To My beloved parents and brother

NEUROSCIENCE, GENDER AND MORALITY: A NEURO-FEMINIST DEFENSE

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ABSTRACT

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Neuroscientific research shows that female brains and male brains have differences in terms of grey and white matter, corpus callosum size, hormone levels and the complexity of neural connections between the two hemispheres. Although the case does not present a problem on its own, the subject becomes problematic for the feminist philosophy of mind as the neural data is used in a sexist way to justify certain behavioural differences between women and men. Neuro-sexist view assumes that brain is hard-wired, therefore it is not capable of change. It is also claimed by many psychologists and philosophers that high amounts of testosterone cause significant changes in behaviour. Therefore, many gender normative arguments are believed to be justified as they depend on scientific information. In my thesis, I argue against this view suggesting that there might be some neurological and hormonal differences between a female's brain and a male's brain, but these differences are not the reason why there are psychological and behavioural differences between the two sexes. I claim that if there are any behavioural differences, they are mostly caused by psychological manipulation and social environment in which the individuals are brought up. I will challenge the neuro-sexist theories by making a close meta-analysis of the researches and the data, and then I will support the argument by bringing up some theories from the philosophy of mind. Lastly, I will investigate the moral side of this problem adopting a view from feminist ethics.

Key words: Gender Norms, Neuro-feminism, Philosophy of Mind

ÖZET

NÖROBİLİM, CİNSİYET VE ETİK: NÖRO-FEMİNİST BİR SAVUNMA

Çamlıca, Gizem
Yüksek Lisans, Felsefe Bölümü
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Nörobilimsel araştırmalar, kadın ve erkek beyni arasında gri ve beyaz madde, corpus callosum boyutu, hormon seviyeleri ve iki lob arasındaki nöral bağlantıların karmaşıklığı açısından farklılıklar olduğunu göstermektedir. Bu durum tek başına bir sorun teşkil etmese de, veriler kadın ve erkekler arasındaki davranışsal farklılıkları cinsiyetçi bir şekilde açıklamak için kullanıldığından feminist zihin felsefesi için bir sorun oluşturmaktadır. Nöro-cinsiyetçi görüşe göre beyin değişmez bir şekilde kodlanmıştır. Aynı zamanda birçok psikolog ve felsefeciye göre erkeklerin yüksek oranda maruz kaldığı testosteron davranışlarda önemli değişikliklere neden olmaktadır. Bu nedenle, birçok cinsiyet normlarının bilimsel verilere dayandırılarak gerekçelendirildiğine inanılmaktadır. Tezimde, kadın ve erkek beyni arasında nörolojik ve hormonal farklılıklar olabileceğini, ancak bu farklılıkların iki cinsiyet arasındaki psikolojik ve davranışsal farklılıkların nedeni olmadığını savunacağım. Eğer davranışsal farklılıklar varsa, bunların çoğunlukla psikolojik manipülasyon ve kişinin içinde yetiştiği çevreden kaynaklandığını öne süreceğim. Nörobilimsel araştırma ve verilerin dikkatli bir meta-analizini yaparak nöro-cinsiyetçi teorilere karşı çıkacağım. Daha sonra argümanımı güçlendirmek için zihin felsefesinden bazı teorilere başvuracağım. Son olarak, feminist etikten bir görüşü benimseyerek problemin ahlaki boyutunu inceleyeceğim.

Anahtar Kelimeler: Cinsiyet Normları, Nöro-feminizm, Zihin Felsefesi

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TABLE OF CONTENTS

CHAPTER I

ANALYSIS OF THE NEURO-DATA

1.1. Introduction

The data acquired from fMRI and PET scans point to some specific distinctions between the brains of a male human and a female human. Supposedly, there are differences in terms of the density of neural connections, corpus callosum size, proportions of grey and white matter, the size and operation of androgen hormones (Hoffman 2014, 42). Although the scans test merely blood oxygen levels in the brain, the data is believed to be sufficient for making greater assumptions. This approach towards the scientific data requires further attention on the grounds of meta-analysis and questioning the value and efficiency of the tests. But also, it requires scrutiny from the perspective of feminist philosophy of mind as the claims made up on the data are on the way to becoming dangerously sexist.

1.1.1. Neurological Differences Across Sexes

Neuroimaging studies have been providing the data for the theory that a female's brain is different than a male's brain. The differences in neuronal activities, neural density, brain region size, hormone receptors and proportions of grey and white matter are asserted to be existent in the two sexes by many neuroscientists. A female's brain, for instance, is claimed to be wired in a way that both hemispheres of her brain have more neural connections than a male's brain, and they are used equally in a language and visuo-spatial task. On the other hand, it is argued that a male's brain is "more lateralized" (Fine 2011, 136), or to put it differently, men use one side of their brain more than the other in a specific task, because the neurons

connecting the both hemispheres together are not as dense.[1] This difference is analysed in such a way that it explains the presumed behavioural differences between women and men; for instance, why women are better at empathy and making emotional connection with others while men usually lack this skill compared to women.

It is possible to argue that there are many problems about the above claims. The first thing one notices might be that there is a gap in knowledge between the neuroimaging data and the behavioural and psychological differences across genders. This empirical gap dates back to the philosophical problem of whether the physical gives rise to the phenomenal. Until it is proven that brain states are mental states, all assumptions suggesting that the sex-based differences in the brain result in psychological and behavioural differences must be avoided. The theory seems to be making a very fast assumption about gendered brains, while it should be an issue first whether there are genders and if so, how they can be determined.

Another problem raised by claims about male and female brain differences is that neuroimaging studies require a meta-analysis in order to ensure the correctness of the data, such as the unreported data from the studies which affect the statistics to a great degree, the number of participants in a test, and the variables in the health conditions of the participants which can change the fMRI and PET results drastically. It is believed by many researchers in neuro studies that even women's menstrual cycle and changes in hormone levels of both sexes affect the results (Fine 2011).

[1] I acknowledge the existence of biological and neurological differences between females that may lead to behavioral and mental differences. What I claim is that the particular set of mental and behavioral differences attributed to males and females do not necessarily have neurological basis and could be explained with other factors, such as self-conception, biases, education, social norms, and so on.

Therefore, it seems that more attention must be paid to the test results and how much they really matter for the issue. This requirement of meta-analysis considering the structure and validity of the tests is also an issue in the philosophy of science, thus the argument must follow a logical path. One other problem one can find about the tests is that the data is used to justify gender differences in a severely sexist way. It should be noted that the data is scientific, although there is much debate about the scientific value of the tests as well, but the assumptions made based on the data are merely assumptions and they must be analysed carefully as it will also be a problem in the philosophy of science that ethics of science is often disregarded in terms of these interpretations. There are a lot of studies which handle data bias specifically in neuroscientific research. One outstanding book, for instance, written by Caroline Criado Perez, questions the methodology and detects explicit data bias. She notes, for instance, that although most of the research is conducted on male subjects, there are many arguments related to females (Perez, p. 138), ignoring the fact that the data gap is too big to make distinct deductions. I will not prolong the claims Perez makes here, yet I believe it will suffice to say for now that her book *Invisible Women* is full of examples of sex-based data bias in science.

Turning back to the problem whether there are genders or whether they can be determined readily, we come across some neuroscientists suggesting that there is no such thing as a female brain or a male brain. Both sexes' brains are exposed to different amounts of oestrogen and testosterone, along with many other hormones, which supposedly results in behaviour (Fine 2011). This behaviour is not necessarily gender based. One claim is that they are individual based. This means that each and every individual is exposed to different amounts of hormones and many other

stimulators that result in both temporary and permanent changes in their brains. Therefore, every brain is different regardless of the sex. This theory is both appealing and plausible. However, some sexist assumptions based on the neuro-data ignore this view and present the case as if women are run by only oestrogen and men only by testosterone. This realization that this is not in fact the case might help the problem by coming up with a new approach towards neuroscience and also gender studies. This approach claims that "gender is on a spectrum", and this claim can be understood as there are more than two genders, or in other words, that there are different levels of femaleness and maleness.

With the opinion that there are two extreme and absolute genders out of favour, it becomes easier to assume with the help of this new theory that femininity and masculinity do not refer to the traditional meanings we have for them; that is, there might be more than one explanation for each one of them, or the words might not refer to anything. However, the theory may also not solve the issue at all. In fact, if the "gender on a spectrum" theory is adopted, it seems as though it may be used as a justification for how some women are better at driving, and some men are better at emotion processing. It will be merely because those women have been exposed to more testosterone, and those men to more oestrogen. The solution will then bring about more problems than it solves. On the other hand, there remains an argument that there is no gender, that hormones or brain structures affected by these hormones do not determine any behavioural or psychological changes about what is called gender. The discussion becomes even more intense and also somehow convincing when behavioural studies about people with CAH (Congenital Adrenal Hyperplasia) are brought in. The obscurity of genital structure is often found interesting in terms

of gender studies because if, according to the general opinion, sex determines gender, then what will be the determining characteristic for intersexual people? Moreover, the discussion will have to include transsexual people who believe that they are not the sex they are born with, but the other. For instance, there are many males who claim they are women who were born in the appearance of men. These examples, although they do not refute the idea that there is gender in society, disagree with the claim that hormones determine everything about the gender. The hormone theory then, is not supported by these examples of people because these men in question are also exposed to intense amounts of testosterone in the womb, during childhood, and adolescence. If the hormone theory fails, then the determining criteria for the difference between the female brain and the male brain will become even more obscure than it ever has been, and it will need a resolution.

I will discuss all these questions throughout this thesis, as to which one of them can be of any help for the neuro-feminist study, to solve the dilemma of the female brain and the male brain. As one can understand from the arguments in this area of study so far, neuro-feminism fights against the sexist assumptions derived from the neuroscientific research. The reason I am supporting the neuro-feminist approach is because the scientific data is neither sufficient nor justificatory enough for pointing to a fundamental difference between the brains of two sexes. In light of the neuro-feminist arguments, I will analyse the hormonal differences that are believed to be existent across sexes and their mental and behavioural effects in this chapter. In the second chapter, I will bring forward some intense debates from the philosophy of mind to solve this problem such as the multiple realization theory and the empirical gap theory. I will also use some psychological experiments which provide data in

favour of the neuro-feminist theory, with which I will search for psychological and environmental explanations for different mental and behavioural systems in men and women. In the third chapter, after analysing both sides of the discussion, I will look for an ethical answer to the question whether it is our moral duty to fight against gender injustices.

1.1.2. The Hormone Cocktail and Behavioural Outcomes

If one is to adopt the traditional view about the two sexes being fundamentally different, then before talking about the female brain and the male brain, it is necessary to identify the meanings of the notions of female and male, if it is possible. Even though it looks easy to distinguish between the two sexes, it really is not. One could say that "if a person has a penis, testes and scrotum, he is male. If a person has a vagina, ovaries, and breasts, then she is female" (Stone 2007, 45). However, the traditional view requires a little more than this simple identification. Since childbirth is of great importance in society, mainly for reproduction and population growth, a female, according to the society, should be able to give birth. In order to be able to give birth, she needs to have a healthy reproductive system, should have a menstrual cycle and so on. This necessity to be considered as a female brings about many questions, as Alison Stone discusses (Stone 2007). One of the most important questions in here is whether women who are not menstruating because of their age (before menarche, or after menopause) or their health problems should be considered as female. According to the traditional view of sex, those women who do not have a healthy reproductive system or cannot menstruate would be considered flawed or not fully female to the necessities of the definition. The same criticism can be applied to men as well. There are a lot of men who are not able to penetrate and impregnate a

woman because of many possible problems in their reproductive system. Then the traditional view would, in the same way, suggest that these men are not fully male as well. We would not be comforted with this kind of view thinking that at least it is not sexist, because it really is problematic on so many levels.

Firstly, it is very discriminating of a considerable percentage of the society. To give a number, about ten percent of women who are between the ages 15-44 are infertile according to World Health Organization (WHO). This number does not include women who are younger than 15 and older than 44, which would change the percentage to a great degree. Secondly, it is making great assumptions based on hormones and genital characteristics. It then goes back to the idea that hormones determine sex, and sex determines gender. I will challenge the claim that sex is the only determining factor in gender and that there are two fundamentally different genders later in this section. The same approach excludes men and women who have faulty reproductive systems and who are not able to make a baby that contributes to the society. It seems more a social problem than a scientific problem, which really explains the roots of the issue if one is able to see it. Still, the sex-based difference between a female's and male's brain is believed to give rise to psychological and behavioural differences. For instance, if a man has higher levels of testosterone in his brain and body than usual, then it is expected of him to be more aggressive and more violent than usual (Baron-Cohen 2003, 124). If a woman is exposed to intense amounts of oestrogen during her cycle, then it is expected of her to be more emotional. Being more emotional than her usual self, she will tend to cry more, dramatize the events more, or need more support and company. At least that is the general opinion. What the two examples have in common is that they both

presuppose that hormonal changes in the brain are the only factors which result in the changes in mental states which result in behavioural differences.

It is argued by many neuro-feminists that we should not be hasty making direct connections between hormones and the brain, the brain and the mind, and the mind and behaviour (Fine 2011, 102). There can be many variables in the occurrence of a behaviour, and the connections that are made a priori could easily be lost. A significant approach towards the problem comes from behavioural studies, which test the effect of environmental and psychological manipulations one is exposed to until s/he becomes an adult. The argument follows from a neuroscientific claim that brain is not hard-wired, that is, it is not constructed in a way that it can never change. On the contrary, the brain has an immense capacity for change. This can be supported in many ways, for instance by appealing to the process of learning something. In the matter of a couple of months, we can learn how to drive, how to speak a language, how to swim and so on. This suggests that the brain can learn new things as it develops. These activities are all behavioural and it is true that they require certain chemical changes in the brain. However, there are a lot more to learning than the relationship between the chemical activities in the brain and how they turn out as behaviours. For instance, we need to have functioning motor skills, we need to have a body schema to successfully overcome these activities. There is an interesting parallel between this argument and the argument that hormone levels give rise to psychological and behavioural changes that differ across genders. Both arguments assume that hormonal differences are the only significant determiner for behavioural development. However, as I mentioned before, this argument is not based on any concrete scientific knowledge. Rather, it is an assumption. The claim that brain can

easily adapt to different environments, on the other hand, can be proved on many levels.

If the brain is not hard-wired, then it can be deduced that it can change itself to the necessary conditions in a given environment. For example, if women are not able to do math, drive a car, change a tyre, and men are not able to feel empathy or do ballet, they can learn to do so by adapting their brains to the environment. An interesting argument that can support this area of study suggests that the body does not adapt to the brain, but the brain adapts to the body (Jordan-Young and Rumiati 2014, 118). To exemplify, the traditional argument holds that men are keener on martial arts because of the immense amounts of testosterone in their brains. It is often displayed as a way of releasing anger and tension in their bodies which is caused by testosterone. This new view argues that it is not the case. It suggests that brain adapts itself to behaviour. Using the same example, we can understand this as such: If a man or a woman does martial arts, not only the body becomes stronger, but also the brain is affected by the body's behaviours. As the body image changes, self-image will change as well. This will lead one to believe that they are stronger. The changes in the body will then result in the changes in mental states which will cause changes in brain states. Then it will be possible to argue that the story has been misread from the beginning. Maybe our behaviour which is affected by the social norms imposed on us since we are born changes our brain, and then we put the blame on our brains for not being able to do what the other sex can. Therefore, from this perspective, it can be proposed that hormonal differences do not give rise to behavioural differences across genders. Instead, regardless of gender, behavioural differences give rise to hormonal differences in the brains of males and females. I must note here that this

claim is not really proven yet, but the data is currently being gathered to support it. Still, one can see that even the possibility of this approach being true makes one question the very basic structure of gender and how rigid we are to think that there are sharp definitions of being a woman or a man.

1.2. The Extreme Male Brain Argument

There are now a lot of neuro-sexist arguments whose common point is that psychological and behavioural differences between females and males can be explained in terms of neurological differences. Another point these arguments have in common is that they are false justifications of gendered brains. For centuries, both men and women, disappointingly, have been looking for the right reason to justify the differences they saw between men and women in the social structure. Men fought in wars because they were aggressive besides being physically strong. But why were they aggressive? Why were women not aggressive, or as aggressive as men? The developments in neuroscience such as fMRI and PET scans have led us to hope for new and possibly incontrovertible answers to those questions. Nevertheless, it is in fact easy to spot the illogical chain of causation in this example.

This theory is taking a false assumption as a starting point, which is called anchoring in logic, and trying to support this false assumption with scientific data and claiming that it has proved the case. At least it is what Simon Baron-Cohen does throughout his book which is called *The Essential Difference*[2]. He first assumes from social and

[2] Simon Baron-Cohen is certainly not the only author with neuro-sexist claims; there are many psychologists and behavioural neuroscientists who have similar opinions such as Gregory Jantz, Marco Del Giudice, Jeffrey Blaustein, Arthur Arnold. The reason I am focusing on Baron-Cohen here is because his claims emphasize the behavioural and psychological

individual observations alone that males and females are different. He says that they have different types of brains. According to him, females have empathizing brains and males have systemizing brains. He justifies this theory of him with "evidences" from social behaviours such as gossip, judging emotion, rape, aggression, murder and so on (Baron-Cohen 2003, 124-9), which openly displays the illogical chain of causation I explained before. He says that both females and males are capable of showing such behaviours, but the male brain has more tendency to be aggressive and he believes this is the reason why there are more men than women who are psychopaths, rapists and murderers.

What is comforting about such a distorted way of rationalizing is that at least he is close to the gender on a spectrum thesis. That is, he does not think that all males and all females are binary opposites. Still, he reads the so-called data in such a way that it means it paves the way for the extremely neuro-sexist argument that is criticized in this section. He argues that autism is basically what he calls "the extreme male brain" (Baron-Cohen 2003, 150). The result of autism, according to Baron-Cohen's analysis of autistic people, is that they are not capable of processing or judging emotions and feeling empathy for people and animals to the same extent as non-autistic people. He then links this observation to neuro-data, suggesting that babies who are born with autism are exposed to intense amounts of fetal testosterone in the uterus. Therefore, he concludes that autism is a case of the extreme male brain. What Baron-Cohen's thesis shows is that he is looking for justification that men and women have different set of capabilities, and they tend to behave according to these capabilities. He believes he finds the justification he seeks in neurological differences. He analyses

differences, and he takes these differences as evidences for the effects of neurological differences across sexes.

these differences in brain states and structures in a way that it assumedly explains the social differences we observe across genders. Nevertheless, instead of starting from a point that does not have any scientific basis, what needs to be done in an era of scientific and technological developments is to assume that we do not know anything about genders or gendered brains and try to analyse the brain and the neuro scans without prejudice. Maybe then the differences among brains regarding the corpus callosum, grey and white matter, neural connections in the right and left hemisphere would be understood to be different among individuals, not genders.

Every individual has different capabilities that are caused by many factors. Making strict generalizations and categorizing people are what we have always seen in all social structures and it is very difficult to overcome. It is how our education systems work, for example. We put thirty children in a class together and feed them the same information as though all of them require, or can process, or even are interested in that information. We expect the same results from them. This does not work in the ideal way, because every brain is different from the other. Genetics, age, upbringing of the child and his/her environment including the family and other social structures are only a few of the factors that affect brain development (Fine 2011). There are so many parts of the story we do not understand yet. For this reason, I do not find it reasonable to make assumptions about a gendered brain so easily merely because we cannot find any other explanation or justification for the gender inequalities we have lived with for generations. That is the reason why I will not accept the idea that autism is the extreme male brain, or the female brain is made for empathizing and male brain is made for systemizing. Every individual has different levels of

empathizing and systemizing skills and the balance, or imbalance, between the two is not caused by sex differences in the brain.

To go back to more arguments about autism and the effect of testosterone, genetic scientists say that the ratio of males to females who are born with autism is about four to one (Krishnan 2019, 69). This can be understood at first as a supporting data for the claim that autism is the extreme male brain. However, there is also counter evidence that suggests that this is not the case. For instance, women are diagnosed with autism later in their life or possibly not at all. This case can change the statistics to a great extent. Clearly, it casts doubt on the four to one theory. Moreover, it has also been noted that if one identical twin is born with autism, the chance of the other twin to be born with autism is seventy seven percent (https://www.ucsf.edu/news/2011/07/98350/study-debunks-autism-primarily-genetic-disorder). This means that what causes autism is mostly genetics, seventy-seven percent at most. The rest of the picture is not known but still researched. Yet, there is not a proof that autism is caused by exposure to extreme amounts of testosterone in the uterus. Also, it seems that if the only reason for autism was hormonal, it would be the case that if one identical twin is exposed to testosterone, the other one would be as well. Then, naturally, both twins would be born with autism. There would not be a seventy-seven percentage to talk about. One more following idea that is almost as ill-guided as Baron-Cohen's idea would be that if autism is the extreme male brain, and the male brain tends to be a lot more aggressive, then we would expect all people with autism to become psychopaths, murderers or rapists when they are adults. One should not even have to argue that it is not the case. It is interesting how Baron-Cohen tries to get away with both

claiming that males are more aggressive, and that autism is the extreme male brain without possibly being able to take his theory one step further.

Looking at the problem from a feminist point of view, one can see that the whole theory presupposes some traits as masculine traits, and some as feminine traits. This sort of thinking is the origin of the biased researches and badly-sought arguments put forward in this area of study. For example, being aggressive and tending to display this aggression in one's behaviours is usually believed to be a masculine trait. This theory cannot explain why there are so many female boxers, soldiers or police officers in the world who are really successful at their jobs. Baron-Cohen's only exit strategy in this dilemma is that what he refers to is most of the population; he asserts that there are exceptions. In a similar but a stronger sense, the theory does not explain why there were matriarchal societies in the past and still there are in some parts of the world. In some societies, women are considered more powerful than men because they are able to give birth and continue the bloodline. From an objective point of view, it can be suggested that going through pregnancy and giving birth requires a great amount of physical and mental strength. Even this natural process is proof enough against the view that women are weak, soft, or dependent. However, I will give more examples to make a case: the idea that there are masculine and feminine traits which are binary opposites is merely a delusion brought up by the society over time.

Being compassionate and tending to take care of the family, according to the traditional view, is a feminine trait. Arguments supporting this view are as such: females give birth, and just as it happens in the animal world, mothers want to protect their offspring. Therefore, women stay with their children, take care of them,

protect them from the dangers outside. However, there are more men than ever now who choose to be a stay-at-home father, because they love their children and family and want to take care of them (Saturn 2014), who are also not intimidated by the society's description of what a man should be like. In most of these families if not all, women are the breadwinners of the family. The number of families who have chosen this kind of lifestyle is higher than what Baron-Cohen could call an exception. Then the question becomes unavoidable: Are these people defying the natural order, or are they just defying the feminine and masculine traits imposed by the gender polarized society? There could be a lot of answers to be given to this question, as many branches of study such as psychology, neuroscience, philosophy and biology are interested in the problem. Many feminists would argue that the answer lies in the way both men and women are psychologically manipulated by social norms and the environment they grow up in, which I will discuss in the next chapter.

CHAPTER II

INTEGRATING THE PHILOSOPHY OF MIND

2.1. The Empirical Gap

In the previous chapter, I showed that neuroscientific data is used to explain mental and behavioural gender differences. In this chapter, it is not my intention to refute the neuroscientific data. I acknowledge the existence of scientific data although I am convinced from the meta-analysis that most of the research is biased. However, there are a lot of anti-reductionist arguments in the philosophy of mind that reject this kind of approach. Therefore, what I will investigate in this chapter is whether those arguments can support my claim that neuroscientific data is not enough to conclude that men and women are mentally different.

I will begin by looking at the empirical gap problem in philosophy. It is suggested by many philosophers of mind that brain states are not mental states. The main reason for this, if one is to put it as simply as possible, is that the physical cannot give rise to the phenomenal (Chalmers 1996, 106-7). That is, brain states are physical facts which can be observed and studied through natural sciences but mental states such as love, hate, jealousy, pain cannot be easily instantiated in the physical world. Therefore, they are attributed as phenomenal states. A physicalist will find it easy to suggest that brain states give rise to mental states which give rise to behaviours. On its simplest account, it seems as though the behaviours can be explained only through mental states, and mental states can be explained only through brain states. According to anti-reductionist philosophers, this is not that simple. For most of them, consciousness is the deal-breaker. Consciousness is not a material form which can be instantiated in the physical world (Kim 2005). Still, we are certain of its existence.

We understand that we are conscious beings, but we cannot explain our consciousness on materialist terms.

According to Chalmers, it has been an unresolved issue in philosophy how physical systems give rise to conscious experience. He suggests one view to at least detangle the problem: that physical explanations can help us figure out the psychological mind. Still, he admits that it does not explain the phenomenal mind. Therefore, following Jackendoff, he believes that the problem is not a mind-body problem but a "mind-mind problem" (Chalmers 1996, 25). To me, although it is a plausible approach, it is insufficient if what Chalmers means by physical explanations refer to the brain states. I do not think that brain states are the only explanations for our psychological states. There are other variables in the equation that affect our psychology, such as environmental stimulation. This possibility makes me turn towards the argument in the previous chapter that behaviours affect the mental states and mental states affect the brain states. The argument is similar to the one I brought up as a response to Chalmers' view. It might be understood here that the environmental interferences affect the mental states which temporarily or permanently change brain states. However, I would like to save this argument for the last section of this chapter.

If we go back to the theories of consciousness, there is one major issue that even a strict physicalist would find problematic. It is the subjective nature of experience that constitutes our consciousness. In his article "What is it like to be a bat", Thomas Nagel handles this issue on a phenomenal basis. His main argument in the article is that if mental states were physical, it would be possible for us to imagine ourselves as our friend, or another person, or even a bat (Nagel 1974). However, there is a

restriction for this kind of thought experiment because each experience is private and subjective. We know that another person has consciousness resulting from an observation of their psychological states and behaviours, but we cannot really imagine ourselves to be them because we do not have the same conscious experience as them (Nagel 1974). For the same reason, no matter how hard we try to imagine ourselves as a bat, we will see that it is not possible. I can imagine that I have wings and night vision but since I do not know what it is actually like to have night vision, I will never be able to fully understand the consciousness of a bat. This argument is echoed in Frank Jackson's thought experiment "the knowledge argument". Mary, who is a scientist studying the neurological effects of colour vision lives in a black and white room. Supposedly, she knows everything there is to know about the colour red including its neural correlates and causal relations. One thing she does not know is what it is like to see the colour red. It is only when she leaves the room and actually sees a tomato does she realise her knowledge was incomplete (Chalmers 1996, 103). Both theories reflect the phenomenal nature of our conscious experiences. Knowing every physical aspect about a brain state will not suffice for the knowledge of a mental state it refers to.

One may object to this view on consciousness on the grounds that consciousness is not the main issue when it comes to the mind-brain problem. They could suggest that it is the instincts that drive us to behave in certain ways. For instance, women want to wear make up and floral dresses, and men want to own cars and guns because they are instinctively driven to prefer such things. One strong reply to this objection would be that we are not really driven by our instincts anymore. Instead, external stimulators such as our connection to the society, the media, and advertisements have

become the authorities that drive and control us. Usually, women want to wear make up because the society has made us all believe that we should be beautiful, delicate creatures who are easy on the eyes. Men are supposed to be interested in cars and guns because they are made to believe that they should be fast and strong. This realization of the effects of social authorities can be applied to the neuro-feminist theories introduced in the previous chapter, but I will not jump to a conclusion before giving more examples to strengthen my argument.

A second argument which casts doubt on the reduction of our mental states to brain states is the philosophical zombie argument developed by Chalmers. A person who is a duplicate of me, in the same body as me, including my brain and brain states, lacks only my conscious experience, or qualia. I can imagine that she exists. This means that she is conceivable. Since what is conceivable is logically possible, one can conclude that there are brain states which are not identical to mental states. The zombie version of me has my exact brain states but she does not have my mental states because she does not have consciousness (Chalmers 1996, 94-6). This suggests an obvious explanatory gap between mental states and brain states. Then, we can deduce from all three of these thought experiments that the physical and the phenomenal have different qualities which distinguish them from each other. In his *Physicalism, or something Near Enough*, Kim suggests that qualia cannot be instantiated in the physical world. The reason for that is because they are not "functionalizable", which in the end means that they are physically irreducible (Kim 2005, 170). According to these arguments, the physicalist approach does not suffice to understand or fully explain our mental states.

In a similar way, it is possible to bring up the philosophical inquiries about the mental state of being in pain as an attempt to refute physicalism. Pain is often understood as a bodily sensation which we experience through our sense data. For instance, if I put my finger over fire, I will feel an uncomfortable feeling which is triggered by the interaction of fire with my finger. Physically, the fire stimulates the nerve endings in my finger which let my brain know that it hurts. After that, my brain informs me that I am in pain. One of the problematic parts of this process which interests philosophers is the location of the pain. Is it in the brain, or is it where I feel the pain to be? This question can be followed up by many other questions which I will not try to solve here, obviously, but use as a supporting argument for the empirical gap problem. One significant unresolved issue that is related to this question is the emotional pain and phantom pain. To exemplify, we can feel emotional pain as if it was physically located in our body, such as heart break from a lost love. We mentally connect love with heart although the physical heart has probably nothing to do with emotions. We feel pain in our heart but there is not a physical stimulation that triggers this kind of pain to be felt in the heart. Similarly, phantom limbs can trigger pain in an organ which is not physically attached to the body. People who are amputated have often reported that they feel pain in the body parts which they lost a long time ago (Whitaker 1979). Clearly, there is no physical causation between the body and the pain in these two examples. Therefore, it is possible to argue that the mental state of pain does not necessarily, and not always, find its physical existence in a brain state. Moreover, the philosophical problem of pain supports the argument about the phenomenal nature of our conscious experiences. At first sight, it might seem as though pain is an objective brain state which can be understood and treated objectively. Medical science is

committed to treating pain and diseases in an objective way since it is a natural science. However, from a philosophical point of view, it is impossible to understand one's pain from their own perspective because the conscious experience of pain itself is subjective and private. The only way to approach pain objectively is to trust the data acquired from the tests and the reports of the patient. Yet, science can take us only so far. The same argument applies to how neuroscience is seen as sufficient to fully understand and categorize mental states. There will always be something out of reach for science unless the problem of consciousness is resolved.

In this section, I analysed some of the anti-reductionist arguments regarding the empirical gap problem. As I suggested before, consciousness is a complication which needs to be resolved if one is to adopt the physicalist approach. However, the subjective and private nature of consciousness is what defines it as a phenomenal state. Each person's consciousness is private and restricted to others. Therefore, mental states cannot be understood in an objective, physical sense. If they cannot be understood or located physically, they cannot have a physical existence. From this proposition, one can argue that brain states are not mental states. This chain of arguments and thought experiments help my study as they refute the justification of mental differences between men and women. If we support the theory that there is a phenomenal nature to our conscious experiences which cannot be reduced into the physical terms, then we need to support the claim that brain states are not equivalent to mental states. In this sense, one can also suggest that brain states do not directly cause mental states although an interaction between the two can be defended. Still, coming back to my main argument, I can assert that the differences found in the brain states of men and women in the fMRI and PET scans are not sufficient to make

a case that they lead to differences between the mental and behavioural states across sexes.

2.2 Multiple Realization Theory

A theory developed by philosophers of mind that does not constitute a rebuttal of physicalism is the Multiple Realization theory. This theory suggests that each mental state can be realized differently across different members of the same species, or across different species (Shoemaker 2007, 9). To start simple, for instance, the mental state pain can be realized differently across people. It helps explain why each mental state is different and unique to the subject it belongs to. Setting this aside, we can understand that it does not mean that brain states are mental states. The theory is in harmony with the biological theories about the brain (Hoffman 2014, 38-42) because each brain is developed differently resulting from both internal factors such as genetics or different amounts of hormones and other neural stimulators it is exposed to, and external factors such as the environment and social structure it is developed in. Therefore, with the support of the biological theories about the brain, it is defendable that each mental state is multiply realized across people and non-human animals. I will, however, focus on the difference the theory is reflected on people as I am interested in how Multiple Realization can be applied to gender theory.

Kim argues for the philosophical significance of the Multiple Realization theory as it refutes psychophysical reductionism once and for all (Kim 2005). It is also why I favour the theory because it helps build my argument in this paper that brain states are not identical to mental states. Turning back towards the very reason Multiple Realization Theory will be useful for my argument, I will agree with Hoffman on her

view that if this theory is true, then finding structural and functional differences in the brain across sexes will not indicate that there is a gender difference in the mental state (Hoffman 2014, 40). Therefore, the claim that behavioural differences across sexes which we observe are caused by differences in the brain states will collapse. Bearing the importance of the theory in mind, it is necessary to explain in more detail what the theory constitutes.

The main point of the Multiple Realization theory is that one mental state can be realized by an infinite number of different physical properties. Hoffman gives a brilliant example to understand this causal relationship better. She says that the mental state jealousy can be realized in a woman's brain structure P while it is realized in a man's brain structure Q (Hoffman 2014). It is possible to suggest that each brain state is different than the other. We never experience the same pain as a brain state, for instance. The location, intensity and duration of the pain differs each time we experience pain. Regarding this as a true statement, it makes sense to argue that there will be a large scale of differences in brain states across different human beings. Moreover, it can also be possible to claim that these differences in the brain states caused by different experiences of mental states will change the brain structure. Each time we have a physical brain state, then, our brain will differ from another person's brain, leading us to find quite radical differences in the end (Hoffman 2014). Taking into account that fMRI scans displayed as evidences are mostly conducted on adults, it will make sense to expect that the brains structures will differ immoderately. Therefore, Hoffman's example will be in favour of this claim. However, what this example does not support is that there are differences in

the mental states. In other words, Multiple Realization Theory holds that mental states cannot be reducible to physical brain states.

Multiple Realization Theory allows the probability of different state types. It can be claimed that there are different types of brain structures, though it is difficult to give a number. There are many studies in psychology, for instance, related to different types of brain. Although it seems like the theory Baron-Cohen puts forward with his thesis of Empathizing brains (Type E) in women and Systemizing brains (Type S) in men (Baron-Cohen 2003, 2-4), not all theories in this area of study are sexist as his. Still, what is in common for all these theories about brain types is that none of them is convincing enough to be considered plausible in this paper. The theories ignore the lack of connection between mental states and brain states and presuppose that brain states are identical to mental states. The example Daphna Joel suggests, on the other hand, is closer to my argument. She asserts that each brain is structured like a mosaic, which means that each brain is different than the other (Daphna Joel, "Are Brains Male or Female"). She acknowledges that there are skills and capabilities a brain has or does not have, but she does not believe that these skills are gender based. For instance, each person has a linguistic skill part located in the brain, but each person's level of talent is different than the other. Similarly, each brain is capable of emotion processing, but it is on different levels across people. This does not suggest a gender difference, but merely an individualistic difference which is a strongly justifiable claim.

Joel's view also applies to the Multiple Realization Theory on many grounds. Firstly, since each brain is different structurally and thus functionally, there can be many representations of one mental state in many distinct brain states. This view can be

adopted as an implication of the MR_{gender} (Multiple Realization across genders) theory Hoffman sets forth. She asserts the claim that we should *expect* to see differences in the brain states across genders if one same type of mental state is realized differently across them. She supports this view by saying that the female brain and the male brain develop very differently due to both internal and external factors (Hoffman 2014, 42). For this reason, it is highly possible that the female brain and the male brain develop different structures that realize the same mental state. The theory does not refute the claim I analysed in the previous chapter; as she argues that hormones affect the brain structure. She accepts the idea that oestrogen and testosterone have a significant impact on the brain though she notes that this does not mean that the brain is hardwired, an issue which I will argue against in the next chapter. I agree with Hoffman on her claim that differences in the brain caused by hormonal interferences do not provide any evidence for mental differences across sexes. The example of a case study conducted by Keller and Menon which Hoffman interprets in her paper provides strong evidence for the Multiple Realization Theory. In the study, the brain activities of female and male subjects were measured in a mathematical reasoning test using fMRI. The female and male subjects finished the test in the same level of speed and accuracy. However, the fMRI scans displayed significant differences across the brain activities of both sexes (Hoffman 2014, 43). This study clearly reveals that the same mental state can be operated by different structures of the brains across sexes. Therefore, we observe physical differences in the brain but no differences mentally. In simpler words, it comes back to the claim that brain states are not identical to mental states.

The theories including the ones derived from the thought experiments in the previous section regarding the empirical gap problem question the causal relationship between the neuroscientific data and its impact on mental states. To make a general case of what I have been analysing so far in the literature, it is quite possible to argue that the fMRI scans do not have an empirical value when it comes to connecting mental states to brain states. While it is still in question how and to what extent the hormones affect the brain, it is not a simple task to make a direct causal connection between the brain and the mind. There are many powerful counter arguments against reductionism and even physicalism, including consciousness, the knowledge argument, phantom limb, location and subjective nature of pain arguments. On top of these strong claims, Multiple Realization theory brings forward an empirical evidence in favour of the phenomenal existence of the mind. As a result, the developments in these philosophical inquiries lead the way towards an understanding that mental states simply cannot be reduced to physical brain states. In this matter, we can summarize that the philosophy of mind can support the phenomenal nature of the mind although it is a difficult challenge to prove the existence of a phenomenal mind. Still, scientific data does not provide sufficient evidence for a physical explanation of the mind either.

2.3. Psychological and Environmental Explanations

In this section I will analyse some psychological experiments that have significant implications which can be useful for the gender theory. I will argue that the gender division in the society and the patriarchal structure we have observed very much since we are born affect our psychology and shape our self-image and self-perception drastically. From the data we acquire from the experiments, I will claim that the

effects the society makes on each one of us are not only on our conscious self but also on our subconscious self. This can be understood as what Fine says is an "implicit mind" (Fine 2011, 4), which basically means that even if our conscious beliefs are not sexist, our subconscious self may believe in male superiority and dominance. Aside from its dangerous effects on how we acknowledge ourselves and other people, arguably, it is the reason why we continue a strictly gendered culture. I will follow the argument I mentioned in the previous section and take the environmental and psychological manipulations as the starting point for behavioural differences across sexes, claiming that mental differences will be shaped according to how we behave.

In order to make a strong point, it is better to start with the psychological experiments Fine talks about in her book *Delusions of Gender*. An interesting experiment, for instance, showed that when we categorize ourselves as female or as a male, it changes our self-perception on the subconscious level. When American college students were asked to rate their verbal and mathematical skills, they were given a simple sex categorization to fill out in the form (checking the box female or male). This simple task affected the self-judgment of the participants, and while male students rated their mathematical skills higher, female students rated their verbal skills higher (Fine 2011). When a similar experiment was conducted on a group of French high school students, first they were asked to rate the truth about gender stereotypes regarding the talent in mathematic and arts. With this gender division in mind, they were asked to report their rate in a national test they took two years earlier. Most of the students in this experiment altered the objective facts from their past, as Cordelia Fine puts it (Fine 2011, 9-13). Female students wrongly

remembered that they had less success in maths while male students believed that they had higher scores.

It is not difficult to see from these experiments that gender stereotypes alter how our mind works drastically, to the extent that it changes our own memories. It can also be claimed that this change is not only on our conscious self but also on our subconscious self. Fine suggests that the sense of self we hold subconsciously has immense effects on our behaviour as well. For instance, in another experiment, researchers asked the participants to pretend to be a cheerleader, an African-American, a professor, and an elderly and write about their day from a first-person perspective while the control group were given the same task except they were asked to write from a third person perspective. The first group not only successfully pretended to be the person they were assigned to write about, they also started to behave like them. For example, the participant who was asked to write about a cheerleader from a first-person perspective rated her own character traits to be "more attractive, sexy and gorgeous" in the subsequent task (Fine 2011, 10). These set of experiments have many significant implications on how we perceive ourselves when we are reminded a certain stereotype, and to what extent this alters not only our self-image but also our behaviours.

Presumably, the more we behave in a certain way the more we will be susceptible to this pattern, which will change our mindset. One example I can add related to this argument is an experience of my own from two years ago. I entered the MA program in philosophy without a prejudice in my mind except that I believed that I could be successful in any area of study if I gave it necessary time and effort. While I was taking a logic class, most of the students were male engineering students who were

very successful in maths. In the first few weeks, I studied a lot and I was satisfied with my quiz results. After some more time, as I saw how dynamic and enthusiastic those male engineering students were, I became to disappear in the class. I started studying less because I made myself believe that I could never be as successful as them. It was past the middle of the semester when I realized I had no one to blame but myself for my failure and started studying harder than everyone else. Then, to my surprise, I got the highest grade in class in the final exam. This, now I understand, is a clear example of the confirmation bias we see in psychology (Fine 2011). I could succeed in logic because I changed my mindset. Even people who hold the theory that brain is wired in a certain way in both sexes cannot refute the fact that our brains are capable of immense changes if we are willing enough. Moreover, from this argument it can be followed that usually it is not someone else who imposes a gender stereotype on us but ourselves who sustain this dangerous habit.

The examples from our own lives come from an era in which it is not forbidden for women to do what they want to do. It is true that if we embark on a practice which the other sex usually does, it is sometimes frowned upon, or sometimes seen as a simple act of rebellion, depending on the culture one lives in. I believe it is because we have all internalized a gendered society so much that it is very difficult to subvert even in our own contemporary minds. When we look at the previous century, we see that although it was not forbidden for women to be included in the scientific community, there were very few women because the female sex was not believed to be talented in maths and science. For instance, Mileva Marić was the only female student in the physics department in Zurich Polytechnic University when she was studying together with Albert Einstein (Troemel-Ploetz, 1990). The reason she was

the only female student then and fifth female student to ever enrol in that department was because the general opinion was that women cannot be successful in science. However, she had a successful education and it is claimed that she helped Einstein with his theory of relativity by solving the mathematical problems necessary for the theory. The reason why most people have not heard of her, I will assume, is because Marić lived in a strictly patriarchal society in which even her professors did not believe in her. She lived behind the shadow of Einstein, and she was not seen as a significant character in the history of science to be mentioned.

The story of Mileva Marić is merely one example of thousands of women who changed the world as we know it but disappeared in history. This is not because there were few exceptional women who were talented and successful. It is because their stories were hidden and undervalued while their male classmates' stories were told heroically. It is also why a great number of women were not accepted to universities and given the same opportunities for a decent education as men. This biased perception of genders created by the society, which does not reflect reality, changed the mindset of both women and men. The relics of the mindset still exist in most of us, although sometimes on the subconscious level. Yet, it can be argued that the human mind is a dynamic entity which is capable of change and adaptation. Our minds have immense effects on our behaviour, but as can be seen from the psychological experiments, behaviour also has immense effects on our minds. There is a circularity to how our behaviour changes how we think and how we think changes our behaviour. Therefore, if we do not explicitly believe in sexism but it is woven into our subconscious, we should try changing our behaviours, take a risk, get

out of our comfort zones. It is a difficult task, definitely, but both men and women are entitled to change this biased perception, starting from themselves.

CHAPTER III

THE ETHICAL QUESTION

3.1. False Justification of Gender Inequalities

Arguments about gender from neuroscience tend to lead to conclusions that are ethically problematic. In this third chapter, I will delve into the ethical implications of neuro-sexism. Therefore, this part of the thesis will focus on the "should" rather than "is". There are different possible ways to analyse these ethical problems. One can look at the neuro-ethical issues, for instance. I believe I displayed where I stand on that issue in the first chapter, yet I will expand the topic and argue for the necessity of ethics in science later on. Another important ethical question would directly interest philosophers, because most of the sexist commentary on neuroscientific data comes from philosophers of mind. One of these ethical questions would be whether we should be justifying gender inequalities only based on neurological differences between sexes. Bearing in mind the theories that I talked about in the previous sections, I will try to answer these questions from an ethical standpoint.

Suggesting that there are gender inequalities in the society only because men and women were created differently is the least mental activity requiring argument in the literature. The theory is not only simplistic and superficial, but also it does not logically follow. As I was claiming before, much like many other philosophers do, there are often gaps of knowledge between natural sciences and social sciences. For instance, we argue that we are rational beings because we have the capability to analyse the cause and effect relationship in the situations that occur around us. Still, a lot of behavioural studies show that we do not really make rational choices when it

comes to issues of love, finance, or even what to eat (Kahneman 2015). In that matter, social sciences do not agree with natural sciences because human beings are complex creatures that are not solely bound to the laws of science. Hence, we sometimes encounter a glitch, and this confuses us because we actually want to explain everything through reason and logic. Yet, although we may not be willing to admit it from time to time, there are and there will be some things humans cannot explain, at least merely via scientific explanations.

One of these issues that cannot find its explanation in natural sciences, I will argue, is the fact that there have been gender inequalities in the society. My own view is that the reason behind a gendered society lies not in the hormones but in social norms. To exemplify, the reason a "normal" woman would want to wear make up and floral dresses is not because her brain is hard-wired in that way with hormones, it is because social norms have been teaching her how to be a "normal" woman very much since she was born. To put it simply, if the whole argument is torn between nature versus nurture, I would take the side of nurture. Raising a child of either sex in a biased way and imposing strict gender roles onto him or her is the reason the child grows up to be a contributor to the sexist society we live in.

For these reasons, it is a significant ethical problem with many sides to discuss as to why and how we should fight the gender inequalities. We have investigated the causes that led to a gendered society, which in the end resulted in a massive gap between sexes, or, in other words, gender polarization (Jaggar 2019, 14-5). From the psychological and social experiments, we have observed that the behaviour is a complex mixture of the mind, the brain and the environment. The human mind on its own is not figured out by human beings completely, because even though we know

the logical facts, we do not always follow them in our actions, consciously or unconsciously. Why I bring that up again is because I think it is useful when we make a case that behaviour is not directly a product of the brain. When it comes to fighting gender inequalities in the society, this case will hinder some philosophers of mind from claiming that gender differences are hard-wired in the brain. Therefore, as Jordan-Young and Rumiati put it, it will be necessary to consider that it is unethical of philosophers to use the hard-wired metaphor continually (Jordan-Young and Rumiati, 2014, 115). Leaving that aside for now, I will mention a problematic view that I spotted in this area of study, that is feminist ethics.

Arguing from the general viewpoint of moral philosophy, when there is an ethically wrong action or set of actions in the society, it needs to be the moral responsibility of each member of that society to fight against those set of actions. If it is obvious that there is injustice in some structures of the society, then we should find a better theoretical and practical solution for the problem. It is not usually required to find justification for why we should be fighting against the wrong doings besides the fact that they are ethically wrong. However, considering the nature of some of the neuro-sexist views, it can be suggested that these theories do not adopt an ethical approach towards the issue. Rather, what they do is to try and find justification for gender inequality in physical differences in the brain that are not, I must note again, solid facts. Neuro-feminism, on the other hand, helps justify our causes to fight gender inequalities even more potently by displaying the biased nature of the tests and how we evaluate those tests. If I am to clarify what I mean here, I could say that when an action is ethically wrong, we normally acknowledge that it is wrong and try to avoid or change it. In this case, when the scientific fact is analysed on philosophical terms

and brought to the level of gender studies, we, as neuro-feminists, somehow feel obligated to justify our cause for fighting against gender polarization and gender inequalities.

This is a problematic issue because it implies that gender studies are not given the consideration and significance that they deserve. It could be the reason why even people who are in gender studies are excited to prove their case with scientific facts, justifying their means. It could also be the reason why it makes people so confused when I tell them that I am studying neuro-feminism, because they usually think that neuroscience and feminism do not come together. Although I do not want to believe it, from my research and observations I see that even these two areas of study are polarized in a way that one is viewed as masculine and the other one is viewed as feminine. The fact that social sciences are integrated in natural sciences and vice versa is too complicated to imagine for some, and yet it is the same people who insist on explaining social facts merely based on the data natural sciences provide.

I could neither be supporting the polarization between natural and social sciences nor agreeing that they always complement each other. Instead, I would simply argue that all kinds of science should be free from bias and prejudice, at least to the extent that it is possible. It is often a difficult task to accomplish, especially when the subject is this much open to dispute. Still, it is always better to follow the ethics of science when comments and arguments are being made based on scientific data as those arguments can easily take us further from the facts, from reality. For instance, it can be proposed that a biased way of analysing the fMRI scans results in dichotomous categorizations about males and females that do not reflect the truth. These biased arguments lead to other arguments that take the biased arguments as a starting point.

This presents a clear problem if we want the theories to follow a logical chain, because in this case each step, we are led deeper into the labyrinth, making it difficult to solve the equation.

To sum up the arguments I have made in this chapter, seeking justification for gender differences and implicitly gender inequalities in the society is not ethically wrong but also scientifically problematic. Starting the process with a biased view about genders, even at the level of neuroscientific research results in biased and morally wrong arguments. It is suggested by Jordan-Young and Rumiati that the brain scans do not merely measure brain activity of both biological sexes. The scans measure a "composite variable […] of social structure and experiences" (Jordan-Young and Rumiati 2014, 119). They suggest that even sexism is one of the elements that wire our brain, which not only affects our mindset and behaviours but also creates long-term changes in the brain. This theory supports the argument in the previous chapter as it strongly claims that social and environmental interferences change the brain structure. Then it diminishes the power of the brain scan results because we are already testing brains that are biased and manipulated. It seems that social sciences will inevitably be integrated in the natural sciences because one cannot exist without the other. It is neither possible nor ethical to test a 30-year-old person's brain and treat the results as if they belong to a new-born baby. Unless it is proven that a female baby and a male baby, who are exempt from manipulation of the gender codes, have different brain structures and activities that find reflections in mind and behaviour, this area of study will be open to discussions. Until then, it is important to remember that we should follow an ethical way of researching and analysing the data, as a single biased mind can cause a lot more problems than it solves.

3.2. Moral Responsibility

Much of what I have written so far in this chapter concerned the ethics of scientific research. The second half of the chapter will focus on how feminist ethics engages with the philosophical problem that I have been struggling with in this thesis. I will begin by introducing views in feminist ethics that can be used to argue against neuro-sexism, and gender injustice in general. Since neuroscience can be seen as a new theme in feminist ethics, I think the existing theories or new hybrid theories of feminist ethics could be useful to help approach the problem from an ethical point of view. For instance, it has been clear in gender studies that men have been presented for centuries as the more rational, more powerful and thus superior gender, which directly affected women's place by casting them as the inferior gender in social structures. There are a number of ways one can respond to this. One way is to say that there needs to be repercussions for this subordination of women which can take the form of favouring women in education, politics and other areas of social and economic life. This approach leads to positive discrimination, which is one of the controversial views debated in feminist studies. While there are critics against positive discrimination noting that all kinds of discrimination are politically incorrect and morally wrong (Balfour 2018), some theorists and activists desire a compensation for centuries of injustice, such as Social Justice Warriors.

One theory holds that continually bringing up the issue of gender injustice and female subordination in the past hinders us from seeing the possible resolutions. This theory reminds me of the criticism about Turner's Slave Ship painting, accusing him of imprisoning the black slaves inside the painting, perpetually reminding the next generations of their inferior positions at the time (Frost 2010). Although it should not

be ignored that black people and women have been subordinated throughout time, it is understandable what this kind of criticism aims at. I also believe that focusing on the wrongdoings in the past rather than how we can change the current situation prevents us from moving forward into the future. The argument can be applied to the modern era as well, since a lot of women are being victimized on media every day; raped, beaten up, murdered. Though it does not seem wise to hide the crimes from people, seeing a woman being killed by her husband, boyfriend or another man in her life everyday unfortunately normalizes the situation as well. While some people become more informed and conscious about the issue, some people can find justification for their wrong actions on how they treat women. According to Witt's point of view, this kind of exposure to graphic images or generalizations of how we perceive genders dictate a certain mindset, which in the end alter how our brain functions. Therefore, explicit and direct victimization of women on media can cause more and more misogynistic crimes in the society, which can later be defined and forgiven as "crimes of love" by authorities of justice.

From the negative tone that echoes in my writing, it seems that there is or can be bias in science, philosophy and media. At this point, it might be thought that it is impossible to change our perspective on the matter. However, here I will follow the theories which claim that the brain is not hard-wired for any specific set of thoughts and actions. One of these theories that finds its interpretation in feminist ethics is that it is possible to subvert gender dichotomy in the society. As I mentioned earlier, one can suggest that there is no gender; instead what we perceive as gender is but an illusion we created. Therefore, it follows from this theory that all gender norms that are deduced from this illusion must be eliminated, since they are not justified. One

can also suggest that there is gender but there is no dichotomy; we should not polarize femininity and masculinity as opposites. This theory is adopted into a compelling theory in neuro-feminism, claiming that each person has different levels of feminine and masculine traits in them, composed like a mosaic. The last one is sometimes confused with the "gender on a spectrum" thesis but in fact, as I stated in the previous section, gender on a spectrum thesis agrees that femininity is on the opposite side of masculinity. One other problematic part of this theory might be that it still acknowledges some traits as feminine traits and some as masculine traits. If we are to solve the gender dichotomy problem, I think we should not be looking at human traits, both on mental and behavioural level, as standardized traits of the either gender. Still, presumably, all these theories are plausible in themselves, with the arguments they embody. Like most of the other ethical problems, on the other hand, it depends on the moral standpoint of the individual to support any one of them.

Ethically speaking, I believe that I have established that it is our moral duty to fight gender injustices in the society. Subordination of one sex and privileging the other is not justified under any circumstance. Although that is clear, at least from a feminist perspective, how it should be carried out is a loose end. Turning one's back on the whole notion of gender or trying to improve and update it according to the needs of the twenty first century forward are two main options one can choose in this challenge. Both approaches could be valid as they have ethical arguments that strengthen them on the theoretical level. On the other hand, considering the current situation of a gender polarized society, ignoring the existence of gender norms and living accordingly seems practically impossible. It may sound as though this theory

is valid, but in fact it suffers from the problem we often encounter when we study applied ethics. Besides, there will possibly be complications if this theory is applied to the real life; mostly resulting from the many variables in the social structures. It is held by Witt and many other philosophers with a similar point of view that even if we are not sexist on the conscious level, the way we are raised in the family, educated and enhanced in the society can make a great impact on our unconscious self (Fine 2011, 12). This simply means that even if I am a feminist who wants to subvert gender roles as a whole, I will not be able to fully accomplish it because gender roles are engraved in my mental faculties.

It is not my intention to dictate here any one theory as the only right solution for this branch of feminist ethics. I believe that would not only be morally wrong, as ethical theories are mostly based on personal beliefs and values, but also it would be confining and basically impossible. Instead, I will argue that there can be many solutions and interpretations of those solutions when we are handling the gender injustice problem in the society. Still, the common point of the theories that can be useful for fighting gender injustices is that we should start with challenging standard gender roles. Although it is not a recently found, complicated theory, it has new interpretations that can be advantageous as the time changes. It is my belief that we should be looking at the root of the problem but at the same time we should not be fogging our vision with past facts. One way this can be accomplished is to analyse the human traits that are categorized as feminine and masculine. If we revisit the polarized gender roles and compare them to the social data we have regarding the contemporary world, such as the percentage of women with jobs that require them to have systemizing skills, we will understand that there is not a human trait that solely

belongs to one sex. Contrary to popular belief, it will occur to us that men can be as caring as women, they can have emotional and vulnerable characters, and women can be more successful than men in physics, or they can drive formula 1 cars. It will also be obvious that all these people are not the exception, they are the rule. As long as governments provide equal rights for all human beings and families are more conscious and supportive towards their children regardless of their sex, it will be inevitable that we see more and more examples of these people every day.

Therefore, what should be done in order to ensure that next generations live in a just, liberated and nurturing environment is to primarily fight gender roles in our minds. Acknowledging the existence of a gender dichotomy and that it brings about a lot of ethical problems affecting the society is a good place to start. It is difficult to subvert a notion that is engraved in one's mind unconsciously. Yet, since it is strongly emphasized that the brain is not hard-wired, it suggests that each human being is capable of change and adaptation. Being aware of this fact and not making a conscious attempt to change one's mindset would be an insult to human intelligence and dignity. And thus, it is every human being's moral duty to fight gender injustices in the society, regardless of which areas of life we encounter them.

CHAPTER IV

CONCLUSION

Recent neuroscientific studies have been used to justify gender differences in society. Physical and functional differences in the brain, which some neuroscientists claim to have identified, are believed to explain the difference between male and female mind states. The same approach holds that mental states are the only factor determining behaviour. However, this theory is very simplistic, and fails to account for a number of problematic gaps in our knowledge of how the brain works, how it relates to the mind and to gender. For instance, there are controversial arguments as to what defines sex, what it means to be a female/male, and whether sex determines gender. Moreover, there are strong anti-reductionist arguments in the philosophy of mind that openly presents an obstruction for the neuro-sexist claims, such as the empirical gap problem, Multiple Realization theory and psychological experiments. Adding into the equation the ethical issues regarding both the ethics of science that is often being disregarded in the interpretations of neuroscientific data, and also the moral duty for fighting gender injustices in the society, neuro-feminism rises in defence of ethics, justice and fair behaviour in science. Neuro-feminism insists that both the science and the arguments following the scientific data should be free from bias in order to be taken as a reliable authority. Therefore, the neuro-feminist theory suggests that it is crucial to avoid hasty, dichotomous generalizations regarding gender and gender traits, and emphasizes the importance of an ethical approach to be held by the neuroscientists and philosophers in this area of study.

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