

“Progressive Science, Racial Concepts” (M-PSTS)

Progressive Science, Racial Concepts

American Race and Ethnic Classifications, Technologies, and Discourse of Scientific Racism

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Summary

When your cryobank offers a selection of sperm donors, how important are race and ethnic information to you from the rest? And do you think it is discriminatory if vials containing gametes are colour-coded to prevent unwanted insemination? When ethnic and racial groups are included in the research, how important is the method of reporting their race and ethnicity? Addressing these questions, the early 2000s discussants confronted disputes concerning race concepts and how they might be used and redesigned. For them, the central paradox of race was that medicine should caution against discriminatory views while medicine should disclose how racism plays out in the disease and health of racial and ethnic minorities. The thesis will explore scientific non-racism in the focus of American discourses on race concepts in the period, and more specifically how scientists and technologies played a role in articulating the nonracial use of race concepts.

Historians characterised the period with expanded scientific participation of racial and ethnic minorities as well as widened access to reproductive medicine. Few accounts of the period offered explanations for why pessimism about racial classification continued amid optimism about health research and assisted reproduction technologies, however. The debate I raised in the project using selected accounts suggests that contemporary discussants saw the use of race concepts to be double-sided and racist abuse of race concepts difficult to determine. This is what I call “confounding of scientific racism”. Assessment of technologies based on new approaches of scientific racism resembles the view of contemporary philosophers of technologies (Paul Rabinow and Peter Paul Verbeek) towards reproductive and genetic medicine. Analysis of scientific racism is important for why the discussants of the debate did not reject race concepts in medicine outright. For them, a crucial question was who has the power to decide what is nonracial race concept. And who is going to provide guidelines on race concepts in biobanks and sperm banks? Notable controversies in race concepts of the period called for guidance or regulation on the scientific use of classifications across the discipline and between disciplines. From the context of confounding, controversial uses of the race led to redesigns and race-neutral designs, such as unstratified categorisation of ancestry and same-race matching of donor gametes. As scientific racism turns out to be more complicated, new approaches to race concepts in medicine arose, which I call “articulation of non-racist medicine”. The discussants not just appealed to technological solutions to racial problems but also to non-racism by suggesting the benefits of diversity in resolving racial health disparities. The focus helps us answer a more important question. Can we agree on (what might be) the moral framework of non-racism, and apply the notion to improving race concepts and calls for diversity in research participation? To take responsibility for racial issues is a political act. Genomic analysis of individuals living in remote areas in the world is again a political argument. Discussion in society about race concepts and social scientific work are the main sources in the project that reveals the relevance of science and technologies. The project’s selected accounts of non-

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racist and progressive uses of race concepts that disclose the period’s idea of non-racism highlight the importance of denaturalising the role of technologies in controversies and their role in political discourses of racism.

Acknowledgements

During my journey from South Korea, waiting my connection flight to Bologna Italy, I stayed in a hotel in Bessie Coleman Straße in Frankfurt in August 2022. At home in Bologna, I wondered who Bessie Coleman is. Bessie Coleman is a first African-American aviator. Coleman was born in 1892 in Texas to a sharecropper family (that does not own land). Young Coleman picked cotton much like her parents, but she later obtained sponsorships to go to a flight school in France. Calling a street in Frankfurt Germany in honour of her name is not surprising for us, but twenty years ago it was a new thing to commemorate African-American aviators, scientists, and artists in public.

I have been very fortunate to have had many wonderful people around that have greatly contributed to it. First, I would like to thank my supervisor Michael Nagenborg and Peter Stegmaier. Michael, thank you for encouraging me to think about the way scientific racism is not only the matter of certain topics of medicine but broadly of sports, alcoholism, and others. You have suggested early on (what has later become a theme of the project) that racism and non-racism are technological and political constructs. Peter, thank you for your valuable feedback on the final draft and suggestions on recent STS literature. I would also like to thank the philosophy department secretary Ada Krooshoop and PSTS study advisors Yvonne Luyten-De Thouars and Jan Nelissen. You all have helped me in making the project more complete.

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Chapter 1 Introduction

The fact that the word race does not occur in the description of nature (but instead, in its place, the word variety) cannot keep an observer of nature from finding it necessary from the viewpoint of natural history.

—Immanuel Kant, “On the Use of Teleological Principles” (1775, 2012)

The continued “soft” use of race by that well-meaning group acts to legitimize the “hard” use by true believers and scientific racists.

—Alan Goodman, “Bred in the Bone?” (1997)

In less than 2 decades, Kenyans came to dominate the top 20 performances in six races ranging from 800 meters to the marathon.

—Constance Holden, “Peering Under the Hood of Africa’s Runners” *Science*. (2004)

1.1 Historical Inventory

This thesis project began with a research interest in racialised discourses on East African runners that, finally, lead me to investigate the binary of negative and positive uses race concepts in medicine. It became clear to me that the early 2000s sports medicine discourse about East African “supremacy” (Hamilton, 2000; Moore, 2016) raised important questions in science and society about racial and nonracial uses of racial and ethnic classifications. While reading the book *The Sport Gene* (Epstein, 2014) and related scientific debates, I developed an interest in the technologies of race classifications and the politically divisive quality of race. A further investigation of racial and ethnic classifications beyond sports medicine showed me that race concepts in medicine indeed have wider application: for census classifications, genetic risk factors, and donor catalogues and racial matching in assisted reproduction. However, these debates from around the year 2000 have remained underexplored even though they may have implications for philosophical notions of scientific racism and non-racism.

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The research to date has tended to focus on racial use of technologies rather than nonracial uses (Feenberg, 2014; Rosenberger, 2017). Historically, Langdon Winner’s well known essay “Do artefacts have politics?” urged researchers to investigate the political aspects embedded in technologies. In a famous example, he drew attention to how the low bridges in the urban planning by Robert Moses encouraged segregation by preventing access of people of colour to public beaches (Winner, 1980). The exclusionary effects of such technologies are difficult to reverse as buses, which were frequently used by people of colour and taller than the overpasses of Moses’ low bridges, could not travel from largely black neighbourhoods to the beach (2022). While the story has since been challenged (Kessler, 2021), the overpass has been seen as an example of the politics of technologies and the contemporary segregation between black and white people in the US. For Winner, the overpass is a case for designing technological solutions that only benefits the selected few.

A somewhat different nature of racism has taken form in sports medicine discourse. In particular, academic and science magazine articles in the West proposed the idea of East African dominance in long-distance running and West African dominance for performance in sprinting.(i.e., 100 m to 400 m). In this proposition, genetic research, and then environmental and cultural exposure, would become the primary method for analysing African supremacy in running. However, to the disappointment of those who believe that East Africans have a genetic advantage, academic research has mostly failed to bring together research on demography, diet and socioeconomic factors. Indeed, 2021 reporting of Sifian Hassan (Boxhoorn, 2021), for instance, did not frame her success to be genetic nor environmental (Hassan is a Dutch woman athlete with Ethiopian heritage). Even so, what is wrong with inquiring success with racial and ethnic information? For those who believe in damaging effects of sports medicine, such inquiries are not benign (Hoberman, 2010): they might go wrong, since such inquiry can entail imagining differences between us and them, encouraging analysis based on race and ethnicity that amplify differences instead of similarities.



Figure 1: Olympic medalist Sifan Hassan

Gold medalist Sifan Hassan reported in NRC on August last year with the title: “I am just a human being who follows her heart” (“Ik ben een gewoon mens, die haar hart volgt”). The title might have succeeded in dismissing common beliefs that she is different from all others, and that her Ethiopian background is her secret weapon. Hassan runs middle and long distance like many other Ethiopian athletes (Boxhoorn, 2021).

It is necessary here to clarify exactly what is meant by race. Race is a structure by which classifiers of race are concerned with clearly delineating who belongs to which category, eliminating borderlands and ambiguity (Bowker & Star, 2000, p. 195). Ancestry is criteria to assign someone to a racial category, but it is by no means an easy one. Eighteenth century painters, for instance, complicated the conventional three-part category of Spaniards, Indians, and mixed-race ancestries. Some people’s ancestry could be mixed of many ancestries (“I don’t understand who you are” or “no te entiendo,”) or difficult to trace backward (“a jump backward” or “salta atrás”)(Vlasits & Deans-Smith, 2011). In casta paintings, mixed multiple and racially undefined families are in view in a series of sixteen individual canvases or a single canvas divided into sixteen compartments (Deans-Smith & Katzew, 2009). Can all sixteen types fit into the category “mixed race”? Race helps to generalise all members of the “race” as people who share something with one another. Racism or racial prejudice arises from this very generalisation. To a racist, superiority and inferiority could be transmitted through race from a parent to a child. Although racism presupposes racial classifications, they are different. And so I answer negatively whether philosophers like Immanuel Kant who classified race are

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racist¹. Racism has moral and political implications: mass shooting, mass incarceration, and mass recruitment to clinical trials. Race in racial classifications shapes our views of individuals as we see them through similarity and difference between groups.

The scientists and journalists were obsessed with the “sports gene” (D. J. Epstein, 2014) of black athletes, and they supported providing education abroad to young East African males. These scientists and journalists are not racist according to our definition. Yet, targeting specific tribes and elite athletic groups in Kenya for comparative purposes also touches on a perceptual problem of difference. Categories such as “African” is accepted in case-controlled studies of sports medicine (e.g., Pitsiladis et al., 2004) while anthropologists at the time rejected them (e.g., Marks, 2000). The debate raised between these two focused on whether racism is not prejudicial and whether racism could be positive.

Sociological articles on African-American “dominance” in sports have revealed racial profiling and discrimination toward athletes, which shocked many² (J. Hoberman, 1998). Yet Hoberman persuades us to think that sports medicine discourse uses a simple profile of a black athlete who succeeds thanks to her/his supreme physical endowment. Rather, biographies of runners and the social and cultural life of East African runners were also provided. This is why popular scientific works like *Taboo* (Entine, 2000) were responded favourably for introducing race in plain terms sports medicine discourse. If racial concepts are politically discriminatory, why did the American public respond this way to Entine’s work? So far, Western sports medicine used race concepts to frame elite running performance as “East African” running success. Does the kind of racism found in Langton Winner’s example of the underpass also apply here? The discriminatory and political uses of race in that example could be too limiting for sports medicine. If technologies like the underpass have inherently discriminatory qualities, East African running success troubles the definition of discriminatory effects.

Racial classification has played out in the context of Western sports science to include East African runners and study them for the inheritable supremacy they might have. For example, the idea of difference

1 These are working definition of race and racism. Scientific racism is a particular way of looking at racism in science first developed by a UNESCO statement on race and the work of Journalist Ashley Montagu (Montagu, 1945). Throughout this thesis, the term scientific racism is used to refer to the racial issues raised and discussed in the early 2000s American medicine.

2 “I’ve checked everything, Sir... his bones, lungs, heart... there is nothing extra to make him run faster.” The cartoon image appeared in the Sunday Nation, Nairobi. The image portrays two scientists discussing the body of a (tied-up) Kenyan man. Hoberman wrote the following about the way race is involved in such investigations: “Much to the bemusement of Kenyans, scientists from around the world have *descended upon* Kenya to try to *unlock the mystery* of the country’s extraordinary road running success” (Hoberman, 2002).

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might also be working between the relations of black athletes and white scientists and journalists. Black athletes are interviewed, photographed, and micro-scoped of how different they are from European, Scandinavians, white Australians and other athletes. Success of white athletes on the other hand were not marked by their race but rather their work and love-of-sports. In the magazine *Science*, journalist Constance Holden (2004) tells about the “fuel economy” of East African bodies. In fact, there is no sign that her description involves negative prejudices; but she clearly suggested inheritance of supremacy and inferiority through race. Scientific discourse like this enforces race and there might be irreversible effects to how we see inheritance (Marks, 2001). Surprisingly, many Americans were not afraid to speak and read about East African running phenomenon (Entine, 2000). The dynamic of including East African runners in modern sports medicine led to a wider circulation of scientific discourses on East African runners to the public. In the period of East Africa running discussion, discussions on genetic medicine and social epidemiology of racial disparity also took place.

Given the positive interpretation of the sports medicine discourse, the negative and discriminatory interpretations of genetic medicine were puzzling at first. For example, some argued that the inclusion of groups for research on genetic risk factors could justify in the society existing prejudice about the groups in question (Goodman, 1997; Roberts, 2008). When abused for sterilisation of these groups, racial statistics will have irreversible effects on racial and ethnic minorities (Krieger, 2004); genetic risk factors could be abused to select at risk populations and sterilize them, changing their prospects forever. Philosopher of science Michael Hardimon claims that such identification of the medical race concept with racialism was for many a source of objection against medicine (Hardimon, 2012, 2013). A more convincing argument than Hardimon’s however is based on benefits of inclusion to improving health disparity and quality of healthcare (Haslanger, 2013). Indeed, discourses about race concepts in medicine involved questions on the inclusion of racial and ethnic minorities and racial profiling and exclusion of those groups (Epstein, 2008). How inclusion worked in genetic and reproductive medicine is an open-ended question, but the example of sports medicine made clear that we cannot work with the binary of negative and positive implications to understand race concepts. To be clear, concerns about dignity self-determination and other sources of harm can’t be neglected. Rejecting the use of race concepts like above is not the only way of opposing scientific racism in medicine, given positive and progressive uses of race concepts and efforts to redesign race classification.

In the current thesis project, I argue that the debate around nonracial use of race in genetic medicine requires further investigation. [How does historical inquiry on racial classifications in American medicine help understand notions of racism and non-racism philosophically?] Philosophical analysis of race concepts in medicine should not be limited to understanding divisive or inclusive qualities of race concepts, but should be extended to the discourses of racism and non-racism. This implies weaving the medical and technical discourse with the political discourse. Likewise, racism and nonracism are not abstract ideas about

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discrimination existing without the period’s developments in American medicine. The intertwining of inclusion and exclusion, discrimination and diversity were interpreted as a quality of racism (West, 1993), but the project applies that to scientific racism. Throughout this thesis, the term scientific racism is used to refer to the way racism, non-racism, and other racial issues were raised to discuss race classification in genetic and reproductive medicine.

The key premise then is that race classifications are racialised. Key to my definition of scientific racism are two ways to understand how racial issues are raised in science. For example, critics of sports and genetic medicine highlighted racial issues in their interpretation. The question of why there are so many elite runners from East African nations—or the question of why there are so many diabetics among Pima Indians—disregard how individual members of the groups differ from one another. This is the first problem of “racialism” (Appiah, 1992) – which is the view that the heritable characteristics allow *us* to divide *them* into a small set of races, in such a way that all the members of these races share certain traits and tendencies with each other that they do not share with members of any other race (Appiah, 1992, p. 266). Yet, scientists must design research based on sufficient information on social and cultural particularities that may help describe health and disease of the individual in question (Gravlee, 2009). This is the second problem of racial colour-blindness which is the aim to be fair in regardless of racial and ethnic background in employment, voting, and scientific decisions, which creates particular tension with racism in contemporary American society (Zuriff, 2014, p. 309). Using this definition of scientific racism rather than politicization, we could understand how racial classifications and racism are closely linked.

Race concepts in medicine have wider application in medicine in general: in census classification, genetic risk factors, donor catalogues and racial matching in assisted reproduction. Recent work tells that the effect of race classification in the sports medicine discourse to single out a tribe or an ethnic group for supremacy and homogenize them into a group is not quite different from genetic medicine discourse. Anthropologist of medicine Joan Fujimura tells that the validity of associations between genes, social identity, and socio-histories (Fujimura, 2015) hinges on race concepts. Indeed, an important question is why such associations of risk and supremacy with race were seen as discriminatory on their face level. Given negative framing, we can’t inquire how different race concepts shape such associations and how race classifications could be designed and modified. Race concepts are inventions, designs, or arrangements of a technical device or system that are malleable to change. Exploring designs of categorisations or designs to change race sensitivity for instance are material changes to race concepts. Without them, race concepts are black boxed and appear resistant to change (Bowker & Star, 2000; Winner, 1980).

The use of race concepts in medicine is seen to be politically motivated. But those who develop race concepts in medicine may also develop political perspective on racialism and colour-blindness. A good

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example is the statistics of human variation (Risch et al., 2002). Neil Risch and his colleagues in Stanford University were not just interested in technological solution to find better answers to classification, but they were also interested in inclusion and colour-blindness. Another good example is the dismissal of the thrifty hypothesis. This hypothesis considered Pima Indians to inherit diabetes due to diabetes mellitus. The thrifty hypothesis tried to explain nutritional changes as environmental changes, including the poverty and discrimination that the Pima people have suffered (Sievers et al., 1992). Within the hypothesis, highlighting the genetic factor could mean we either blame Pima Indians for their diabetes (“these people eat crappy food”) or we blame the evolutionary occurrence of the Mellitus (“their obesity reflects their past and current poverty”). As the genotype and the hypothesis could be discriminatory to the diabetic populations under study (Paradies et al., 2007, p. 220) “ethnographically derived characterisations” was developed using in situ participant-observation, environmental scans, informal interviews, time use and behavioural inventories, and life histories. Lastly, scientists of Navajo Nation heritage lead other members of Navajos to participate in scientific research, which help include patient groups within Navajo Nation to medical research (Reardon, 2017). These three examples show responses of scientists to politicized race concepts, and similar examples are used in the project. In general, they opposed racialism as well as colour-blindness; they also aimed to suggest technological alternatives on the other. The way notions of racism and non-racism are constituted in the historical context are key interest in the analysis of these accounts: how did researchers in medicine and genetics of human variation responded to the discovery of new genetic risk factors and to the goal to treat everyone equally?

1.2 Racism, Non-racism, and Technologies

Based on working definitions of racism as racialism and colour-blindness, the section provides examples of political discourses on non-racism. I build on work of philosophers of racism (Appiah, 1992) and social scientific works that describe practice of non-racism in the early 2000s science and society (S. Epstein, 2008; Fox, 2009; Reuter, 2008; Smedley & Smedley, 2005). The operation of racialism in intrinsic and extrinsic racism are both relevant to the project; race elimination and racial literacy indicate new understandings that elaborate on what colour-blindness is and where it might go wrongly (Zuriff, 2014).

1.2.1 *Intrinsic and extrinsic racism*

Using examples from athletic racism and positive discrimination in sports, the chapter has so far explained that positive and negative qualities of racism could coexist in the domains like sports. Yet, racism in many other areas are clearly demarcated to be morally wrong when racial discrimination refers to harmful effects to those subject to racism, resulting in lower education and lower life expectancy. Scientific racism, that uses the idea of racism in science, refers to the distorted perception about races that there are inherent traits and tendencies of each race that are not shared with members of other races. Anthony Appiah (1992;2017) cautions against positive and negative racism; or the distinction that use of race in medicine is ostensibly positive while use of race in other areas is negative.

Previously, we stated the definition of racialism as the categorisation of races into a small set, in such a way that all the members of these races share certain traits and tendencies with each other that they do not share with members of any other race. What Appiah calls extrinsic racism focuses on the fact that this is a division of *them* into a small set of races, and implies a difference between us and them. An extrinsic racist believes that different races warrant different treatment based on (proposed) morally relevant characteristics: Lack of hygiene and bodily odour are often considered to be morally relevant. From extrinsic racism, unequal treatment may thus be justified for to those who smell different from us. Extrinsic racist view of race “leads, first, to oppression and then to mass slaughter. In recent years, South African racism has had a similar distorting effect” (Appiah, 1992, p. 271). Racial hygiene is an example of extrinsic racism. In contrast, intrinsic racism refers to the view that race orders communities and feeling between group members. Race feeling is considered natural but cultural as well. Some anthropologists say that race feeling is culturally forged by previous census categories and the one drop rule. The rule originated from the past counting of

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whites and blacks into “white, other free people, and slaves” in eighteenth century US (Ladyzhets, 2020); or in Spain and Mexico “Spaniards, (Native) Indians, and mixed-race”(Deans-Smith & Katzew, 2009). Because intrinsic racism views kinship to be rooted in biology via “blood-based” (Quiroga, 2007) relatedness, its focus on genetic ties also distort our view on race and racial differences. Now recognising both extrinsic and intrinsic racism, we understand that racism fuels anxiety about hygiene and contamination for some; racism also provides emotional resource to kinship. Appiah is right that both racisms are relevant to racism after post civil rights movement, complicating implications to racial and ethnic communities especially when ancestry has been analysed and described genetically (Nelson, 2008b).



Figure 2: Pianist Don Shirley's problems

In the film *Green Book* (Farrelly, 2019), a virtuoso pianist Donald Shirley who toured the south of the United States during the early 1960s was refused of dining at the restaurant, despite being invited to the restaurant to perform. He was refused because of his colour. (Image source: Darkside Cinema)

Civil rights movement led by black leaders and athletes provided social and political contexts to problematize racism. Importantly, they refer to extrinsic racism mainly. Unequal opportunity to people of colour after the civil rights act was not corrected in certain states and communities, as the film *Green Book* (Farrelly, 2019. 110:10) has shown. The *Green Book* refers to the hotels, restaurants and amenities that a traveller of colour can visit. Likewise, people of African-American, Asian, and Latino heritages become discriminated in residential, employment and romantic decisions. Moreover, revealing racism in various social areas involves establishing nondiscrimination as social value also. In contrast to the rigidity of categories and protracted character of racism, flexibility of social status and fairness became implicit social value for Americans. Lawyer Michelle Alexander told us that Americans like to believe that anyone can

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succeed regardless of their background. From frustration, many people feel simply ashamed by incarceration of many black and Latino men (Alexander, 2011). In sum, problematisation of extrinsic racism was intertwined with social values about fairness and personal success.

1.2.2 *Race elimination and Racial Literacy*

The Civil Rights Act of year 1964 and regulations against discrimination has worked to problematize race. The elimination of colour line became an important issue for mixed-racial neighbourhood in the United States. In this context, differences between racial groups were seen to be racially constructed rather than existing naturally. While racialism (stated above) is a false proposition that distorts perception, process of racialisation shapes the person and social relations. Racialism emphasises the operation of race in seeing similarity and difference between individuals. “Race essentialises and stereotypes people, their social statuses, their social behaviours, and their social ranking. In the United States and South Africa, one cannot escape the process of racialization” (Smedley & Smedley, 2005). Smedley mentions stereotype, social status, and behaviour that are all seen as information about a person that race could tell. For example, healthcare disparity and high mortality of African-Americans could indirectly reflect racial discrimination. Civil rights activists in the late 1990s proposed reforms in the National Institute of Health and National Institute of Medicine (Epstein, 2004) – one of which was recruitment of more African-Americans to clinical trials. What they are arguing should not be confused with eliminating race but combating racism.

Various initiatives in science and public policy were criticized for their ignorance on ‘racism’. This is the idea of racial literacy. Some call this race sensitivity (Fox, 2009; Twine & Steinbugler, 2006). Their idea is that race consciousness can include at least three dimensions of racial literacy: double consciousness, negotiation of local racial meanings, and seeing routine forms of everyday racism. Racial literacy is especially important to resolve is racial colour-blindness which is the aim to be fair in regardless of racial and ethnic background in employment, voting, and scientific decisions, which creates particular tension with racism in contemporary American society (Zuriff, 2014, p. 309). And so colour-blindness is thus better developed as racial literacy. Scientists must not favour white or any racial and ethnic groups in their study; but scientists must design methods based on sufficient information on particularities of racism and locally circulated meanings of race that may help analyse disease or health phenomena in question.

In the late 1990s, it was a relatively new claim that there are racial and ethnic minorities whose health was neglected for a long time. By 1998, the Clinton administration mandated to eliminate health disparities by 2010 in areas such as infant mortality, cancer screening, and diabetes (Root, 2001). In addition, proponents of the mandate later appended legal provisions on diversity in participation in health research – that is, they acknowledged that including women and racial/ethnic minorities to clinical trials is crucial to

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eliminate and to investigate sources of health disparity. This mandate of inclusion in health research refers to specific clauses in the US National Institution of Health’s Revitalisation Act in 1998. Reformers had won significant and unprecedented legal victories in the Act to replace previous exclusionary guidelines in Food and Drug Administration (Epstein, 2008). According to Epstein (2008), the Act was considered a social justice victory as proponents of the Act succeeded to get their views about access and equality out into the public discourse. In the early 2000s, then, diversity arose as a political concern from scientific policies of inclusion.

1.2.3 Race Concepts in Census Classifications and Same-race Matching

What follows is an account of racial concepts in two domains of medicine. As indicated previously race classification has wide currency in medicine: in genetic risk factors and racial matching in assisted reproduction. And the classification that is circulated is what is outlined in the national census that the federal government is in charge and president’s office issues revisions (Banton, 1998). When people filled out the census on year 2010, they found in the sheet of paper (Figure 2) a different category than a century ago (Ladyzhets, 2020). One question about race and one about ethnic origin. That is, race and ethnicity questions are newly combined, and more categories are added by demographers. The American Anthropological Association indeed recommended for 2000 census that the OMB combine the separate race and ethnicity categories into one question; they also recommended eliminating 'race' as a category by the time planning begins for the 2010 Census.

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What is this person's race?
 Mark one or more boxes **AND** print origins.

White – Print, for example, German, Irish, English, Italian, Lebanese, Egyptian, etc.

Black or African Am. – Print, for example, African American, Jamaican, Haitian, Nigerian, Ethiopian, Somali, etc.

American Indian or Alaska Native – Print name of enrolled or principal tribe(s), for example, Navajo Nation, Blackfeet Tribe, Mayan, Aztec, Native Village of Barrow Inupiat Traditional Government, Nome Eskimo Community, etc.

Chinese Vietnamese Native Hawaiian
 Filipino Korean Samoan
 Asian Indian Japanese Chamorro
 Other Asian – Print, for example, Pakistani, Cambodian, Hmong, etc. Other Pacific Islander – Print, for example, Tongan, Fijian, Marshallese, etc.

Some other race – Print race or origin.

Is this person of Hispanic, Latino, or Spanish origin?

No, not of Hispanic, Latino, or Spanish origin
 Yes, Mexican, Mexican Am., Chicano
 Yes, Puerto Rican
 Yes, Cuban
 Yes, another Hispanic, Latino, or Spanish origin – Print, for example, Salvadoran, Dominican, Colombian, Guatemalan, Spaniard, Ecuadorian, etc.

Figure 3: Racial categorisation used in March 2020 American national census

Scientists exploring disease aetiology and drug response have identified that genetic differences they found between populations did not always correlate with population groupings given by census classifications. Smart et al. (2008) observes that biobanks and other medical institutions disclosed the question about the technology: “will a genetic concept of race and ethnicity ever be portable enough to wholly supplant a socio-political one?” (2008, p. 419) . That is, what works for scientists is valid associations between genes, social identity, and socio-histories (Fujimura, 2015) but that may not work politically in politics of racism and identity politics. This discussion noted by Braun on the validity of race and ethnicity of race classifications deepen the problem that Smart and Fujimura both described. Most

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commonly used five definitions differed in their conceptualization of race and ethnicity which shape as assumptions about disease causality, and solutions to disparities in health (Braun, 2006). Braun included other scholars who called for completely replacing race into populations, ancestry, and other biological facts (Gannett, 2003; Rosenberg et al., 2002). And so there was continued dispute on how exactly census classification of race and ethnicity should be used in medicine as race concepts. Operationalisation of racial classifications can shape sampling of who is included and excluded in the research (Weiss & Fullerton, 2005) and how risk of disease are conceptualised.

What follows is an account of race classifications in different domain of medicine – assisted reproduction. Semen samples from each donor were stored and shipped in vials that are colour-coded according to race.

	Light	Medium-light	Medium	Medium-dark	Dark
Caucasian	C1	C2	C3	C4	C5
Asian	A1	A2	A3	A4	A5
Latino	L1	L2	L3	L4	L5
Black	B1	B2	B3	B4	B5

Figure 4: Fairfax Cryobank's racialised donor classification

Sorting people by colour, the scheme is similar to the colour-coding scheme of California Cryobank. Fairfax Cryobank no longer uses this classification. The website that showed the image no longer exist on July 2022.

Seline Quiroga (2007) reported about the California Cryobank that the such scheme was implicitly used in American donor insemination from a few controversies when women whose identified race was

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white were inseminated with African American man’s semen. These unattended racial mixups led to lawsuits because the neighbourhoods and families that a mixed-racial child will grow up were not diverse; people that inseminated recipients met were insensitive and discriminatory, journalists say (Cuevas, 2014). A colour coding scheme was seen as solutions that could reduce the error, as Quiroga reported (2007). With graphic resources from Fairfax Cryobank, the colour coding scheme is not the only way race (or colour) is used profile donors.

- A white cap and white cane indicate a Caucasian donor.

- A black cap and black cane indicate a Black/African American donor. • A yellow cap and yellow cane indicate an Asian donor.

- A red cap and red cane indicate donors of Unique or Mixed ancestry.

Although the 2014 case is more familiar to us, anthropologists Dorothy Nelkin and Susan Lindee (Lindee & Nelkin, 2004) reported first incidents that occurred in the 1980s and 1990s in their book *DNA Mystique*. In the 1900s, a black woman requested an insemination from a sperm bank that did not hold black sperm; a surrogate woman argued their connection to the white family’s child and refused to sever connection. Such wishes became socially controversial as the authorities disregarded genetic connection between the child and sperm donors. Likewise, the connection between the child and surrogate mothers were not acknowledged by law. After these controversies, matching between same race donors and recipients was practiced commonly in the US and in other countries. The racial matching method not only prevents racial mix up but also promotes a perspective on race that use race interchangeably with genes. Racial mixup troubled and offended those who think that genetic connection creates an enduring bond between parents and their children; racial matching is more harmonious with the notion of race as genetic connection.

1.3 *Thesis Outline*

The thesis will explore the notion of scientific non-racism in focus of the early 2000s period, and more specifically how scientific research and technologies play a role in distinguishing scientific racism from non-racism. The analysis of scientific non-racism is promising to explore how scientific racism was opposed in the discourse of genetic and reproductive medicine and technologies. Lenses of bio-sociality (Rabinow, 1992, 1996) and multi-stability (Verbeek, 2011) will be used in analysing ethical content of the accounts. Analysing arguments in articles of question (Fogg-Davis, 2001; Fogg-Davis et al., 2005; Fox, 2009; Fullwiley, 2014; Smedley & Smedley, 2005), to name a few from two case studies, help me raise the debate between them. The debates were not described in other interpretations about scientific-medical discourses on race concepts (*Maung, 2019; A. J. Morning, 2011; C. Russell, 2015*). The aim is to analyse the shift from somewhat polarised and clear-cut understanding of what scientific racism is to a more complicated one. Biosociality (Rabinow, 1992, 1996) and multi-stability (Verbeek, 2011) are particularly suitable philosophical themes for the analysis. For this reason, the first sub-question question of the project inquires: [“how did racial and non-racial uses of genetic markers and donor insemination became seen as double-sided and historically contingent?”] Indeed, various perspectives exist on the divisions between scientific racism, antiracism, and non-racism. Biosociality and multi-stability are two of these perspectives that I use to answer the first sub -question.

Philosophical themes such as biosociality and multi-stability challenge existing explanations on why using race concepts in medicine is problematic. What are some alternatives, and how are scientific non-racism, explained in these discussions? Previously, enduring fears around the generalisation of the human (white, male, 70 kg, able-bodied) and optimism around socially progressive uses of science and technology were provided individually. Finding out how discussants responded to fear and optimism requires analysis. I raise the debate between those that discuss census classification (Bustamante et al., 2011; Risch et al., 2002) and those that discuss same-race matching (Lindee & Nelkin, 2004; Quiroga, 2007). I raise the debates between them since they were not described in other accounts about the notion of scientific racism developed in the period (Daniels & Heidt-Forsythe, 2012; Hacking, 2005; Roberts, 2009). The second sub-question is: [“How did controversies on natural kinds shape ideas of non-racist use of race concepts in medicine?] Philosopher Bruno Latour's investigation of techno-scientific controversies could be extended into our investigation of controversies in race concepts. His ideas help inquire how technologies and ideas arbitrate

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disputes in race concepts and regulate disciplines, as selected scientific articles might show. These two questions help answer the main research question: [how does historical inquiry on racial classifications in American medicine help understand notions of racism and non-racism. philosophically?]

Chapter 2 Confounding of Scientific Racism: Double edged swords and Race-neutral designs

This is capitalism and liberalism, not eugenics, by either the front or back door, at least insofar as eugenics has acquired an inescapably negative meaning in our contemporary culture

— Paul Rabinow in his essay *Biopolitics Today* (Rabinow et al., 2006, p. 211).

How to conceptualize the moral significance of things, when morality is usually seen as an exclusively human affair? How to understand the moral character of actions that are induced by technologies rather than autonomous decisions? And how to develop a framework that helps designers to deal with this morality of their designs in a responsible way?

— Peter Paul Verbeek in his book *Moralising Technology* (2011, p. x).

2.1 Chapter’s Introduction

Previous chapter defined race as American racial categories that have been shaped through certain technologies during the late 1990s and early 2000s medicine, in particular technologies of genetic risk factors and assisted reproduction. When racial categories are thought to be in the domain of culture in general or race as a concept that are used as resources for group identities (Nelkin and Lindee, 2004; Banton 1980; Appiah, 2017), scientists and discussants did not feature prominently to race and racism. In contrast to previous literature, scientists and discussants become visible either in defending or accusing census classifications or discussing controversies around assisted reproduction.

What don’t know from literature is why technologies may not only discriminate by creating straightforward political binaries. In particular, I will show how the racialisation³ of research participation can problematise science as racially prejudiced. Racialisation refers to the framing of issues like research

3 Some made it clear that racialised view on disease risk and reproduction can be objectionable for possible discrimination against people. Racial classification operate to racialise biological characteristics; race encourages medicine to adopt biological explanations at debates over disparity of health. Since this involves another view on racialisation, this argument is explored in the next chapter.

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participation as racial domination. For example, low percentage of black scientists in the United States is seen to reinforce racial domination of blacks and the authority of white scientist over nonwhite subjects. The problem of who is included as scientist and who as participant is can indeed be seen via racial domination. Yet, this framing was challenged significantly since research started to recruit more and more participants from diverse populations and advocates of racial and ethnic minorities promoted inclusion to science via legislation (Epstein, 2007). Sociologist of science Stephen Epstein echoes Paul Rabinow’s view that I discuss in this chapter in depth. Rabinow’s view was that the framing of bio-citizenship has emerged as an alternative to the biopolitics of exclusion (Rabinow, 1996; Hacking, 2006). Scientists of ethnic and racial minority background such as Navajos have themselves advocated inclusion of their people based on these new understandings of research participation via bio-citizenship.

Therefore, in attending to the way new technologies complicate discrimination, we need to evaluate arguments involved in earlier ethical assessments of science and technology. When using racialised categories, medicine could have exclusionary effects on the very groups and subgroups that has to be included and considered for their differences. But others also made clear that science, technologies, and medicine may operate to use racial concepts to recognise differences and structural violence than racialised images of “groups of disease risk” (and likewise, the “too fertile” and “the infertile”). If national research agendas can be said to have racial concepts and if new assisted reproduction technologies maintain racial preferences, then (they argue) race concepts in these practices are inherently divisive and discriminatory.

Philosophers of technology have long debated how technologies are open to multiple moral values and social implications, yet also influence the uses and meanings (Ihde, 1990). Therefore, I will show that the concept “multi-stability” (Ihde, 1990; Verbeek, 2011) help explain changes in racist meanings concerning scientific participation and parental choices of ethnic and racial matching (in donor insemination.) Essentially, I will argue that multi-stability can help explain the changes in what scientific racism meant in different social and political contexts. The research question I want to answer in this chapter is thus: [“how did racial and non-racial uses of genetic markers (and donor insemination) became seen as double-sided and historically contingent in contemporary debates?”] To answer this question, the chapter will focus on two case studies and use the concept of multi-stability to investigate the changing meanings in scientific racism.

The following section applies the concept of multi-stability to analyse scientific racism in these two cases studies. For the purpose of the analysis, my definition of multi-stability will be grounded in the formulations in two essays which have been influential in the contemporary debate on eugenics and reproductive politics. One is the essay titled “Biopower Today” (Rose and Rabinow, 2006) that discusses the dichotomy between logics of mortality and logics of vitality in contemporary discussions on genomic management of the population by the state. The other is the essay titled “Technological Mediation of

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Morality” (Verbeek, 2008) that questioned a simplistic view on technology’s relations to parental values and argued for the ambiguity of prenatal genetic screening.

2.2 Convergence of Biosociality and Multi-stability

Recent work by historians has established that reproductive choice became limited after the introduction of new technologies to identify foetuses with major malformations or crippling and terminal genetic disorders (Franklin & Roberts, 2006). These issues are part of a broader politics of reproduction which have been influenced by the informed consent principle (Faden et al., 2010), which has since become both an ethical and legal obligation of medical practitioners in the US. Informed consent originates from the patient's right to direct what happens to their body. By providing procedures according to the informed consent, medical practitioners should also assess the patient's understanding, render recommendations, and document the process.

As an expression of reproductive rights – that is, the rights (and obligations) to life, health and cure –, informed consent in Western Europe and North America was called for by feminists and patients' groups. From the perspective of activists in particular, it is important to bring discrimination into public discussion as well as to extend their concerns to others – those who have risk of being ill and those who have to care for them. The term biosociality has been proposed by Paul Rabinow (1996) to highlight changed definitions of citizenship in terms of positive freedom to life, health and self-care. Broader context to biosociality is that technologies become a site of political and ethical controversies, including racism.

Historical perspectives like biosociality highlights controversies in which nature of new reproductive technologies were disclosed to have potential for both liberation and oppression. Rabinow and Rose’s framework to understand and overcome the dichotomy between “logics of mortality” and “logics of vitality”(2006, p. 211) is a widely used method in contemporary debates on eugenics and rerogenetics. Their method suggests that using genetic techniques to diagnose and even select against embryos with Down syndrome or foetal tube syndrome can be distinguished from the logic of mortality signified by eugenics. Logic of mortality refers to “the possibilities of genomic management of the population—designer babies, engineered futures, the ‘sorting society’ and the like” that have a powerful symbolic presence in contemporary biopolitics (2006, p. 211). Moreover, seeking to use those techniques to diagnose intelligence and eliminate the “feeble-minded” can’t be distinguished strictly as logic of vitality either. Although Rabinow and Rose (2006) correctly apply nonbinary logics (vitality/mortality) to genetic screening and

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selection, the method has, to my knowledge, not been applied to logics of racialization. This chapter therefore applies their method to situations of racial sorting in assisted reproduction and science of racial health disparity.

Reproduction is the area where coercion and influences on personal choice is particularly stigmatised (C. Russell, 2015). As voluntarism was practised in reproductive medicine in the postwar era, perception of assisted reproduction and related procedures have changed. The inherent ambiguity of voluntarism is that while reproduction is seen to be fundamentally individual in the context of informed consent. Reproduction is always situated in an array of connections between the individual and the collective (Rabinow et al., 2006, p. 208): that is, between the family and the clinic, between women and the sperm bank, and between the recipient and the gamete donors. Such relations between the individual and the collective (the state) complicates questions about revival of eugenics: which symbolizes a violation of voluntarism and superseding of self-care by the state’s management of the population. In contemporary politics, individuals have been using ethnic matching and genetic screening, expecting specific reproductive outcomes: higher intelligence, less risk of disability, lighter skin, etc. This is what Rabinow and Rose called the “individualization of biopolitical strategies” (2006, p. 205). Classification, standardisation and generalisation, and alterations in the gross characteristics of the population is being done for the virtue of self-care and personal choice.

This individualisation of biopolitical strategies was then further developed in an essay by Peter Paul Verbeek (2011). In this essay he recognises that individuals are not the only one shaping one’s moral subjectivity. The main example he gives is based on parental decisions about a child’s health and social well-being that emerge in sites where technologies are used, such as the use of prenatal diagnostic ultrasounds. On one hand, the design of imaging technologies for screening the foetus through ultrasound for various diseases and disabilities can be seen to encourage a specific medical view on the foetus – what Verbeek calls the “foetus as a patient” (2011, p. vii) On the other hand, the imaging may discourage abortion, as emotional bonds between parents and the unborn is enhanced by allowing the parents to visualize their baby – what he calls “fetal personhood” (2011, p. 25). Technologies thus appear to mediate the decisions made in medical processes (see also Mol, 1997, 2011), even when: “the decision not to be put in the position of having to make a decision appeared to be a decision as well” (2011, p. vii). The much valued relations between expecting parents and an unborn child, and the value given to voluntary choice for health are all social values that were mediated and questioned by foetal imaging technologies. Donor selection in assisted reproduction is intertwined with the framework of choice (C. Russell, 2015) and decision-making applied to reproduction, which makes Verbeek’s insight useful beyond foetal imaging.

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assisted reproduction may encourage parent-foetal relations in the context of gestation of the sperm to the parent; but in the context of surrogacy, surrogate women’s biological connection to the foetus is neglected to have no kinship with the foetus. Yet, it’s not enough to evaluate the harms that others might experience (including unborn babies) nor is it enough to estimate the harms of parental selection to solidarity to the poor and disabled. Instead, we must attend to how technologies “mediate the relations between parents and children” by positioning them as decision makers to these very harms and concerns (Verbeek, 2011, p. 26). In the case of donor matching, some pointed out that the technologies in use are not inherently good nor bad, so catalogues, artificial intelligence, and online communities are “double-edged sword(s)” (Maung, 2019), that shape values of intimacy and identity formation as well as the vice of racial prejudice. The study is limited by the lack of information beyond Hane Maung’s essay for accounts that applies multi-stability to the discussion on assisted reproduction. To clarify, Maung does not say that we should be ambivalent to harms and benefits, but that racial and ethnic matching can be used positively and negatively.

To conclude the section, reporting and analysing accounts that illuminate multi-stability of technologies may help us understand contemporary debates. Namely, we wonder why some accounts have become critical to earlier conceptualisation of natural kinds and natural distinctions. The following sections (2.3 and 2.4) will further discuss and detail the ideas about scientific racism that have so far been underexplored by research. Such ideas can certainly be found in genetic studies on black and minority populations, which are framed as projects not just with social justice but also as profitable commercial projects.

2.3 Debates on Race Concepts and Sociopolitical Contexts

First regarding assisted reproduction, the question central in the debate on racial and ethnic matching is how technologies mediate framework of choice in such decisions of parents of the donors whose sperm or egg might shape their children. This matter is going to be reported and analysed in the following sections.

Recently, American Society of Reproductive Medicine appended screening for diseases common in all genetic backgrounds (2017; 2021). In addition to various details to the donor profile provided for gamete adoptees, sperm banks thus also have access to donors’ genetic risk. Sperm banks who follow this recommendation could consider using genetic testing to sort out the donors they want (and those they do not want) and potentially provide genetic profiles as information to their clients. According to the Committee recommendation, donors of certain ethnicities are, furthermore, screened of risks of diseases that are common to certain ethnicities. Although ethnicity-based medical screening of donors was not officially in place at the time, the fear about this practice existed in the feminist debate (Daniels & Heidt-Forsythe, 2012).

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The study is limited by the lack of information on the ethical assessments on performing such screening at the sperm banks.

The recommended genetic screening relies on establishing associations with certain humans and diseases. This is the point where the case of genetic factors can be reported. Although such associations are not immutable, in certain socio-historical contexts such human-disease associations could be perceived as correct. As the adage goes, “correlation does not imply causation”. In reality then, the origin of these associations might be found elsewhere, such as because of the past subjugation of ethnic minority groups to poverty and toxic environments which exposed people to various diseases (Maung, 2019). Without recognising these other factors, human-disease associations could magnify DNA’s relevance to diseases, and consequently to race and ethnicity.

Political discourses at the time show politicization of racial statistics in general and racialisation of racial categories in particular – our account of the Proposition 54 in California (2003) relies on two essays (Krieger 2004; Smedley and Smedley 2005). Proposition sought to ban state agencies from collecting or using racial/ethnic data. Collecting race statistics isn’t enough, but it could be a starting point for improving equality of health, proponents argued; racial statistics and human categorisation might make us see economic and health disparity between racial and ethnic groups ‘as the way it is’ or construed as naturally occurring differences, opponents argued back. And so inclusive research and data was not seen as strictly biased/unbiased or as right/wrong at the debate. Rather, the debates around the Proposition showed the general dilemma around using categories that are seen to bear “the mark of social inequality”(Krieger, 2004). The fact that medicine isn’t racially diverse added to the awareness that science stigmatises people of colour. In a widely publicized article at the time, for example, featured a white psychologist, Sally Satel, characterising her practice to be antiracist, although she treats black patients with a racial profile, stating herself that “I am a racially profiling doctor” (Satel, 2002). In the mentions of Satel’s essay, her whiteness appears to be inseparable from her conceptualisation of black illnesses to which she prescribes specific cures (see Graves, 2011). Likewise, racialised medical profiles are associations between histories and health (Fujimura, 2015) and the meanings of associations are not stable. Referring back to multi-stability, science did not exactly ‘tell’ us what to do about health disparity when genetic factors and data about the bodily differences of racial and ethnic minorities were disclosed. In short, as this section has shown, studying and curing racial and ethnic minorities can bring out the underlying racial relations between experts and patients, as well as the various social, material, and historical contexts that play a role in solidifying these associations.

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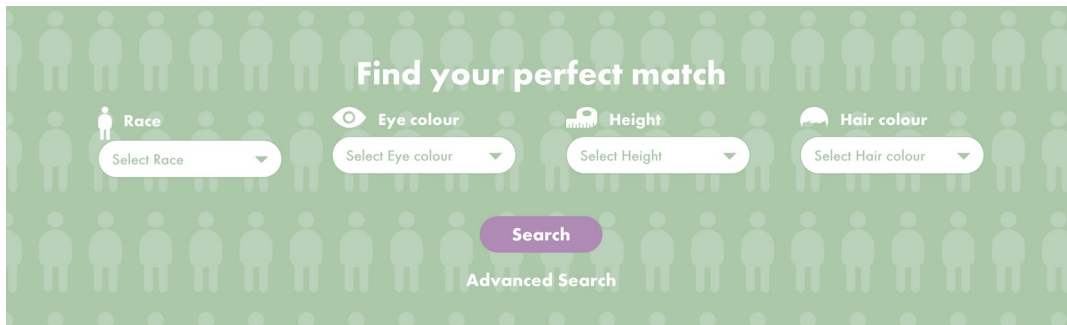


Figure 5: Our donor sperm is higher quality than our competitors' sperm, says the London Sperm Bank (Source: London Sperm Bank, 2022)

The London Sperm bank inquires race, eye colour, height and hair colour (in that order) to potential recipients visiting their donor catalogue. British Committee for Assisted Reproduction Technologies (or HFEA) has only recently published in their *Code of Practice* a statement that recipients should not expect the centres and banks to be matched of ethnic backgrounds. They added that: “where a prospective recipient is happy to accept a donor from a different ethnic background, the centre can offer treatment, subject to the normal welfare of the child assessment” (Human Fertility Embryology Authority, 2014. Section 11. 15) (2015)

Sperm and egg donation markets have been found to have racist problems because government regulation is lacking (Ertman, 2003). Previous research has established that there is public acceptance about racial stereotyping in the sperm and egg donation market (Fogg-Davis, 2011, p.13) linked to lack of regulation. Yet, other scholars have also shown that there is already involvement of institutions and physicians in providing medical recommendations; for example, there are existing legal statutes that cover artificial insemination with the involvement of a physician (Quiroga, 2007). Californian sperm banks and physicians must keep their practice with the statute. So the parenthood market is more regulated than one might think. These sometimes less visible regulatory elements are central to receiving gametes and exercising parental choice. For example, in the US context the various actors are regulated as follows. Physician must be licensed to perform fertility therapies, such as for in vitro fertilization and intra-fallopian transfer. Clinics must report their success rates to the Centres for Disease Control. The American Society of Reproductive Medicine recommends guidelines and ethical standards (Fogg-Davis, 2001, p. 8), although physicians are not legally obligated to follow their recommendations. Semen banks are actors who work with these physicians, while they might seem the most visible actor in gamete donation, matching, and reception, as Tober reported (2001). Customers are to be under a physician’s care to use sperm banks, as the banks run

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policies that require such arrangements (Ikemoto, 1996). Because infertility is considered a medical condition, couples who think they need ART treatment may be approved or denied by the physician. Semen banks’ policies furthermore complement government statutes on how physicians should perform artificial insemination.

In earlier debates, authors wondered if recognising parental choices and agency could amend the racist practice of the clinic by more directly involving parents. Rabinow and Rose (Rabinow et al., 2006), for example, talked about this phenomenon from the informed consent doctrine in Western European and North American reproductive politics. Seline Quiroga on the other hand, inquired about the persistent physician and clinic influence of this period (Quiroga, 2007). According to her, eliminating such persuasion from physicians during consultation on insemination will resolve the disclosure of race that comes through the “back door” from biomedical experts⁴. Authors such as Seline Quiroga thus inquire if “the democratisation of the decision-making could solve the racism of assisted reproduction?” This question complicates the concern about racialist use of race in assisted reproduction.

In this context, “race-neutral matching” was proposed which British society began practicing it from 2014. The British equivalent to the Committees (HFEA) said: “centres are not expected to match the ethnic background of the recipient to that of the donor. Where a prospective recipient is happy to accept a donor from a different ethnic background, the centre can offer treatment, subject to the normal welfare of the child assessment” (HFEA, 2014 in Maung, 2019). The reasons for adopting this kind of matching could be explained as a concern for mistaken beliefs about race, and a regard to the benefits of promoting antiracist views: “If fertility clinics refuse to engage in the ethnic matching of gamete donors and recipient parents, then they avoid promoting erroneous ideas about the biological significance and genetic transmission of ethnicity. This could help to curtail harmful stereotyping and discrimination based on ethnicity, which in turn could encourage the egalitarian view that differences in skin colour, hair colour and ancestry do not matter in the context of forming a loving family” (Maung, 2019). Race-neutral matching was considered a solution to problematic disclosures of donor’s race in assisted reproduction (i.e., racial and ethnic matching).

4 To be clear, the chapter is still early in reporting the debate and we cannot determine whether there is optimism concerning taking back control from biomedicine to the individual.

2.4 Analysing the Confounding of Racism and Non-racism

The focus of my account is how political issues such as health disparity and racism were central to the debate on race concepts in medicine. “Confounding of racism and non-racism” refer to the newly emerging perspective on the meaning and implication of the debate. The sections are used to illuminate how the confounding works, namely by comparison to the broad theoretical assessment about genetic markers and assisted reproduction (provided in section 2.2). I highlight health disparity and racism to show racial issues playing out in the debate, further developing the picture of the debate (outlined in section 2.3). The articles that form the focus have been chosen because they illustrate the perspective that I call “Confounding”. I detail the arguments in the articles to show that they took up philosophical themes (bio-sociality and multi-stability) to argue the ambiguity of race concepts to health disparity and racism. I first visit the debates on genetic medicine and then assisted reproduction technologies.

2.4.1 Disclosing Health Disparity in Genetic Medicine

In the first case study, I analyse how some authors have renewed concerns about the abuse of race in scientific projects. Interestingly, these author do not apply conventional racial orderings to the projects they studied. That is, they did not just distinguish between white biomedical experts and non-white or minority study participants. Indeed, as Fullwiley (Fullwiley, 2014) notes, there are situations in which such conventional framings of scientific racism did not work. “As an emergent dynamic, the contemporary synthesis holds the possibility of reinvigorating racism, while simultaneously possessing the potential to promote antiracist science education, disease awareness, and social justice efforts” (2014 p.803). The scientists and writers interviewed by Fullwiley, in fact, expressed concerns about racism, and believe that they are reconstructing conversations about racial difference. For instance, she interviewed a team of Hispanic physician-researchers who work with the hope of ascertaining whether there exists health disparities between Puerto Ricans and Mexicans who are affected by asthma. Thus, her research can be seen as an example of newer attitudes in research which are characterised by democratic inclusion, multicultural diversity, and antiracism. Her idea of the “contemporary synthesis” (2014) is that inclusion of race as a variable in diverse genetic studies has both antiracist and racist dimensions, or an “absorption of the old race thinking into modern race projects of a liberal persuasion”(p.804). Studies that use such contemporary

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synthesis conceptualise the relationship between inclusive science and scientific racism in new ways that problematize conventional distinctions between racist, non-racist, “antiracist medicine” (Ford, 2010; Ii & Grubbs, 2022).

DNA screening makes scientists decision makers, despite the inter and intra-disciplinary debate on racial concepts in medicine (Morning, 2011). Thus, the burden of showing the scientific utility of racial and ethnic identities in the construction and analysis of genomic resources falls on researchers” (Foster & Sharp, 2002, p. 844; Lee et al., 2001). These are practicing genomics researchers who are not the only ones with the responsibility to reflect on questions of evidence and matters of consequences. Yet, the scientists like Foster and Sharp identified themselves to be in the key position. Knowledge is mediated by “circuits” (Fujimura et al., 2008), including national biobanks and commercial ancestry analysis (Nelson, 2008a) as well as more constrained ones of research projects and national biobanks. Foster and Sharp clearly have this dynamic of coproduction in mind when they said genomic research is burdened in effect, because: “Inclusion of racial and ethnic identifiers in genomic resources can create risks for all members of those identified populations and influence lay perceptions of the nature of racial and ethnic groups. The situation is ironical because scientific uses of race are perceived to be neither socially progressive or regressive, but scientists are still considered to have responsibility to ensure the boundary of nonracial use of race. In this context, selecting diverse research populations became even more important and such selection must be done without bias (Need & Goldstein, 2009; Popejoy & Fullerton, 2016). In both fronts of the debate between scientists and philosophers, scientific mobilisation of evidences was perceived to have moral implication beyond research design. In the context of the contemporary synthesis (Fullwiley, 2014), genetic risk factors disclosed scientists as decision makers to the questions of evidence that became increasingly important to nonracial uses of race. Next, not just nonracial and nondiscriminatory uses of racial classifications, but also uses of databases with biological materials of racial and ethnic minorities are also magnified in the debate.

Two individual projects that Fullwiley investigated for the case of contemporary synthesis have produced large genetic databases using what is called ancestry informative markers. These markers are specific DNA sequences that could be used for genealogical and predictive analysis from DNA to an individual. Profiles of scientists who use markers to build genetic databases vary in self-identifying as racial and ethnic minorities and also in experience of social justice. In Fullwiley’s description, scientists not just engineer new conceptualisation of racial and ethnic groups in research (characterised by DNA sequences) but also promote new perspective on science’s relations to social justice. If geneticists were politically liberal and politically progressive and have experience in working for social justice, do they understand better the fear that science help inequality naturalise inequality? (Smedley & Smedley, 2005); do they understand better that informed consent could be breached between scientists and politically subjugated participants (McGregor, 2007)? Fullwiley finds the contrary. “Geneticists did not see their science (in the HGDP) as

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inherently political but, rather, framed the protests against it by indigenous peoples as political”. Her idea of the “contemporary synthesis” (2014) is therefore something that scientists have difficulty with. The synthesis captures that DNA-based markers of race and ethnicity is ambiguous between antiracist goals studying genetic evolution inclusively and racist motivations to abuse scientific endeavours: “absorption of the old race thinking into modern race projects of a liberal persuasion”(2014, p.804). The contemporary synthesis and other sociological concepts (Duster, 2005) outlined new manifestations of scientific racism. Because these outlines lack clear explanation, there is a need to examine accounts in detail.

DNA database that that emerged from research on Hispanic was appropriated by a firm that develops forensic profiling technology (Fullwiley, 2014). The idea of science having unintended consequence is clearly noted in the words of Esteban Gonzalez Burchard – who is known for his study on asthma in Latino Americans at University of California, San Francisco – who talks about how his hypothesis and medical uses of race in general are inherently political. “We do see racial differences between populations and shouldn’t just close our eyes. Unfortunately, race is a politically charged topic, and there will be evildoers. But the fear should not outweigh the benefit of looking” (Burchard in Fullwiley 2008, p. 696). By “evil doers”, Burchard reminds us of the attraction of the genetic theory to law enforcement related services. DNA databases are used to predict physical traits of its source to police investigators. Forensic profiling of races was not the uses by Parabon Nano-labs that Burchard’s theories about racial groups and DNA are not intended to create ten years earlier. What is plausible is that case-controlled studies on human variation left the lab and entered into social fields. So there are more explanation needed on why science of genetic ancestry were seen as useful and credible outside science (Nelkin and Lindee, 2004). What Burchard said seem to rhetorically spare him from unintended consequences, by accusing those who might abuse facts for unequal treatment. Indeed, Dorothy Roberts noted in her essay about race-based medicine that: “It is usually assumed that there is a separate, prior scientific understanding of race that is not contaminated by politics” (2008). While unstated, Roberts might have told us more clearly about the problematic separation between the moral domain and the domain of science and technology.

Verbeek (2011) will agree that such separation denies technological mediation of racism and non-racism; as racism appears to be beliefs and behaviours of autonomous persons. As seen in the case, it is clearly misleading to draw these domains apart. Indeed, he called for understanding the consequence of approaching moral domains like racism in such ways. In the case study, racist attitudes in the society (as seen in Proposition 54) and scientific actions (at the University) are seen to be categorically different. The former is bad whereas the latter could be good or bad. Indeed, those like Fullwiley (2014) tried to be critical to just this disentanglement by showing the paradox of progressive science. DNA-based markers of race and ethnicity and related technologies are ambiguous between antiracist goals studying genetic evolution inclusively and racist motivations that try to misuse the scientific endeavours: “absorption of the old race

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thinking into modern race projects of a liberal persuasion” (2014, p. 804). Although Fullwiley did not say, the genetic factor technology did not simply grant us how variation is distributed in the world, or what might be called ‘peek to our roots’; nor we are granted what is the correct and incorrect use of the data created by genetic factors.

Contrary to what was found in the earlier discussion, the controversy around the Proposition shows renewed attention on naturalism about inequality and that racial statistics or statistics that document racial disparity can be politicized. It is racist to believe that “race is increasingly irrelevant in determining one’s life opportunities and barriers, but the poor will always be among us”(Smedley and Smedley, 2005, p.24). Naturalism about socioeconomic differences can be mistakenly seen as social affair, instead of what research has disclosed. The danger is that policymakers and the public who believe in this naturalism could rationalize economic and health disparity between racial and ethnic groups ‘as the way it is’. For Smedley and Smedley, ‘racialised science’ is a product of long-lasting racism (2005, p. 16). Whether we agree with Proposition 54, we learned about the significance of moral binaries between racism and non-racism. And that racial statistics could be used for dismantling racism or abused by essentialism. Such binary in political discourse was intertwined with what might be called correct and incorrect interpretations.

Previous understanding of the problem was that significance of genetic factors to racism is strictly about racist motivations common in US society. One such tendency is to attribute to racial group differences (or ‘human variance’) what is proven about health, wealth, and intelligence. Some indeed read the data produced from genetic factors to be strictly about difference instead of discrimination in domain of healthcare service, education, choice of housing, and more. If there is nothing to learn from the research that we do not know about socioeconomic inequality, genetic factors are not telling anything new. In a controversial case of a voter referendum, some denied the value of official racial data and other scientific research that revealed about health disparity (Proposition 54)(Krieger, 2004). We are cautioned against optimism after the Revitalisation Act to report and biobank racial and ethnic disparities. Can the information found about the health and mortality save lives of the very population researched? Do racial statistics seek to challenge the privilege of White Americans over racial and ethnic groups in healthcare? Some further understandings on the issue show this shift from racialised science and harmful motivations regarding scientific methods and technologies– it depends on how they are used in practice. This echoes what Rabinow and Rose said: “to understand and intervene in possible futures we need an analytic which is more modest and *empirical*, attuned to all the small *mutations* where today is becoming different from yesterday.” (Rabinow et al., 2006, p. 212. Emphasis is mine).

2.4.2 Disclosing Racism in Assisted Reproduction Technologies

In the second case study, I analyse the framings of biomedical experts and donor insemination recipients in racially ideological relations. As a starting point, Legal scholar Dov Fox (2009) work was evaluated of the ethical assessment in which policymakers are framed to make decisions about donor catalogues, and how donor’s race was framed to be always salient in the selection and adoption processes.

Questions have been raised about the use of racialised donor catalogues by potential parents to select specific characteristics such as eye colour, height, hair colour, race, etc (see Figure at section 3.2.1). Reflecting on the race-conscious design of such donor catalogues, Fox (2009) argued that it "opens a normative space to rethink the ways in which values like autonomy, pluralism, and intimacy” He means that Americans tend to accept without question racial preferences in romantic and employment decisions; furthermore Americans think it is legitimate to have preferences of persons based on the person’s race (p. 1898). In general, it was an open question for policymakers whether the government needs to remedy potential harms of social relationship choices and whether such remedy can be done without unduly damaging what might be called “associational autonomy”. The use of technical medication implies that policymakers were considered as decision makers or designers in this matter. To clarify, Fox does not argue that alternative designs are needed because there are demonstrable harms, nor because the dignity of subjugated populations or groups is at stake (Maung, 2019; McGregor, 2010). Instead, Fox argues that the design of the donor selection process and intimate social associations could be seen as emerging sites of "multiracial democracy" and "racial self-understanding". These authors have realised that the framework of choice and harm are not the only ones available, and that they can frame the situation differently.

In being critical of reasoning on potential harms (McGregor, 2010), authors such as Maung (2019) did not ignore harms that are tangible or dignity-related, nor deny that harms would not occur. The utility and harm of technology (i.e. harms and benefits) are technologically mediated; but the framework of utility and harm appear to precede the technologies and systems that are under evaluation. Therefore, if technologies encourage racially prejudiced views in users (i.e., parents with racial desires), people should redesign them to take into account these social harms of prejudices. In the case of racism, there are at least four kinds of designs that shape the recipients’ attitudes to race in different ways: race-blind, race-sensitive, race-attentive, and race-exclusive (Fox, 2009, p.1887).

Race-blind means (manners) of disclosure withhold information about the racial identity of sperm donors; race-sensitive means of disclosure, by contrast, reveal donor race alongside a number of features, such as height, weight, education, occupation, and religion; a race-attentive approach to donor disclosure enhances racial salience by designing donor catalogues and online

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search function in ways that enable prospective parents to view only donors of a particular race; race-exclusive means of disclosure classify donors according to racial information only, thereby giving race a decisive or outstanding place in parental decisions about which donor to select (Fox, 2009, p. 1887).

In sum, the list indicates that disclosures of racial information are permissible. In other words, donor catalogues are multistable between enabling permissible and objectionable disclosures. And so, the approach encourages us to clarify when disclosures threaten social values and when to respond to that: “(when disclosures) countenance racial differences in ways that enervate our responsiveness to the evolving character and intensity of racial identifications” (Fox, 2009, p.1886).

Looking at other essays than Fox’s, technologies were featured as important actors. It is plausible that this is because individual’s choices of selecting donors was racialised. Fogg-Davis, for example, recognised the benefit of including technologies to the ethical assessment to open up the otherwise implicit choices: “assisted reproduction, as the name suggests, brings reproductive decision-making into public view” (Fogg-Davis, 2001, p. 2). He lucidly notes the revelation of racial classification that was done for a long time behind the door or without inquiring about recipient opinions. Alternatively, Fox (2009) noted that reflecting on the race-conscious design of donor catalogues "opens a normative space to rethink the ways in which values like autonomy, pluralism, and intimacy inform what it means to credentialize racial preferences whose legitimacy we tend to accept without question" (p. 1898). Redesigning assisted reproduction technology was then seen to be not just a problem of choosy individuals but as a marketplace of parenthood and romance in general (2009, p.1847).

Contrary to Fox (2009) and Fogg-Davis (2001), individuals looking for a donor may not want such choices to connote anything racial or stigmatising to certain groups (Russell, 2018). So, the intended parent(s) may frame their decision as a personal choice. One of the interviewed potential parents by Russell thus specified that: “I just want a child that looks like me” (2018, xi). But, the question we need to ask is if it is still an “individual choice” to use information about race and race-related characteristics if parents are provided with them. For this reason, the chapter focuses on illustrating the difference between earlier and later understandings on what has been (derogatorily) called “gamete shopping” (e.g., Fogg-Davis, 2001).

As Fox has shown, redesigning donor selection revealed to policymakers the racial relations in intimate contexts, which confounds the nature of ART as social relationship management. This is surprising because assisted reproduction concerns association between gametes but not people. This insight from ART is far more troubling for a multiracial democracy. In a much later essay, Fox said: "it’s a mistake to try answering that question by reference to ART [for the domain of infertility clinics and biomedicine] alone as

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if the people who have kids this way think about race and act on it in distinctive and troubling ways relative to other means of child-rearing" (Fox, 2020, p. 243). Indeed, recipients are correctly seen as social actors who are making decisions about themselves, their children and children's social life. The debate on donor classification technology ultimately shows the way American public morality and law do not protest racial disclosure.

There is direct relevance of this insight to the further discussion on the redesign of donor selection technologies for multiracial democracies. In general, it is still an open question for policymakers whether the government needs to remedy attending harms and whether such remedy can be done without unduly damaging the values of autonomy, pluralism, and intimacy that flourish in cherished relationships between parents and children. To clarify, Fox does not argue that alternative designs are needed to remedy demonstrable harms, nor because values for multiracial democracy are at stake. Instead, redesigning the technology is seen to be an important question to “multiracial democracy” that invites thinking about the question of racial self-understanding.

Not just social and technological systems, individuals can also express eugenics expressions that previously the clinic and biomedical experts were believed to express and practice – and women of colour are not exceptions. Again, individuals were not considered actors of traditional “reproductive politics” which is characterised by states forcing reproductive choices on the population on mass and national scales. Similarly, individuals who anticipate having children are not thought to employ the “logic of mortality” toward their own reproductive outcomes. As Rabinow and Rose (2006) noted, it is difficult to ignore the “logic of mortality” in consideration of the role of race in technologies.

Oppressive implications of assisted reproduction for women's relations to the family norms has been forcibly argued (Corea, 1985), yet their framework of oppression and liberation does not fit so well in the later debates. For example, Russell (2015) treated the irony of informed consent as central to her discussion on racial classification to argue that “we might understand ARTs as technologies that mimic or correct nature in order to create families [i.e., instead of medical interventions to infertility]. When ARTs are seen as an intimate site in which babies and kinship [i.e., parents and children] are created, the importance of race may not seem so surprising after all” (Russell, 2015, p. 6). The principle of informed consent can thus be seen to work in the emerging technologies of prenatal screening and egg and sperm editing and framing technologies with parental choices or serve individual values (Rabinow and Rose 2006). In this context, women and families can't be forced to make reproductive choices that they do not wish to make. At the same time, individuals can make discriminatory choices while not being fully aware of them. Rabinow and Rose (2006) observed whether values of intimacy and health became hardly questionable to be fundamentally individual, while they correctly noted reproduction is already situated in an array of connections between the individual

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and the collective (2006, p. 208). We learn that the framework of biosociality complicates whether racial and ethnic matching is a personal choice and whether anything can be done about it.

Democratisation of donor selection and magnification of parental choice converged with increased non-racism of the sperm banks. Clinics increasingly started to avoid stating that they aim to spread high-quality genes (Ikemoto, 2009). Other unspoken rules might include know that white parents will expect that a child created will match the intended parents racially or ethnically. Furthermore, clinics are aware that mixed-race donors are often not welcomed by most of these families. For instance, IVF businesses running interracial and transnational surrogacy for American couples stopped using outdated terms like “breeders” to describe a surrogate that does not contribute any of her own genes to the child (Corea, 1985). As a consequence of such changes, firms and biomedical experts have become less central to the eugenic meaning of sperm banking *than* they were before (Bashford et al., 2012). In this phase of the debate, different essays responded to the historical context characterised by the absence of conscious racial mandates.

Whether women and families are taking back control from biomedical experts and fertility clinic personnel is no longer the central issue. Furthermore, the consequences of increased parental choice may reflect wishes for more parent-child resemblance, but also reveal the social desirability of same-racial association between donors and recipients. This association is what Fox (2009) calls “voluntary segregation,” which he compares with existing American romantic and employment decisions that are divisive between racial and ethnic groups. As racial mandates became less salient, the nature of segregation became complicated. Is it less discriminatory if parents make such decision to sort donors by race and screen unwanted race and ethnicities from their view on the catalogue? To be sure, these considerations for voluntary segregation appears to be in line with calls for redesign. Both are converged within the earlier mentioned trend of race-neutral matching and race randomisation (Fogg-Davis et al., 2005).

To conclude this section, I have tried to show these conceptualisations of benefits and harms to be an exception because ethnic matching has not been seen as creating a binary between beneficial and harmful aspects. In their partial objection to race-neutral matching, Maung (2019) has suggested what he calls ethnic identity matching. The reality of ethnic matching of donors and recipients is that donor-conceived children are usually born into racially organised families and society. So, ethnic matching could be beneficial from children’s point of view. Such positive ethnic identity development in donor-conceived children is thought to support the parental choice of ethnic matching without the obvious racist implications of the practice of selecting for lighter skin (Maung, 2019; Rulli, 2016). Therefore, ethnic matching is multistable between the potential benefits of positive ethnic identity development and potentials of discriminatory matching between white, highly intelligent and wealthy people.

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More research using essays of the period is needed to determine whether the framing of “gendered eugenics” still make sense (Daniels & Heidt-Forsythe, 2012). With the current evidence, such framing has main weakness in recognising how biosociality and mandate of informed consent and technological mediation complicate the racial and nonracial uses of race in assisted reproduction.

The gendered eugenics account relies heavily on the theoretical analysis of liberal and positive eugenics. Their conclusion can be modified through consideration on non-racism in donor insemination practice. Increased non-racism of the sperm banks is that clinics increasingly started to avoid stating that they aim to spread high-quality genes (Ikemoto, 2009). This trend creates tension with democratisation of donor selection and magnification of parental choice that may or may not encourage discriminatory selection of donors and prevent a more inclusive matching of donors. Moreover, sperm banks that explicate white supremacy and any other selection criteria are seen to be either antidemocratic or ‘too choosy’ in the society (see Figure 4 for Fairfax cryobank which dropped colour-coding of donors). One sperm bank has named “the repository of geminal choice”⁵. Germinal choice symbolizes for many positive eugenics (Appiah, 2017). In one article, Anthony Appiah wrote about the Repository and its main supporters, one of whom was British physicist William Shockley who identified himself as one of the donors of the Repository. In a dedicated series in Slate magazine (Plotz, 2001) the sperm bank (“Repository for Germinal Choice”) became hugely controversial as perpetuating racial preferences and prejudices. Whether they collected Nobel Prize winners’ sperm exclusively or not, it is clear that their disclosure of racial information are seen negatively or at least to be controversial.

5 The study is limited by the lack of information on this story. Figures such as Shockley were deeply involved in questions of differential fertility among white and black Americans. Shockley also argued that those whose IQ was under 100 should be paid to undergo voluntary sterilization (Bashford et al, 2012, p.9).

2.5 Chapter’s Conclusions

Larger historical process of expanded scientific participation of racial and ethnic minorities as well as the widened access to reproductive medicine played a role in the debate on race concepts in medicine. Few offered so far, however, explanations on why pessimism about racial classification continues amid optimism about health research and assisted reproduction technologies. The research question inquired in the chapter is: [how did racial and nonracial uses of race in medicine (in contemporary debates of genetic markers and donor insemination) become seen as ambiguous?] Understanding the confounding of scientific racism is useful to understand the tension between optimism and pessimism emerged from this historical process. The contribution of this study has been to confirm about contemporary debates on racial classifications that scientists and technologies received attention (C. A. Russell, 2018). Because racial classifications are seen to be ambiguous, discriminatory and progressive uses became murky distinctions.

The experiences of scientific racism can be better understood by tracing the changes of perspective from early to later views. While early views focused on culturally imposed racial mandate, later views focused on less deterministic, yet, powerful influences of racial ideals about kinship and health. In contemporary debates, technologies are understood to have both dimensions of disclosing individual preferences and social preferences. A significant consequence of disclosing both dimensions is that it became more difficult to propose technologies to be race-neutral, and that it is less convincing to make analogies to eugenics.

In general, the debates showed that there was an awareness that gamete adoption and donor selection should receive more regulation. Critics of racial selection have argued that technologies should be redesigned to persuade parental choice to be less racially sensitive (Fox, 2009). Perhaps with the demand of democratic decision-making, less attention has been paid to detailed redesign of catalogue architecture beyond race neutral and race sensitive. Rather, there was general support on “race randomisation” in the essays reported in the previous chapter. Race randomisation would rely on the automation of decision-making in gamete adoption and has been proposed to be used in a different situation – such as transnational adoption settings (Fogg-Davis et al., 2005; Haslanger, 2013; Rulli, 2016). Although further specification on inclusive designs were not found in the debate, there is a clear awareness that inclusive designs of donor catalogue could send a message to prevent unnecessarily entrenched assumptions about race.

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Nevertheless, the appeal of the race-neutral design remains, just like unauthored information systems emerged (Introna & Wood, 2004). In this style of design, no one apparently “authored” the system to be discriminatory or objective. Yet, unauthored systems may not appeal to customers navigating donors online who want to exercise choice but do not want to frame their choice as race-based. What is unique about contemporary donor catalogues is that parents navigate the catalogue at home without medical guidance. In this case, more editing and curation would be needed to mitigate segregation and potential ways that prejudices are used.

In conclusion, the essays used in the discussion on ART suggest that we can no longer maintain cultural determinism in which covert or open choices are made only by practitioners – and voluntary choices by their patients – are determined solely by “conscious racial mandates” (Quiroga, 2007, p.149). Exclusion is therefore mediated not only by biomedical experts but also by patient choice. The reality of ART as reproductive medicine is outdated, because physicians and sperm banks’ role to give access to parents and individual women has become reduced while parental role became more important. A further study could assess the details of voluntarism in assisted reproduction: the choice of donor as well as choice to disclose the insemination record to the child must be made through informed consent should be both voluntary. Having in mind this dynamic between implicit influences and parental choices, the meaning of exclusion became more complex than before: Does it mean exclusion of ethnicities from ART? Does it mean requirements for donors is preferential? Taken together, these accounts may increase the responsibility to redesign gamete adoption. At the same time, these accounts may increase skepticism about racialist use of racial classifications. It is difficult to support strong recommendations to redesign and regulation of gamete adoption. The consequence of this ambiguity would be a fruitful area for further work.

Chapter 3 Articulating Non-racist Medicine: Census Classifications and Racial matching

Identical treatment is not equal treatment.

—Neil Risch, Esteban Burchard, Elad Ziv, and Hua Tang, “Categorization of humans in biomedical research: genes, race and disease” (2002, p.11)

By failing to develop resources, methodologies and incentives for underserved people, we risk perpetuating the health disparities that plague the medical system.

— Carlos Bustamante, Esteban Burchard, F. M. De la Vega, *Genomics for the World*. Nature

As classification systems get ever more deeply embedded into working infrastructures, they risk getting black boxed and thence made both potent and invisible. By keeping the voices of classifiers and their constituents present, the system can retain maximum political flexibility. This includes the key ability to be able to change with changing natural, organizational, and political imperatives.

— Geoffrey C. Bowker and Susan Leigh Star, *Sorting Things Out* (2000, p. 325)

3.1 Chapter’s Introduction

While technologies might be more malleable than we think, there is a tendency to interpret science and technological systems “in political language,” distorting them to be immutable (Winner, 1980). Why do technologies do so? Technologies succeeded in some level to show the ostensibly neutral image. That is, non-racist technologies help to fashion various ideas of the nonracial race (“human variation”) (Risch et al. 2002) and “molecular family” (Nelkin and Lindee 2004). These authors argue the idea that race concepts can be nondiscriminatory and non-essentialist. Given the points in mind, I propose to consider what we might gain by analysing non-racism itself as technology:[“how do controversies on natural kinds shape ideas of non-racist use of race concepts in medicine?]

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Controversies appear as exceptions in which the hopes and fears about racial concepts are disclosed. Indeed, discussion over census classification was pictured in the literature as a period of optimism (Andreasen, 2008). For scientific use of racial census, journals and biobanks established conventions about nonracial and undistorted uses of classification (Smart et al. 2008) These technologies have to be deconstructed because they provide an image of technoscience to settle disputes. Indeed, attempts have been made to show that medically conceptualised social and racial identities could also have non-discriminatory potential (Bustamante et al., 2011; Kittles & Weiss, 2003; Knepper & McLeod, 2018). These articles help deconstruct race classifications to understand politicization of race concepts in genetic medicine.

Turning to assisted reproduction, technology in general was imagined to be an advanced technique that provides new reproductive opportunities for less than two decades(Quiroga, 2007). Anthropologists Allan Hanson (2001) reported that feminist critiques on racial matching mostly contain fears about the eugenic or family-changing potentials of technologies. He argues that despite the fear of unknown, unsubstantiated and imagined racism, traditional aspirations and values related to the family will not be overthrown. Hanson portrays the state of fear as an exception to the early 2000s development of technology over decades. But he is not the only one who dismissed the contentiousness of assisted reproduction and the eugenic ramifications of racial matching in particular (Rabinow et al., 2006). The fear about the way racial matching is abused for (refutable) improvement of offspring by endowing them with exceptional qualities may indeed be overrated. Accounts on the controversy so far have not provided us of full context of the controversy around the technologies such as assisted reproduction. As mentioned in Chapter 1, racial matching could be violated through errors in practice. Racial matching technology as solutions to racial mixup should be deconstructed because it echoes an ordinary perception of race as a quality transmitted via reproduction.

Philosophical work about this period has illustrated that race concepts in medicine were contentious inside and outside the medical discipline (Andreasen, 2008; Morning, 2011). What is the best way to regulate the scientific use of classifications across the discipline? While they give the impression that contestation is an exception, contestation might be the norm. Latour argues that violation of the norms and anxiety of transgression help the rules become manifest during the development of any technoscience. Latour’s framework happens to apply more widely than his case of Copernican discoveries. Some perceived the use of race concepts to violate the disciplinary norms in genetics and responded with editorial guidelines (Smart et al 2008). Others perceived race concepts to violate social norms and expressed concerns about racism (Duster, 2005)(Goodman, 2002). Bruno Latour's investigation of nature/culture could be extended to our investigation of racism. Appeals made to racism need to be deconstructed when “racism” is claimed to serve as the ultimate arbiter of disputes in medicine when census classifications and racial statistics are used. Furthermore, using “social shaping” (Law, 2017), what racism means could be contingent on racial relations and political initiatives of the period. Again, the previous chapter hinted that an important question appears

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to be: who has the power to decide what is nonracial race concept, and who going to provide guidelines? One way technologies guide us is by regulating the scientific use of classifications across the discipline; another way is make such guidance appear natural.

In providing new contexts to scientific racism, we could learn what happened to racialised race concepts and the fear they generated in the society at the time. With the research question, we want to inquire if this fear is related to its historically unchanging qualities (racial domination and essentialism). One such definition of scientific racism is natural kinds. To begin, I will start by clarifying “natural kinds” and discuss accounts on non-racism that help picture the debate. Operationally, accounts on non-racist uses of racial categories – such as in the case of genetic risk factors – can describe the controversies. I obtained such relevant accounts from academic journal articles that scientists published for clarification (Risch et al., 2002), editorial section of a journal (Bustamante et al. 2011) or regulatory committees of assisted reproduction⁶ (Pfeifer et al., 2017). Again, technologies guide us by regulating the scientific use of classifications across the medical discipline and discourse of individual technologies. When provided in detail, these accounts illustrate the concerns about scientific racism raised with the controversies.

6 The recommendations thus provide guidance on how to genetically screen donors of certain ethnicities of risks of diseases that are common to certain ethnicities, or how to screen for diseases common in all genetic backgrounds (Pfeifer et al., 2017). In this chapter’s I focus on the early 2000s – in particular the period before 2008 – when the debate did not include concerns about increased and prejudicial genetic screening of donors; but instead included concerns about racially sensitive donor selection and gamete adoption.

3.2 Natural Kinds, Eugenics, and Ideas of Scientific Racism

In the history of scientific racism, use of the categories of “natural kind” is generally recognised as a hallmark of “racist science”(Hacking, 2005). Natural kinds is the idea that there may be natural differences between kinds of people; for instance, eighteenth century scientists believed that people belong to different kinds of races (Stuurman, 2000). According to contemporary nonbelievers of race, on the other hand, modern scientists use operative categories of race and ethnicity to assume racial and ethnic groups are natural kinds. As kinds, groups are characterised by essential immutable traits (A. Morning, 2007) and their behaviours are explained through natural kind traits (Nelkin & Lindee, 1996) “Genes made me do it”. From these formulations, natural kinds refer to racial essentialism and biological explanations about race. Putting them together, natural kind involves a particular race concept that is called racialist concept of race (Hardimon, 2013): “the concept of a division of the human species into populations involving differences of visible physical appearance (such as skin colour), which is (a) essentialist and (b) hierarchical. Thus, identifying natural kinds from practice could mean identifying racialist concept of race. According to Hardimon (2013) this is a common way for philosophers to scrutinize the meaning of race concepts in medicine.

The concept of natural kinds is useful to understand why racial profiling around diseases and medicine might still persist. One example Nelkin and Lindee gave is molecular sciences whose findings about differences in DNA were communicated to the public in images that reinforce gender stereotypes about intelligence and fertility. Nelkin and Lindee wrote: “Once blacks were portrayed with large genitalia and women with small brains: today the differences lie in their genes (2004, p. 102)”. Molecular sciences inspire discourses about women’s difference from men, just like findings of hyper-fertility of women of colour (Ikemoto, 1996) and weakness of women in general (Maoulidi, 2007; Schiebinger, 1993) motivated political discourses in the past. Hence, from 1980s and 1990s, popular beliefs such as on women’s intelligence and fertility may have increasingly started to be based on genetic differences. According to Nelkin and Lindee, notions of “natural distinctions” (2004, p. 102) are related not just to cultural beliefs popular at the time, but also from the influence of science. Political discourses about inequality in health and crime may adopt biological explanations that emerged from science. Racialised science that provide source to can provide resource to discussion on inequality, diversity, and other political ideas.

As we saw previously, geneticists appear to agree that racism-associated health differences requires further investigation(Andreasen, 2008). Social epidemiologists like Nancy Krieger tend to agree with this. When seen as permeable parts of ecosystems, inheritance are shown to be “incorporating internal microbial

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populations that are in constant dialogue with the immune system” (Krieger, 2001, p. 670). Krieger argues that racialised health disparity has been misunderstood so far, because scientific method misunderstands social production of disease.- regulation of and influence on molecular biological processes that shapes disease and health (paraphrased). Krieger’s essay might resonate the perspective that natural differences are not real, but her message is more complicated than that. Krieger helps rethink racial profiling in medicine (e.g., “genetically sick African-American”(Graves, 2011; Graves & Rose, 2006), but she more importantly responded to “biological explanations” (Nelkin & Lindee, 1996). Biological explanations extract from the social setting what shapes and interprets behaviour and simplify deviance and illness in biological terms. To define illness as a social problem magnifies a failure of the social environment, including racism. What revolves around is not simply the idea that “racism as a social problem is real” but that scientific disciplines are biased against methods that help see racism-associated health disparity.

Previous views recognise that natural kind discloses politics in which sexual and racial differences are drawn. Natural kinds-inspired medical diagnostics seem to associate disease and health in a racialised way. Diagnostics’ statements such as “Jewish diseases” (Reuter, 2017) or “Black woman have hysteria” (Briggs, 2000) are just some examples. Such stereotypes may even perform exclusionary effects in the way women experience race and sexuality. For instance, when scientists believed that men naturally desire procreation, such beliefs may have delayed the development of male contraceptives (Oudshoorn, 2003). Or, when scientists believed black women to be hyper-fertile, black women were not considered as users of donor insemination for the first twenty years’ use of the technology (Ikemoto, 1996). Projections of black women as excessively sexual and thus irresponsible in reproduction is a lasting stereotype after Baartman (Wekker, 2016, 2020). These are just two examples of feminist analyses of technology that uses natural distinctions to understand the power of sexual and gender stereotypes. By extension to what is originally meant by natural kinds, feminist analysis of technology found that sexual and gender stereotypes as also perform in emerging technologies.

For instance, many historians have argued that, for Tay-Sachs⁷ disease in particular, surveillance of the disease has shaped discriminatory actions against people having citizenship in the 1800s (Braun, 2017; Reuter, 2017). For a long time, doctors called Tay-Sachs the “Jewish disease” and medical reports described how “some hereditary defect” causes the disease, similarly attributing the disease to a supposedly sensitive nervous system or a “neurotic temperament” (*Fujimura, 2015, p. 61*). The ethnic associations of Tay-Sachs and screening of the disease could not happen without creating markers of Jewish racial difference from other European immigrants to the US. As Jews in the USA are classified as white and considered to display

7 Interestingly, the case of Tay-Sachs disease shows the duality of the technology since mass screening of Tay-Sachs worked to largely eliminate the disease from US (Reuter, 2017).

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low mortality rates, other groups were pointed to have a genetic disposition. Such belief can endure for a long time. The enduring belief that Tay-Sachs is a Jewish disease has only recently been corrected by the release of different medical recommendations (2017; 2008). Racial explanations are used for diagnosis and cure.

The 1989 Revitalisation Act was also controversial for the revelation that women and racial and ethnic minorities were not represented so far in American health research, including clinical trials. Roughly a year before to begin the initiative to eliminate racial disparity, President Clinton issued a formal apology to the victims of the “Tuskegee Experiment” (the “Tuskegee Study of Untreated Syphilis in the Negro Male”) (Fleissner, 1999). Basically, between 1932 and 1972, a group of young black men who were diagnosed with syphilis were not informed of their infection and not treated during the “experiment.” The purpose of the experiment being to understand the effects of not treating syphilis. The experiment is now remembered as a case where stigmatic association between the subjects (four hundred African Americans who were promised free health care) and syphilis led to an institutional violation of informed consent. Since the case was disclosed, American bioethicists remember this experiment as a gross violation of informed consent, and called on policymakers and practitioners for considerable government efforts to reverse this exclusion to inclusion.

In the case of assisted reproduction, notion of eugenics have been applied to capture the changes that occurred between families and clinics. Individual choice and subjectification of reproductive choices are another element of this reproductive dystopia. Given the mandate of individual choices and increasingly detailed donor profiles, customers of these services are magnified to potentially have unsaid hierarchies and preferences against mixed-race and biracial persons (Fogg-Davis, 2001). Although women of colour have access to selection, genetic family model and hierarchy between men and women may implicitly play a role to seduce choices for same-race donors and prevent women of colour to voice out their concerns. Dorothy Roberts termed this the “New Reproductive Dystopia” in her 2009 essay (2009).

The use of classification systems used in reproductive dystopia were seen as resembling eugenics by those who think donor insemination has negative effect on women’s power. First, conventional and patronizing practices in donor insemination shifted in quality as women were granted more control in choosing and accessing information; for instance, online chat groups made it possible for women to discuss as consumers their options for assisted reproduction with others (Hanson, 2004). Fogg-Davis's division of consumers and parents is particularly relevant (2001). *As he argues: “motivations of consumers whatever their race are morally interesting only insofar as they reinforce a numerous set of racial expectations; however, racial expectations that parents have for their children affect the identity developments of both*

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children and parents” (2001, p. 19). Although the division between consumers and parents is blurry in practice, the division operates in the debate to problematize consumerist behaviour and potentially reinforce racist behaviour. Second, in an increasingly competitive and elitist society with troubling beliefs about superiority, women may attempt to reproduce superior offspring in tandem with what they think of superiority themselves (Sparrow, 2007). Having this in mind, parents might act with racial prejudice against mixed and non-white donors while asserting such choice as personal freedom.

It has been suggested that moral preferences can be in technological systems (Bowker & Star, 2000). Racialism results in the perception that mixed and multi-race people are less desirable than others. Most remarkably, information in catalogues can be used to sort donors in races and distinguish donors from the colour-coded specimen vials (See Figure in 1.3 for the demonstration of the idea). Using skin colour to mark donor samples reinforces natural kind understanding of race. In particular, using red to mark “other” donors (whose race cannot be categorised as one race) reinforces the notion that ‘colours’ are essential and immutable categories. These catalogues thus embed value judgements on already stratified races by way of their implicit views of how worthy specific races are as human gamete. A further question surrounding these catalogues is thus how they rationalize preferences and pricing, so contributing to the commodification of the system.

Technological systems that determine the value of gametes of colour in relations to white or unsaid gametes could encourage racial selection through assisted reproduction that encourage women to take control and take responsibilities as (future) parents. Disciplinary and punishing relations to women of colour (and sperm donors of colour) at the fertility clinic resembles older systems of racial hygiene that stigmatises and corrects people through reproduction. Daniels and Heidt-Forsythe (2012), for example, told that donors and users alike are disciplined to have certain personalities (to be obedient) during the process of gamete adoption. What she means with this is that women might not divert race-conscious decision-making even if they are given more freedom. Women of colour in interracial relationship may be persuaded by a physician to select certain white donors, as the physician assumes that they prefer following their spouse’s (white) race (Quiroga, 2007). Contemporary modes of donor selection and gamete adoption are free from the decisive influence of biomedicine (physician influence), but not free from seductive influence to racial match that the clinic provides to potential parents (donor catalogue’s influence). Women of colour are disclosed to be in a lasting disciplinary relation, and this is when scientific racism operates most strongly in the argument. Authors who propose “gendered eugenics” are concerned about a market based and profit-oriented system which values the choices customers can make. Racially stratified systems may be wrongly portrayed as reflecting ordinary white supremacy unavoidably. It is not surprising then that notions of eugenics has been applied further to surrogacy, fertility treatment, and transnational cases within the gendered eugenics

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framework. In practice, customers of these services may have unsaid stratification and preference for unmixed and persons who identify as white.

In the understanding of scientific racism, “reproductive dystopia” and “gendered eugenics” criticize corporate and consumer behaviour in the frame of natural kinds. Affirmation of individual choice and human difference in assisted reproduction are deceptive, but underlying that appearance are racist implications. In this regard, the two do not offer significant jump from natural kinds. Rather, they reiterate insights from literature of natural kinds in contemporary debates on reproduction and women’s rights. Racism was previously considered as a surrogate for “environmental risk factors” (Krieger & Fee, 1996).

3.3 Scientific Non-racism as Technology

The two next subsections continue to analyse technologies in contemporary debates on nonracial use of racial concepts in medicine. Taking a case study approach, the section will make plain quite technical debates to scientific racism. Previous section described the controversy that inclusion of race and ethnic minorities—as participants of medical research or assisted reproduction -conspire to violate self-determination and discourage to adopt gametes from and to people of colour between races. Scientific research became an important site to address issues raised by these controversies in general and regulate the use of racial concepts in particular. Understandings of non-racism and technologies could be untied from one another, but this is not a good way of reconstructing how notion of non-racism was argued and designers of technologies received close attention. By reconstructing debates with prominent scientific essays, the section could suggest intertwining of non-racism and technologies.

3.3.1 Census Classifications and Non-racism

Philosophy of science essays are the main sources to describe census classifications and their relevance to non-racism. All articles cited in this section have been written by scientists who identify with racial and ethnic heritage (Esteban González Burchard and Elad Ziv) and some of them are woman of colour (Sandra S.J. Lee and Hua Tang).

In their article “Categorization of humans in biomedical research: genes, race and disease” Risch et al., did not just claim new candidate genes for racial/ethnic identification. The results from an algorithm they developed that has been cross-examined with algorithms of other scientists (i.e., that might use a similar or greater number of markers and individuals). Essentially, Risch et al. argued that what they call “stratified approach” could illuminate geographical origins, and that their proposed algorithm could serve as an attempt to be as accurate as possible about the links between genetic risk factors and race and ethnicity. In contrast, editorial article in *Nature* (2001) “Genes Drugs, Race” advocated a nonracially stratified approach. This approach, exemplified by Wilson et al., (2001), relied on population clusters identified by genotypes rather than on skin colour or self-declaration of race. The debate on stratification illustrates the concern in potential harmful effects of using race as a variable for drug responses. Later, the debate continued when Risch, et al. (2002) stated their objection to *Nature*, by claiming that the race-neutral approach is “colour-blind” both to

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understand disease risks or drug responses, and politically “colour-blind” in a sense that such approach does not lead to reducing “disparities in disease risk or treatment efficacy between groups” (Risch et al., 2002, p. 11). In their words:

Both for genetic and non-genetic reasons, we believe that racial and ethnic groups should not be assumed to be equivalent, either in terms of disease risk or drug response.

Because racial categories were politically charged, there was a strong appeal of technological solutions that promises to identify differences in drug response among groups of people and to do so without any knowledge of race or ethnicity. Risch et al., (2002) explains that the appeals of genetically defined clusters or racially random genetic markers are not just from empirical reasons but also from political views. To clarify, Risch’s work is focused on statistically inferring candidate genes of individual disease susceptibility and drug responses, while the use of census classifications make the study appear inferring group phenomena. Computational methods complicated how classifications can work without political relations that surround sexual and racial relations. Unexpectedly for authors like Neil Risch, the correspondence of computer-based stratified pictures to the real distribution of risk have become a political concern. Such concerns from scientists and discussants about the correspondence of risk factors are expressed well by Risch et al. (2002): “the true complication is due to the fact that racial and ethnic groups differ from each other on a variety of social, cultural, behavioural and environmental variables as well as gene frequencies, leading to confounding between genetic and environmental risk factors in an ethnically heterogeneous study” (2002, p. 7). The authors thus argued that recognising finer differences was possible through new algorithms and new association between genes and categories such as continental origins. Authors are rightly cautious about using technology for further causal inference on groups from self-reported race. The article do not state the possibility of integrating sociocultural and sociopolitical variables to the picture of disease and health generated by genetic markers.

Emphasizing molecular differences between racial subdivisions appealed to Neil Risch and Hua Tang’s understanding of race in general and broader concern on the US census in the discipline. In 2002, the US Census did not consider Hispanics as a separate race. Knowing that self-identified Hispanics also identified as whites, blacks, Asians and “others”, Stanford geneticist Hua Tang (2005) employed a response card and allowed participants to choose between mixed categories: “non-Hispanic white,” “African American,” “Hispanic/Mexican,” or “other” (2005, p. 269) Molecular analysis showed that “Hispanics” could aggregate genetically with Caucasians, Native Americans, and African Americans. Consequently, it is possible that Tang and authors are arguing against census categories that presume geographical separation and bodily and cultural differences between ancestries. They seem to agree with Michael Root that race of individuals could be assumed to vary with the trait (i.e. mobile rather than fixed). Variance of socioeconomic status or health

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within the population can be studied while following race rather than observing the differences between them. Recognising fluidity of Hispanic identity has, in fact, been socially and politically important for Latino and Latina philosophers of race (Alcoff, 1999; Gracia, 2018) who have often pointed out that Hispanics are otherwise imagined as natural kinds.

Clearly, Hua Tang’s work (2005) represent approaches to improve categorisation of races beyond census classifications of race and ethnicity. While focused on individuals not groups, their work rendered a better basis to study Hispanics and other racial groups through self-reported ethnicity and race. Yet they did not inquire whether self-reported race incorporates a complex mix of confounded biological, cultural, psychological, and behavioural factors in groups. We might call this racial embodiment of individuals being a member of a group. Although articles such as Risch’s and Tang’s have a simple view on self-reported race, their tools were recognised of improving medical research on minority populations. Category ‘hispanics’ were seen to violate self-determination. Therefore, authors focused on how to use census classifications to accurately describe and analyse health disparity between individuals while not violating rights of individuals of who they are. In this context, they were less concerned of whether race has important correlation with environmental exposures, nor what kind of associations between race, biology, and inequality could be made from new scientific methods.



Genomics for the world

Figure 6: Headline of the Comment article in Nature by Carlos D. Bustamante, Esteban González Burchard and Francisco M. De La Vega (Bustamante et al. 2011).

Not everyone neglected the association between race, biology and inequality. Esteban Burchard and other authors wrote in *Nature* their “Genomics for the World” (Bustamante et al. 2011) that high occurrences of type 2 diabetes, hypertension and obesity have been poorly understood of the “complex interplay”. While race might give information about what is pathological and negative, they clearly emphasise the value of “racial and ethnic diversity” (p. 165). Their article propose to expand the recruitment of minorities into National genetic databases. These authors strongly problematized. Eurocentric-ism of genomics: “by failing to develop resources, methodologies and incentives for underserved people, we risk perpetuating the health disparities that plague the medical system”(2011, p. 65). Another example is Ian Hacking’s essay, in which he suggested that African-Americans were perceived as a group that have been excluded for scientific explorations of ancestry with or without relevance to medical research. To paraphrase, inclusion was framed as socially progressive when commercial and scientific identification of ancestry “furnishes a probable but unreliable way of tracking their origins for “people whom slavery, exploitation, and contempt left without family history” (2006, p. 87) . Indeed, the amplification of African-Americans in science is not publicized so well: “a lot of scientific work on race-based medicine is conducted under essentially Afro-American auspices” (2006, p. 87). This could be explained by the way scientists themselves drew into the political binary to show benefits of genetic markers. One such binary is that science is Eurocentric and excludes non-European populations from participation.

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Racial categories appeared to researchers as helping their research become credible and stabilize disputes about research perpetuating prejudice (Smart et al., 2008). In fact, researchers who used racial categories as surrogate for “racial discrimination” appear to be exceptions to the larger trend (Cooper et al., 2015) as many already had doubts on explaining racial health disparities with genetic factors. In this context, we can consider provision of guidelines about race concepts – like Kaufman and Cooper in *the American Journal of Epidemiology* (Kaufman & Cooper, 2001):

These suggested guidelines address issues of variable definition, study design, and covariate control, providing a consistent foundation for etiologic research programs that neither ignore racial/ethnic disease disparities nor obfuscate the nature of these disparities through inappropriate analytical approaches (2001, p. 291)

Crucially, Kaufman and Cooper’s essay emphasised non-racism, as they stress the need for “a consistent foundation for etiologic research programs” (what they call the “ethnic paradigm”) . Policing surrogate variables, these guidelines⁸ strongly evoke natural kinds and racial science because they aim to regulate “problematic” links between DNA, race/ethnicity, and what is called environmental risk factors. It seems possible that their doubts are related to the general fear that use of racial categories could reinscribe ideas of biology, just as natural kinds were used in the past. Those like Kaufman and Cooper provided resolutions to the fear of “biological re-inscription”, similar to technical approaches taken in the period (Risch et al., 2002; Tang et al., 2005). This view might suggest that census as common systems of racial classification (Hardimon, 2013; Root, 2001) did not always reassure researchers of the research’s socially progressive value.

Some philosophers characterised Risch et al.’s work (2002,2005) as race naturalism (e.g., Haslanger, 2013), because they argued that the authors relied heavily on geography and disease status and other biologically significant facts. Yet, others approved of their work, especially for the authors’ claims to render new understandings on Hispanic identity and for the value to address how people who identify as Hispanics might have divergent medical needs (Lee et al., 2001). Indeed, Sandra S. J. Lee said: “To what extent are health disparities the result of unequal distribution of resources, and thus a consequence of varied socioeconomic status (or blatant racism), and to what extent are inequities in health status the result of inherent characteristics of individuals defined as ethnically or racially different?” (Lee et al., 2001, p. 33). It is

⁸ To be clear, written scientific responses could indicate the awareness at the time about more diverse genomic resources and knowledge that requires regulations on the uses of social identity as the surrogate variable.

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possible that the authors did not exactly challenge races as natural kinds, but they have confronted in the context of Human Genome Project the racial image of specific racial and ethnic minorities as people whom slavery, exploitation, and contempt left them without family history are no longer.

Sourced from Lonely Planet (except one from Getty Images), the portraits (Fig 5) are products of Western popular interest in cultural dissimilarity. Bustamante et al.’s approach then, might compare with the popular approach on diverse cultures– through travelling and collecting souvenirs from different places we think are exotic. Indeed, new technological approaches to cluster populations were criticized of regressing into ordinary ancestry classifications. Kittles and Weiss said in *Annual Review of Genomics* that these authors: “tend to *reify* these clusters as natural entities, rather than as cultural constructs at least in part built into the way separated populations have been chosen for sampling from a more continuous distribution. Could we even be closer to the one-drop rule than we think?” Kittles and Weiss gave a very different interpretation than mine about Bustamante et al. and Risch et al. They hint that classifications have logically circular relations (Zack, 2014) with bodily marks of sexual and racial differences.⁹ Approach on multiethnic (cohort) studies explained in “Genomics in the World” might have failed to address the circularity in racial categorisation. They did not address scientific racism as raised by Kittles and Weiss. Natural kind classifications limit the possibility to explore how human ancestries overlap and the distinctions are murky; and so authors repeat the same mistake that others have made in the past. Although human categorisations are used analytically, they could be used to mark differences between humans and make the task unambiguous. Moreover, tools that Risch et al developed set the tone that human beings could be sorted into a set of distinct types (while DNA genotyping turned out to be more difficult). This sets out the possibility of marking individual genes of disease and behaviours (Nelkin & Lindee, 1996): such as athletic ability, intelligence, and alcoholism.

3.3.2 Molecular family and Non-racism

As previously mentioned in the previous section (2.2), donor insemination can have divisive potential for the social association between people. While donor insemination was opposed by feminists, few noted that women might have a desire for same-racial family and also prefer donors who possess so-called superior traits (Hanson, 2001). But is the American notion of competitiveness and patriarchal family model informing women’s decision-making framework from above? Molecular family refers to the social shaping of laws and conventions that establish and maintain the idea of transmission of race through blood and genetic lines.

9 Best account of this approach is Naomi Zack’s. She inquires how classifications co-constitute description and analysis of intelligence of black people in the United States.

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We turn to the abuse of donor catalogues to select race of donors and surrogates. In fact, this technology has become controversial only through accounts. Many did not notice that racial selection was taking place (Fogg-Davis, 2001; Quiroga, 2007). A key output for my analysis is Hane Maung’s survey on the aftermath of the debate (Maung, 2019). From Maung’s analysis ten years after the major debates, it becomes clear how policymakers in some nations changed the official policy to match gamete donors and recipient parents in terms of physical characteristics and ethnicity. A text from the Practice Committee of the American Society for Reproductive Medicine and the Practice Committee of the Society for Assisted Reproductive Technology (hereafter Committees) further shows how ethnic matching for surrogacy and insemination has been standard practice (2008). In *Guidelines for gamete and embryo donation: a Practice Committee report*, the American Committee of ART told about donor selection and gamete adoption is as follows:

“There are several methods for matching the male partner with the donor. The couple should be encouraged to list the characteristics that they desire in a prospective donor, including race and/or ethnic group, height, body build, complexion, eye colour, and hair colour and texture. Consideration should be given to blood type and Rh factor, particularly for Rh-negative recipients. If the use of donor sperm creates the potential for Rh incompatibility, recipients should be informed of the obstetric implications of the condition” (Item 7. Choosing Donor Characteristics)

While physical and ethnic matching was officially recommended in the early and mid 2000s – and physicians offered such selection of donors accordingly (Quiroga, 2007) – ethnicity-based medical screening of donors was not yet in place in the early 2000s.

In this context, donor selection technology was seen to symbolize a mode subjugation of women and women of colour by a racist culture. Although women and women of colour have rights and responsibilities for donor selection, the implicit importance of “genetic family models” can play a role in the decision they make and how they experience the technologies. Such problems were pointed out by Lindee and Nelkin (2004) as a characterisation of reproduction as preservation of genetic ties. Given the mandate of individual choices customers of sperm banks were offered increasingly detailed donor profiles. Ironically, it became difficult to scrutinize these donor profiles and how they are used for racial matching. Instead, consumers and to-be-parents are magnified to potentially have unsaid hierarchies and preferences against mixed-race and biracial persons (Fogg-Davis, 2001). Donor catalogues is one technology that naturalises racial selection. No racial selection is seen as taking place when individuals or couples use ARTs to create racially matching children. Next, an increasingly competitive and elitist society was also magnified in the debate. Although women and women of colour would ideally choose voluntarily, implicit importance of “genetic family

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model” (Ikemoto, 1996; C. Russell, 2015) can play a role in how they experience technologies. Problematisation of individual behaviour could moreover be intertwined with problematisation of gendered orders. We also know from feminist STS that hegemonic masculinity may prevent access to men and women from assisted reproduction (Oudshoorn, 2004). Before donor catalogues were provided directly to parents, racist use of assisted reproduction was primarily attributed to the clinic’s practitioners. Again the artificial intelligence’s sorting of educational ability that matches the recipients will appear so natural as not to be a choice at all. Yet, after the provision of catalogues, racist use of assisted reproduction can’t be clearly attributed to the practitioners – but the interconnection within racial matching between donors, parents, practitioners, donor catalogues.

To inquire whether molecular family is a technology is not to ignore the historical context of donor insemination technology in which single and unmarried women and same-sex couples pursue unconventional models of family; but it is to inquire the choice of same-race donor became unquestionable through racial matching.

3.4 Chapter’s Conclusions.

Previous accounts on the debates on race concepts in medicine highlighted the intellectual politicization of race concepts in medicine, featuring feminist and political discourses on technologies (Hanson, 2001; Rabinow et al., 2006). Consequently, they did not include in their account how certain arguments on scientific racism and non-racism emerge and how technologies such as race classifications and racial matching are shaped. In highlighting what was missing from previous accounts, I argue for considering the role of technologies in problematising scientific racism and arguing the idea of non-racism. This chapter addressed the question: [“how did controversies shape ideas of non-racist use of race concepts in medicine?]

After the analysis, we see in a new light politicization of race concepts through technologies, applying what Latour (2003) argued about controversies in technoscience. Confirming previous views on controversies (Braun, 2006; Lindee & Nelkin, 2004; C. A. Russell, 2018), there was an interesting intertwining of technologies and political discourse: colour-blindness, diversity, and reproductive choice. Yet the authority of the articles and persuasion of technologies should not be taken for granted. The ideas are subject to dispute and their designs too are subject to change. To be clear, *people* and their writings import solutions in science, technology, and medicine as well as a political import in racial issues – not technologies themselves. Although the articles argue that the inclusion of race and ethnic minorities in research and reproductive medicine can be non-discriminatory and progressive, they bear a partial perspective on racially divisive issues. In this context, technologies help their discussants to bear a neutral image. Surprisingly, scientists from various ethnic and racial backgrounds were active developers of technologies and ideas of non-racism as reported by the chapter. And so chapter’s findings need careful interpretation by recognising the partiality of the discussants and the temporality of their solutions. What are the consequences of developing issues of health disparity and racism as technical problems of statistics and genetics? The next chapter will discuss this issue in full.

Chapter 4 Conclusion of the Thesis

When ethnic and racial groups are included in the research, how important is the method of reporting their race and ethnicity? Turning to assisted reproduction, when cryobanks offer a selection of donors, how important is the distinction in donor profiles race and ethnic background information from the rest? And is it discriminatory if vials containing gametes are colour-coded to prevent unwanted insemination? Addressing these questions, the early 2000s discussants confronted disputes concerning race concepts and how they might be used and redesigned. As a result, the debate illuminated what might be a contemporary “framework of racism”: distinguishing scientific racism from non-racism, responding to somewhat polarised and clear-cut understanding concerning what scientific racism is, and developing complicated understandings. The focus on the debates on scientific racism and redesign of technologies race concepts implies about the early 2000s historical context that race concepts in medicine were not standardised yet and inclusion of ethnic and racial minorities was new.

The goal that I had set for this thesis was to find out how notions of racism and non-racism change in the case of scientific racism. The research question was : [how does historical inquiry on racial classifications in American medicine help understand notions of racism and non-racism philosophically?] While many disputed race concepts used in genetic and reproductive medicine, they were not clear if race concepts are inherently racist. Later, the ambiguity of racism and non-racism became arbitrated by discussions, rendering more precise notions of non-racism and values of inclusion and diversity. To the discussants in the debate, distinguishing scientific racism from non-racism was a way to respond to the confounding of race concepts and ambiguity of scientific racism.

To follow the perspective of these discussants allows us to analyse racialisation by using race concepts. Race classifications for example have more direct relations with political discourses that constitute racial issues (Bowker & Star, 2000; Winner, 1980). Race classifications and political discourses of health disparity and discourses of non-racism coevolved. This improved picture of politicization builds up upon existing work on politics of classification (Bowker & Star, 2000; S. Epstein, 2004, 2008) and politics of technology (Winner, 1980). In “Sorting things out”, Bowker and Star said: “As classification systems get ever more deeply embedded into working infrastructures, they risk getting black boxed and thence made both potent and invisible. By keeping the voices of classifiers and their constituents present, the system can retain maximum political flexibility. This includes the key ability to be able to change with changing natural, organizational, and political imperatives” (Bowker & Star, 2000, p. 325). Classifiers played a role in

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resolving these fears and showing how might scientists use race nonracially. Indeed, race concepts have progressive potential too. Scientists like Hua Tang worked to arbitrate disputes in science and provide technical solutions (Tang et al., 2005). Distinguishing scientific racism from non-racism was a way to respond to the fears, and oppose scientific racism in general. In aid of these efforts, technologies helped sustain the hope that race concepts could reveal discrimination and other diverse realities of health disparity. Colour-blindness was the main source of hope and fear in the early 2000s. As Winner anticipated, race concepts were believed to have unchanging qualities to reify race as natural kinds; and the production of biological explanations could become abused to discriminate and kill people. Race classifications constitute what scientific racism might be and problematise them.

Already implied in this focus was that notions of racism and non-racism are do not exist in moral-cultural frameworks but constituted in scientific practice. The project helps see racism ultimately as a political discourse that is developed through technical problems and solutions. Successful exploration of racism and non-racism through the project confirms the insight from technological mediation which was that designing technologies have moral importance. The approach is particularly applicable to designing new racial classifications and race-neutral adoptions which few consider being moral decisions. Because of our assumption that racism is a political activity, racism is difficult to trace from technologies nor what ideas about racism are developed. Indeed, we should not consider the choices mentioned to operationalize race concepts to be impartial politically (although they present them that way). Political discourse of race in genetic and reproductive made it seem (Bowker & Star, 2000) that experts in technologies should decide on nonracial use of race and what scientific racism might be. Discussion in society about race concepts and social scientific work (e.g., Fullwiley, 2014) contributed to cautioning this and disclosing their political relevance of scientific work. To take responsibility for American racism is a political act; genomic analysis of individuals living in remote areas in the world ("Genomics for the World") is again a political argument.

Accounts about race concepts and non-racism gave an impartial and detached appearance, despite taking responsibility for the problems of racism. Bowker and Star hinted that experience of scientific racism is particularly visceral, but technological systems manage to conceal this (Bowker & Star, 2000). Controversies in technoscience (Latour, 2003) could reveal experience of scientific racism and the power relations around race concepts in medicine. Not surprisingly, the idea of non-racism has been developed and strengthened during and after controversies settling that fear arose. Are better categorisations better in understanding and improving health? And who decide what is better? Some say accurate classification methods may not be better than others; technologies limit the look at certain sociocultural factors that could help scientists to find out more about relevant genetic traits (Kittles & Weiss, 2003). Technologies pose limitations to improving the understanding of racial issues. And so redesign of racial classifications

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discussed in the early 2000s literature are not perfect. When revealed like this, race classifications become open to discussion for new opportunities, providing political discourse more flexibility.

Did technologies succeed in the early 2000s discussion on race concepts in medicine to show progressive uses of race classifications? Are the notions of non-racism convincing? In the discussion, the opponents of race concepts voiced about census classifications and racial matching; they support Michael Banton’s conclusions that non-racism as technology fails because of the influence race has in the discussion. Banton explains that: “Possibly the most notable feature of race as a concept is the way it has inveigled (i.e. persuaded or drew in) observers into assuming that the main issue is that of the nature of differences between populations and that they should concentrate upon what “race” is as if this would determine the one scientifically valid use for the word” (M. P. Banton, 1998). If we focus what natural differences there are between groups of “self-identified race”, for instance, then race allows us to see differences; if we focus on natural compatibility between two people of the same “racial group”, for instance, race helps reify the similarity too. The nature of race as a concept is beyond the scope of the present project, but Banton’s words remind us that it is problematic to use race to enable people to express their racial identity in general (“self-identified race”) or express views in reproductive compatibility in the molecular level (“molecular family”) as race. Racism as a technology influence how we talk about identity and difference. (and this explanation goes back to technological mediation).(2022, p. 203) Historians might tell that the use of the race concept in this period largely failed (Kaufman et al., 2021; Mauro et al., 2022) and even turned out to be unproductive to reduce health disparity within the United States (Chinn et al., 2021)when racial and ethnic groups are compared to white people in the United States. Yet, detailed accounts of success and failure are less important for us than the influence of the period on the framework of scientific racism. In my view, challenges to race concepts in medicine are ongoing. And this is because the central paradox of race classifications remains: “race as biology is fiction, racism as a social problem is real” (Smedley & Smedley, 2005). It is difficult to separate this framework of scientific racism into technologies and political discourses, as these elements have constitutive relations with one another.

Jennifer Tsai wrote in *Medical Education* recently that health professions educators and institutions can reform pedagogy regarding race and racism if they understand racial essentialism better. What she calls racial essentialism has origins in medical practice that reinforce racial bias. Racial essentialism is practised through racial categories used to analyse and describe diversity in medicine (2022, p. 203)which applies to multiethnic studies in medicine and increasing recruitment of racial and ethnic minorities into medicine in general. Tsai echoes the earlier mentioned paradox of race concepts and medicine: “because race will not (and should not) cease to exist as a variable in scientific research or social identity, literacy on race is necessary for medical training” (2022, p. 204) Race and ethnicity are deficient as explanatory category for biology in itself, but nonracial use of race could dismantle racism: either through race-based coefficients,

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calculators, and decision rules (Ii & Grubbs, 2022); or by enforcing appropriate and just references to racial classifications in journals and health professions education content (Tsai, 2022). The debates raised in the project have discussed what were raised about race and racism under the theme “Abolitionist Medicine” this year. Paradox of nonracial use of race is that medicine should caution against natural kinds view on race while disclose how racism implicitly and explicitly plays out in disease and health of racial and ethnic minorities.

While polarised and double-sidedness were captured (see chapter 2), the murkiness and ambivalence have not been captured in the project. Contemporary synthesis of racial concepts and progressive politics fell short in capturing what I call the framework of non-racism: the idea that opposing scientific racism through race-neutral designs has unintended consequences. They constitute what scientific racism might be and problematise them. Such murkiness might be observed in examples like Dov Fox whose article discloses problematic uses of race concepts (Fox, 2009, 2020). He argues to regulate ART while the implication of white supremacy and harmful implications to the dignity of racial and ethnic groups are rendered somewhat less relevant by his account than others. Dov Fox clearly perceives that values of autonomy, pluralism, and intimacy are moral choices; therefore, designing gamete donation is also a moral action. If he frames designing gamete donation as moral choices, then the risks missing that that redesign and regulation in general are not fully autonomous decisions.

The major limitation of the study is not covering accounts that relied on conventional definitions of scientific racism – that is, scientific racism as scientific uses of intrinsic and extrinsic racism. Accounts that argue racial classifications in terms of positive ethnic identity development and cultural value were not analysed in the project. This is the use of race concept for intrinsic racism (see section 1.2). Abu El-haj rightly notes the racialisation of postgenomics of Jewish cultural identities (El-Haj, 2007). Characteristics that post-genomic researchers observed are qualitatively different from previous approaches to Jewish ancestry and race-based diagnoses, according to her analysis of “postgenomic race concepts”. She argues that the use of Jewish race in postgenomics challenges what intrinsic racism is, as traits or qualities are no longer used to characterise biological similarity between groups. So racial science focuses on natural kind similarities, while postgenomics questions this empirically. In other words, categories used to analyse cultural traits do not have to be natural kinds. Whether we agree with this division or not, her distinction illustrates a way of arguing about the nonracial use of racial classifications. Exploring natural kinds can help understand underlying optimism that postgenomics suggests new possibilities for the politics of identity.

Still, the mutual constitution of natural kinds and scientific non-racism was partly attempted by the exploration of the third chapter. The study has promised to explore the role of controversies in technical and political discourses of race concepts in medicine. Not surprisingly, the idea of non-racism has been

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developed and strengthened during and after controversies settling that fear arose. The fear was if technologies reify race as natural kinds; and if the scientific production of racial statistics become abused to discriminate and kill people. In opposing these fears, scientists like Esteban Burchard affirmed diversity and reject colour-blindness – instead of simply rejecting what critics of race concepts in medicine argued (Bustamante et al., 2011). In aid of his efforts, technologies spoke for the hope of improving health through cautioning colour-blindness. But technological solutions were less critical to the assumptions about race as ancestry and kinship. This is a common idea that we are unrelated to the ethnic groups whose ancestry has to be identified, or that same-race matching is the default or best matching between two people. And so, the framework of non-racism is that technological solutions such as census classifications and racial matching discussed could both advance and limit the initial goals to solve health disparity.

Issues that have only been touched on briefly in the project demand further attention and are worthy of future research. As Rabinow and Rose has hinted, genetic and reproductive medicine are new political sites to talk about race and racism (Rabinow et al., 2006). A good example was the challenge that assisted reproduction technologies to pose to the politics of (reproductive) rights. It is not that racial and skin colour-based matching violates women’s rights. Women of colour used rights, but they made choices that were unreflective of (assumed) racial compatibility; some expressed racial choices that defiled themselves as less worthy than white people. The naturalisation of racial matching is a minor topic in the political discourse that focused on repro-genetics. The past practices of in/voluntary sterilisation are repeated in discourse of repro-genetics (Hacking, 2006; Rabinow et al., 2006); feminist discourse of repro-genetics in particular disclosed awareness of racial discrimination in reproductive medicine (Roberts, 2009). The term bio-sociality (Rabinow, 1996) has been proposed to highlight the limitations of the political discourses of his day. For the politics of genetic and reproductive medicine, there are more challenges than preventing sterilisation and securing informed consent. Technologies suggest to us to consider positive freedoms and progressive use of race concepts. Scientists are concerned about the health of racial and ethnic groups as they are concerned about their own racial politics. Bio-sociality indicates the convergence of these developments.

The cases also showed how, through technical mediation (Verbeek, 2011), the political discourses positioned experts of technical design to decide which kind of difference is more important than others. Technologies that mediate the perception of identity and difference did not exactly tell what scientists should do. Therefore, scientists were seen to be decision-makers who may have the power to decide on the much-politicized questions with “questions of evidences” and were seen to be responsible for the “matters of consequence”(Fujimura et al., 2008). Environmental risk factors to diabetes, for example, suggest to scientists traits of disease that differentiates the group from others, since the group as a whole experience a short-term environmental change; genetic risk factors on the other hand magnify how the overlap of poverty, illness, and ethnicity show differently in one individual to the next; diabetes incidence is internal to the

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bodies represented. In the context of ambiguity, scientists are expected to balance between the environment and heredity, just like Sievers and Fischer who wrote in 1983 or Troy Duster in 2015 about high occurrence of diabetes among Pima Indians (Duster, 2015; Sievers & Fisher, 1983). A starting point is that questions of evidence and matters of consequence were addressed in the dynamics between experts and non-experts. Of course, many experts are not from racial and ethnic minority groups. Unfortunately, we do not know the full consequences of these dynamics between science and society. Future work should therefore continue analysing these discussions on the use of racial classifications in medicine.

Discussants do not share interpretations of scientific racism, and this has been the central premise in this thesis to develop a framework of non-racism. The choice of historical context is appropriate since standardising race concepts in medicine silences new interpretations of scientific racism and nonracial use of race. Before standardisation, they were interpretively flexible and redesigns could be proposed by numerous authors. Until then, there are efforts to regulate how precisely, validly, and nonracially race concepts are used. Political possibilities of race concepts are still unknown. What is proposed by the thesis is that regulating and addressing the interpretive flexibility of race concepts is politically disputed. Society calls for the precise definition of race and ethnicity in genetic terms as well as for the positive benefits of self-determination and social justice. Before standardisation, technologies reveal the cultural influence that science makes on political discourses.

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