analytical device or heuristic.

I take the concept of the screen from Gilles Deleuze who states that "the screen makes something issue from chaos" (Deleuze 1993: 86). Without being very specific about what makes screens, Deleuze says that screens are to be understood as conceptual filters that are inseparable from chaos. "Chaos does not exist", he says, rather it is always "screened" and emerging in a particular way (ibid.). I take this broad understanding of the screen from Deleuze and use it for identifying what I call categorizing screens that appeared at the meeting between Lundbeck and the Mayo Clinic scientists. As I go further into the material, I look for repertoires and structures that support a particular screen making. I look specifically at what the screen does once it is made and what kinds of interaction it opens up. As an analytical device, the potential strengths of "the screen" lie in its conceptual flexibility: it is possible to emphasize instances of both alignment and difference, and even investigate, as I will do in the following, processes in which readings, or screens, that differentiate the participants transmute into screens that align them. In contrast, concepts such as the "trading zone" or "epistemic cultures" seem not to imply this analytical flexibility as they immediately direct the attention of the analyst to processes of alignment, letting collaboration with difference remain somewhat unexplored.

I focus primarily on two types of screens that emerged during the meeting, a screen that made a separation between industrialists and academics, and a screen that constructed a common identity of "the scientist". There were, of course, many other screens at play both during this particular meeting and in the long-term course of the collaboration. For the purpose of this paper, however, I choose to focus only on these two screens to make a point about how research collaboration involves processes of both sameness and difference that are worth exploring further. Also for the purpose of the following account, I have taken a number of people from Lundbeck and constructed them as one voice although, during the interviews, they were not as homogeneous as I describe them. Thus, seeking to capture the workings of screens implies that in my analysis I *screen off* some of the heterogeneity present in the accounts.

The Industrialist/Scientist Screen

What was the "misunderstanding" about? In their preparations for the meeting the research managers from Lundbeck had focused on the obvious similarities between the two groups of researchers. *Like* the scientists from the Mayo Clinic, they were interested in what they described as an "in-depth" understanding of the biological mechanisms involved in neurological diseases. Their new strategy suggested that "basic research" understandings of these mechanisms might lead to new platforms for making drugs. In addition, they were concerned with the link between "basic research" and clinical activities. At the Mayo Clinic, they encountered a similar concern since the Mayo Clinic had both "basic research activities" and a clinic. Based on these impressions from preparing the meeting, they were expecting a debate in which both the Mayo Clinic and Lundbeck representatives would have the "competency" and interest to discuss across concerns for basic research and commercial activities. However, what they encountered was scientific presentations that, on the one hand, did not seem to connect with their interests and open up for a joint discussion and, on the other hand, were handed to them along with the initiative to decide how to tailor them to "industrial" needs. In other words, the "misunderstanding" seemed to have something to do with the way the meeting resulted in a separation of the participants into two diverging groups: Lundbeck "investors" and Mayo Clinic "scientists".

Although the making of this separation took the research managers from Lundbeck by surprise, they also pointed to certain aspects of the meeting that made this reading possible and even likely. I

suggest that both organizational and economic resources structured the emphasis on the divergence of the two groups that the Lundbeck researchers took away from the meeting. The reading did not appear out of thin air because, from a certain perspective, a group of industrialists came to visit a group of academics in order to do business. First, there is a formal organizational difference between the two interacting groups. On the one hand, we have a Danish pharmaceutical company that specializes in disorders in the central nervous system. On the other hand, an American not-for-profit research organization working in several research areas among which neurodegenerative diseases is one.

Second, although the exact terms of the collaboration was not decided prior to the meeting, the pre-meeting had led to the understanding that Lundbeck would be paying the Mayo Clinic as part of the collaboration. What was still unclear was the extent to which scientists from Lundbeck would participate in developing research ideas and guiding the work that took place at the Mayo Clinic. In this sense, it was not unreasonable to read the meeting as an encounter between a "buyer" and "seller" of science. However, as the head of research from Lundbeck expressed during an interview, it was utterly surprising that the Mayo Clinic would even put themselves into these categories because, as he explained, now they had the opportunity to get a proper scientific input from Lundbeck in addition to the payments.

Finally, the reading of the set-up as an "investor meeting" also drew on repertoires and ideas about what generally characterizes a science-industry encounter and what differences are to be expected in such meetings. For instance, when the research manager from Lundbeck in hindsight suggested that she might have been wrong in expecting that the Mayo Clinic people would be interested in her general discussions about drug development opportunities, she was not only referring to experiences at the meeting but also bringing into play broader ideas about the cultural differences between "academia" and "industry". For instance, she referred specifically to

structures at the university that make academics "individualist" and more interested in specific topics and ideas than industrialists. During the interview she reflected on the very idea of being able to find similarities that she entered the meeting with: "We cannot make them shift to new topics even if we wanted to. It wouldn't be fair and they would never do it, even if they were under financial pressure." Put differently, the particular separation of Lundbeck industrialists from Mayo Clinic "academics" was bringing into play broader repertoires stemming from policies, individual experiences, public understandings of science etc. that place companies at one end of a spectrum and non-profit actors at the other end. Also, in their reflections on the meeting, the Lundbeck researchers constructed the scientists from Mayo as "academics", a point that I will return to.

Looking closer at how the Lundbeck research managers reflect on the meeting, it becomes clear that an industrialist/scientist reading of the situation is also emerging from particular socio-material factors in the situation. First, the research managers from Lundbeck noticed a lot of activity in and out of the room. This activity made it difficult to start a joint discussion because the participants in the meeting never formed as a group. The walking in and out of the meeting constructed the participants as having different roles. The Mayo Clinic scientists were doing their individual presentations. The Lundbeck representatives were surprised that they were asked to choose from the different proposals as they were hoping to get advice from the Mayo Clinic scientists on where and how to invest. The ending remark from the department manager "this is what we have, what do you want?" fuelled this reading of the situation by making a sharp distinction between the "assets" of the Mayo Clinic and the "demand" from Lundbeck. At this point, a researcher from Lundbeck explained, the course of the meeting did not suggest that the two groups would eventually *work together* on a joint research project.

Second, according to the Lundbeck researcher's reflections in hindsight, the very presentations also distinguished Mayo Clinic scientists from the Lundbeck research managers. During an inter-

view, one of the research managers from Lundbeck described how the presentations produced some confusion since they seemed not to be coordinated between the Mayo Clinic scientists. This left her with the impression of being "bombarded with data":

> We didn't know what we wanted within the biology of tau. They were the ones to give us that input. If it had been their gamble and their money, what would they do? Were we to look for the toxic species of tau that one of the researchers suggested? One researcher said, "I think it's these fibrilar kinds that are important". Another one said that he thought it was the volume that was important. But they didn't agree.

Prior to the meeting, the scientists from the Mayo Clinic seemed not to have, as the research manager from Lundbeck expected, compared and discussed data across presentations. Rather data was thrown at them – hence the perception of being "bombarded with data". Instead of providing the group from Lundbeck with the research ideas that they were looking for, the presentations merely led to a feeling of being overwhelmed. In these accounts, the Lundbeck research managers put themselves onto the screen. Although they complain to be screened as "industrialists" they make comments that support this reading. Being bombarded with data is a rare objection among researchers. In contrast, it is common in industry to ask for focus and framing of a problem or task.

The presentations had another important effect. During interviews, one of the research managers from Lundbeck mentioned that the presentations were surprisingly "high level" as if it were a "scientific meeting". However, while presenting detailed scientific data on proteins and mechanisms that the individual Mayo Clinic scientists were working with, they did not, according to my interviews, include the group from Lundbeck in their talks; here the analogy with a scientific meeting stopped. The way the data was presented

to the Lundbeck visitors suggested that the audience would not be interested in or able to understand the level of complexity and detail in the presentations, they said. However, as they moved through presentations this started to displease the research managers from Lundbeck. The research managers became gradually more engaged in the presentations and started asking questions that would illustrate how they were wrongly construed as industrialists and fully capable of taking a scientific approach to the data. At first, the Mayo Clinic scientists did not treat the questions from the research managers as worthy of serious consideration but continued to display their differentiation of Mayo Clinic scientists and Lundbeck managers:

> You hear it in the way they respond to you. It takes a while before they start responding scientifically to your questions. Our questions were very scientific and specific, but in the beginning they sort of dismissed us.

What did the construction of a industrialist/scientist screen accomplish in the meeting? First, the screen seemed to sideline the research managers from Lundbeck from science. The science that the Mayo Clinic researchers presented was presented as "ready-made" science (Latour 1987), i.e. it was introduced as a package that could be accepted or declined by an investor. It was far from the science-in-the-making (ibid.) that the Lundbeck representatives were expecting. Simultaneously, the screen sidelined the Mayo Clinic researchers from considering the commercial potential of their research. The ending remark by the department manager suggested that the Mayo Clinic "academics" were unable to evaluate the commercial potential of their research and were leaving this judgement to Lundbeck industrialists.

Second, the screen had the effect of producing a particular idea of collaboration. The group from Lundbeck was expecting "a strategic alliance". According to their new strategy, this meant engaging in

collaboration with external research groups on topics that they were not experts in themselves, but nonetheless able to take part in as scientists with a scientific training in biology or chemistry. However, although they were potentially short of expertise in these situations, they expected that their new open approach would be met with an invitation to joint collaboration. One researcher from Lundbeck explained that his idea of collaboration as "putting efforts together" was completely contrasted with how collaboration was screened during the meeting.

> We have a hope that we can move forward much faster if we put all of our efforts together in this, whereas the way I think they understood the situation was "they are here to put down a payment".

According to this researcher, the Mayo Clinic scientists read collaboration as taking place following a particular order and a distribution of tasks. Collaboration would not involve much face-to-face interaction but rather centre on an exchange of results at specific points in the collaboration.

> They saw it as a sequential thing. That is, that first they would do something and then we would take it and pay something for it and then their tech transfer would make sure that they got what they needed to get out of it.

From the perspective of the Lundbeck research managers, the Mayo Clinic scientists' reading of the collaboration as a series of well-planned deliverables from the Mayo Clinic to Lundbeck dismissed the scientific merits of the group of Lundbeck researchers. One of them explained that he was a bit disappointed by being treated as a "cash cow" when he was in fact "scientifically challenging" some of the ideas presented. Why was this not noticed, he wondered. During the meeting he became more and more uncomfortable with the implied perception that the Lundbeck representatives would be likely to "think in boxes" and therefore had a precise idea of what they wanted. This was not the first time that he encountered this reading but something he had often met before:

> We need to go beyond the idea that the industry partner is a cash cow in relation to these projects. In these situations we have to take them by the hand, because that is an understanding that we meet very often – that is that we just give them money and then they can keep on working on whatever they want to work on.

If the Lundbeck representatives were all familiar with the possibility of being construed as industrialists why did it then surprise them and come up as a "misunderstanding"? First they explained that in their preparation they had noticed many similarities between Lundbeck and the Mayo Clinic. They did not see the Mayo Clinic scientists as academics exclusively involved in basic research. Instead they had noticed that the Mayo Clinic seemed to be driven by a genuine wish to develop new treatment for patients.

> They [the Mayo Clinic] also had as a declared goal that their research should produce something that would eventually be of benefit to patients [...] There was no doubt that their research was driven towards an indication at the other end, it wasn't basic exploration as such.

In addition to this, the head of research explained, they had become particularly interested in the fact that the Mayo Clinic was also a hospital. In this they saw an option for involving clinicians in the research collaboration. In other words, several circumstances led the Lundbeck scientists to believe that there would be a strong link

at the Mayo Clinic between basic and clinical research and they were interested in making use of this link. Consequently, they explained during interviews, they were not expecting it to be too difficult to connect. They had met the Mayo Clinic department with a group of their most experienced and skilled scientists. They were expecting the researchers from the Mayo Clinic to be excited about the overlapping interests as well as the fact that the Lundbeck researchers were proposing an open and explorative approach that presumably would fit well with the interests of the "academics" at Mayo Clinic. In this situation it seemed that they were forgetting that the Mayo Clinic scientists were in fact not working in an "academic" environment, but as scientists at a research institution and clinic. However, it seemed that constructing the Mayo Clinic scientists as "academics" was a way of producing a new screen that screened the Lundbeck researchers as scientists rather than industrialists.

The Scientist/Scientist Screen

From the perspective of the Lundbeck scientists an industrialist/scientist screen dominated the framing of the meeting between the Mayo Clinic scientists and the Lundbeck representatives. Yet, the research managers from Lundbeck attempted to change the screen. I now explore the work that is involved in screen changing. One of the Lundbeck managers explained during interviews that although the "high level" of the presentations and the lack of inclusion in debates had distracted him, he eventually became absorbed in the ideas that were presented. He started asking specific questions to the science. What methods were used in this experiment? If this is the case here, what does it take to do the same in this case? During one of the presentations, a scientific debate formed. The Mayo Clinic researchers showed signs of interest in his inquiries.

> At some point then they start to realize I was asking some questions. It was a completely new discovery and very exciting for us as we were all getting involved in a scientific discussion.

During interviews, the research manager explained that there was a specific point in the discussions where the department manager from the Mayo Clinic realized "his mistake":

> Then all of a sudden the department manager interrupts and says: "wait a minute, this is actually a very good suggestion". It was also new to them and they didn't know [...] it was a different way of interpreting the data.

According to the research manager, this moment made the meeting open up and gave him an opportunity for changing the screen. During the debate that the research manager from Lundbeck now described as "animated", the research manager from Lundbeck mentioned that he had published scientific work on the topic they were discussing. In fact, he held a position as associate professor at a large well-esteemed Danish university while at the same time being divisional director at Lundbeck. Laying down what he described as his "Associate Professor card" changed the situation completely. "I immediately became an academic," he explained. By this gesture, it seemed that the scientist/industrialist screen transmuted into a scientist/scientist screen:

> Right away, the talk goes around the table. "Oh he's also at the University of Aarhus?" and things like that. Then you're in. Sometimes they even check your CV, most of the time they expect that you will then have an interesting CV. It takes a really long time before they notice that you're not just a big pocket of money. It's a different form of interaction that we get into.

What work does the scientist/scientist screen do in the situation? It is notable that there is a change in the direction of attention at the meeting and different kinds of actors now come into play. Before the researcher "laid down his card", the attention was directed at the presentations and the projection screen. When the screen changed from the perspective of the Lundbeck researcher, the attention became directed at the other group – as the researcher explained, "the talk goes around the table". It seems that the Lundbeck researchers were able to get into the kind of interaction that they were originally hoping for and that they thought would lead to the most fruitful collaboration.

What does the scientist/scientist screen draw on? Although the researcher from Lundbeck explained that changing the framework did not go without difficulty, the scientist/scientist framework did not come out of thin air. The Lundbeck researcher drew on well-known scientific "indicators" such as associate professorships, CVs and publications in scientific journals of interest to the group. In addition, he explained that he was careful about the way he asked questions to the presentations. He would not ask questions relating to the potential value of the research, as an investor would be expected to do. Instead, he asked questions to the specific experiments and research questions that had gone into producing the data.

According to the Lundbeck research managers, the screen changed in significant ways during the first meeting. This made it possible to "get on with the work" and turn the encounter into a collaboration, which I will soon return to. However, a separation of the Lundbeck representatives and the Mayo Clinic scientists did not completely vanish from the collaboration. After the Mayo Clinic scientists had presented their ideas, the Lundbeck researchers presented their research ideas and aspirations. As mentioned before they had prepared a presentation prior to the meeting and, as one researcher explained during interviews, they had deliberately not included "business talk" into the presentation but kept it "strictly scientific". With this presentation, they wanted to show "their commitment to research". However, the Lundbeck representatives never gave their presentation, not because they found it irrelevant to the discussions that formed, but because the Mayo Clinic scientists had asked them not to give it. At the first meeting, the department manager explained he was afraid that the Lundbeck presentation would contain data that would eventually become a problem for the Mayo Clinic scientists' freedom to operate. To him, knowing what the Lundbeck researchers knew implied a risk that he was not willing to run. The information could, at a later point, eventually prevent the Mayo Clinic from claiming a particular research result as their property or prevent them from publishing certain ideas as their own. The "open and free" interaction that the Lundbeck researchers found promising for "a proper collaboration" was suddenly a threat to the Mayo Clinic. In this situation, the industrialist/scientist emerged in a new form according to the Lundbeck meeting participants. For a moment, they suggested, it seemed that the concern for "profit" had entered the relation, however this time it appeared to be primarily a concern of the Mayo Clinic. In this way, according to the Lundbeck researchers, the industrialist/scientist screen first placed them on the industrialist side and the Mayo Clinic at the academic/open-minded side, and later appeared in a new form and in reverse, displaying the Mayo Clinic as the most profit-oriented partner of the two.

Based on this account of the first encounter between groups of scientists from the Mayo Clinic and Lundbeck, one might think that the industrialist/scientist screen was fatal for the formation of a collaboration between Mayo Clinic and Lundbeck. However, the following accounts from research managers in Lundbeck of how the collaboration evolved tell a different story. The surprise relating to the way they were framed during the meeting did not lead to a failed collaboration. A failed first meeting, at the most. So how was the encounter turned into a collaboration? According to one researcher from Lundbeck, formulating a research proposal did this. Despite

noticeable differences between the two parties, both groups were interested in working together. At the end of the meeting, a researcher from Lundbeck suggested that the Mayo Clinic researchers translated their presentations into "grant applications" that would aim at developing a drug. As mentioned before, the Mayo Clinic was facing financial problems and the Neuroscience department was already spending considerable time on applying for external funding. Also many of the researchers at the Mayo Clinic had held academic positions at universities before they came to Mayo Clinic, and the idea of sketching a research proposal was perfectly well-known to them. The two groups decided to have a second meeting. In the meantime, the individual researchers at the Mayo Clinic wrote a research proposal that was sent to Lundbeck. After having prioritized the proposals, the Lundbeck researchers came back to the Mayo Clinic for the second round of meetings in which they had sessions with the individual scientists whose ideas they found the most interesting. After rounds of adjusting the proposal, a contract was made. It contained three research projects that each had an assigned principal investigator from the Mayo Clinic and engaged scientists from Lundbeck as well.

From interviews with Lundbeck researchers, it seemed that the production of a joint research proposal and eventually a contract screened the two groups as researchers. Was the scientist/scientist screen then a first step in creating a kind of sameness among the participants of the meeting? I suggest that during their first encounter a slightly modified version of a scientist emerged. Although, or perhaps because, differences between the participants had been displayed they "invented" a common identity of the scientist as someone, who is knowledgeable about and value publications, degrees and past positions. This might indicate, like has been suggested by much literature on science-industry relations, that forces of alignment will always be stronger than divergence in successful collaborations. I do not see the first encounter between Lundbeck and Mayo Clinic scientists this way. Instead, I propose we focus on the moment where the research manager from Lundbeck attempts to change the screen, and see it as an instance of connecting the two groups while maintaining a sense of difference. His intervention did not erase the idea that the Lundbeck participants were "industrialists", who know what they want, but it did create an understanding among the collaborators that scientific endeavour can take many different shapes and be carried out for different reasons.

Discussion

In this paper, I have explored the nature of difference in research collaboration. I have asked the question of whether successful collaboration always implies aligning of differences in interests, backgrounds and aims that the participants enter collaboration with. I have suggested that using the notion of the screen allows for analysis of how both difference and sameness are made in collaborative practices. Specifically, I have been interested in how divergence emerges. The empirical account that I have given suggests that it is certainly possible to collaborate *with* difference. It seems that the making of strongly differentiating screens in first encounters between groups of collaborators does not make collaboration less interesting or impossible to engage in. However, having said this, the analysis also suggests that part of what takes place in collaboration is negotiating these screens so they do not entirely disconnect the collaborators. The scientist/scientist screen that was eventually made in the meeting between the Mayo Clinic scientists and the Lundbeck research managers did not remove or reduce difference. Rather, it made an important shared object emerge: The slightly modified scientist. This object created a framework, which held the differences between the two groups in place and allowed them to develop.

What does this tell us about screens? First, there are, of course, multiple screens. I have focused on two screens that I found were of particular importance to the researchers at Lundbeck. Other ana-

lysts would have seen, for instance, gender screens, age screens separating senior managers from junior scientists, or cultural screens distinguishing the Danish participants from the American. Second, there is a risk of misconstruing "emerging screens" in realist terms, producing accounts of filters that appear and immediately become apparent to everybody in the room. This is not the case. Screens are made and unmade, and as the account shows, with some effort they can be exchanged with other screens. The analysis also shows that screens are not made *out of nothing*; they are situational and constructed out of available economic and organizational structures as well as prevalent repertoires for understanding, in this case, science-industry interaction. Third, screens are partial and seen from particular positions. It seems that the research managers from Lundbeck all recognized the industrialist/scientist difference, which I refer to as screen. Also, they recognized the scientist/scientist difference, which they thought that the Mayo Clinic researchers did not see, or rather, did not see until it was strongly suggested to them. It is therefore more accurate to talk of *"screening"* than "screens", in this way emphasizing several important aspects of screens: the *process* of making a screen, what a screen *does*, and the *use* of a screen for the purpose it has been made for. This would also give more emphasis to the "screening *devices*" that are used in making and changing screens such as, in this case, publication lists, professorships, and research proposals.

What are the implications of the analysis in this paper for thinking about science-industry relations? More generally, the analysis suggests that collaboration does not always require alignment and that sameness is not always the product of working together. This challenges the idea that relationships between universities and companies are as such a *threat* to academic research, an idea that has been put forward as a critical "convergence argument" in parts of the literature on science-industry relations (Croissant & Restivo 2001; Kleinman & Vallas 2006; Krimsky 2003; Owen-Smith 2006; Resnik 2007; Vallas & Kleinman 2007) and by Isabelle Stengers (Stengers 2011). What is this assumed threat to academic research about? According to Kleinman & Vallas, for instance, the problem is that when universities and companies collaborate, they converge in an "asymmetrical" way (Kleinman & Vallas 2006: 37). The authors argue that although the new hybrid outcomes of collaboration are based on codes and practices from *both* the universities and industry it is the logic of *profit* that wins in the process of converging. Whereas industry adopts the codes and practices of academic culture *in the interest of increasing profitability*, academia draws on industrial codes and practices for commercial purposes or because of the legitimacy that universities gain by adopting elements of commercial culture (ibid.). In other words, Kleinman & Vallas argue that something is *lost* in the process of collaboration and this will always be at the "academic side" of the equation. However, the image of a risk is based on the idea that collaboration is always a matter of *reducing differences*. If we look at things from a position within industry like I have done, things look slightly different. I suggest that it is not always the case that "industry wins". Above I have shown how attempts to collaborate brought out more differences than compromises. The specific relations established did not "compromise academic science", but brought out nuances in positions and perceived identities. Also, as the analysis in this paper suggests, it is not always the industrialists who are dominating the relation, and, consequently, we might reconsider the very idea of an *asymmetrical* relationship. At least, asymmetry must be considered in the individual case.

Isabelle Stengers has put forward a general critique of science-industry relations based on reflections on the effects of the knowledge economy on scientific processes. First, she argues that what links scientists is interest. As mentioned earlier, interest, or *inter-esse*, is not easily accomplished but requires thorough testing and scrutinizing because becoming interested in something implies the risk of being wrong (Stengers 1997: 83-84). The bonds of interest between scientists are crucial for producing scientific *reliability*,

she argues. The problem is, according to Stengers, that in collaborations between scientists and industrial partners, scientists do not feel the same duty to produce facts that resist their colleagues' objections (Stengers 2011: 54). They will not be equally encouraged, she says, because "industrial interests do not need experimental reliability". My analysis does not support this very general idea of industrialists' concern for reliability. Rather, it suggests that being able to challenge data and ideas was an important concern for the Lundbeck and the Mayo Clinic scientists alike. In addition to this problem of creating opportunities for challenge, Stengers further argues that in order to collaborate with industry, academic scientists must submit to *common goals* at the expense of their own scientific aspirations (ibid.). My analysis does not seem to support this idea either. In fact, it suggests that common goals are not as crucial for scientific collaboration as often assumed. Collaborators can make bonds that are not based on similarity, but make room for diverging interests and aspirations. This suggests that we start to think about science-industry relations in terms of divergence and creativity rather than in terms of convergence and threat. As also suggested by Winthereik (Withereik 2011: 81), we might direct our attention towards the particular "objects of collaboration" that create subtle connection points between collaborators without eliminating difference. In addition, rather than drawing a general picture, this approach would open up for accounts of the *particular* implications and pitfalls of science-industry collaborations.

References

Croissant, J. and S. P. Restivo (2001). *Degrees of Compromise: Industrial Interests and Academic Values.* Albany: State University of New York Press.

Deleuze, G. (1993). *The Fold*. London and New York: Continuum.

Fujimura, J. (1987). "Constructing 'Do-able' Problems in Cancer Research: Articulating Alignment." *Social Studies of Science* **17**: 257-93.

Fujimura, J. (1996). *Crafting Science. A Sociohistory of the Quest for the Genetics of Cancer*. Cambridge, Massachusetts: Harvard University Press.

Galison, P. (1997). *Image and Logic. A Material Culture of Microphysics*. Chicago and London: The University of Chicago Press.

Kleinman, D. L. and S. P. Vallas (2006). "Contradiction in Convergence. Universities and Industry in the Biotechnology Field". *The New Political Sociology of Science. Institutions, Networks, and Power.* S. Frickel and K. Moore. Wisconsin: The University of Wisconsin Press**:** 35-62.

Knorr Cetina, K. (1999). *Epistemic Cultures: How the sciences make knowledge*. Cambridge, Massachusetts: Harvard University Press.

Krimsky, S. (2003). Science in the Private Interest. Has the lure of profits corrupted biomedical research? New York – Oxford: Roman & Littlefield Publishers, Inc.

Latour, B. (1987). *Science in Action*. Cambridge, Massachusetts: Harvard University Press.

Owen-Smith, J. (2006). Commercial Imbroglios. Proprietary Science and the Contemporary University. *The New Political Sociology of Science. Institutions, Networks, and Power*. S. Frickel and K. Moore. Madison, Wisconsin: The University of Wisconsin Press**:** 63-90.

Resnik, D. B. (2007). *The Price of Truth: How Money Affects The Norms Of Science*. Oxford and New York: Oxford University Press.

Stengers, I. (1997). *Power and Invention. Situating Science*. Minneapolis and London: University of Minnesota Press.

Stengers, I. (2000). *The Invention of Modern Science*. Minneapolis and London: University of Minnesota Press.

Stengers, I. (2011). "Comparison as a matter of concern." *Common Knowledge* **17**(1): 48-63.

Vallas, S. P. and D. L. Kleinman (2007). "Contradiction, Convergence and the Knowledge Economy. The Confluence of Academic and commercial Biotechnology." *Socio-Economic Review* **6**(2): 283-311.

Winthereik, B. R. (2011). "Hopeful comparison on the brink of the grave." *Common Knowledge* **17**(1): 77-81.

Biographical note

Jane Bjørn Vedel is an industrial PhD scholar at Department of Organization at Copenhagen Business School and Lundbeck a/s. She studies the dynamics of science-industry collaboration with a special focus on reseach management.