

Are All Men “Really” Created Equal?

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There is a point in the maturation of people when they ask themselves: “what I am really doing”, “while do I do this and not something else”, “what are my actions actually good for”? Scientists are not exceptions by any way. So, what is a scientist doing and while?

There is a rather good consensus between scholars, that a scientist is an observer, who is collecting information about the living and non-living domains of the nature with the purpose to gain knowledge or understanding about something. It sounds, of course, very intelligent, very serious and very generous, especially if we add that he is doing it in the service of “humankind” or to benefit the “mankind”. But what does the so called “information” mean and while should it benefit everybody or even anybody?

There are many different definitions of “information” to satisfy the needs of different kinds of experts, but there is no one general and easy to understand definition that might satisfy experts as well as non-experts. Let me explain my difficulties with the definition of information from my experience with one of the best experts of this subject.

I met Michael Waterman in Bangkok, Thailand, in 2002. We were visiting InCoBio. Michael is often overlooked as one of the most important contributors to recent bioinformatics (Smith-Waterman algorithm, 1979) owing to his informal style; he lectures wearing jeans and a T shirt but he is a member of the American Academy of Sciences. I remember we were drinking coffee in a Thai hotel surrounded by several advertisements, many written in the Thai language, of which I have no understanding (although I like the round letters). I asked Michael what his definition of biological information is. I’ll never forget his surprised, almost irritated look; I was supposed to know the definitions of information and biological information. He responded: “You can find it in any dictionary”. I understood the point and replied: “OK. Tell me; is that information on the wall or just gibberish?” I pointed to one of the Thai advertisements. He did not speak or write the Thai language and therefore was unable to answer. However, he understood my point and we continued our discussion with increased respect for one another.

A language that you don’t speak cannot provide you any information because you don’t understand the meanings. Subsequently I slowly understood, that science and scientists don’t collect information, they collect “data”. The “information” is the product of 2 some kinds of analyses that puts the data together into a pattern that may or may not have some meaning for us, the Humans. Consequently I like to define information that it is a collection and pattern of data that makes sense for the Humans (the receiver) or it has a recognizable meaning for the human brain (the receptor) [1].

The presence or absence of meaning clearly distinguishes “data” from “information” but it directly points out the subjective and conflicting nature of information. Some information has general and universal meaning for every person with relevant education, like the universally valid mathematical equations or physical laws. This kind of information goes directly to a higher category of understanding, called the “knowledge”.

Another kind of information makes perfect sense for some people

and nothing at all for others. There is no consensus about its meaning; consequently, it is not directly classified as “knowledge”. Let me illustrate it on a very old and conflicting question of biological sciences that strongly divides the scientists as well as the general public: “Are All Men Created Equal”? The answer is “yes” if you are collectivist and it is “no” if you are individualist. The answer is often already given before some starts his first experiment or standardized observation on this subject and the science is only to provide legitimacy to a fake result or biased interpretation.

Early sequence comparisons of parts of the individual genomes indicated that the genetic human-to-human difference is ~0.1%. This was Good-News for scientists who advocate that speaking about races is “biologically meaningless” [2] i.e. all men are indeed genetically created equal with the same biological potentials (including mental abilities). However these early studies focused on “exons”, the protein coding ~3% of the whole genome there even distant species shows remarkably high degree of similarity. The major difference between species and individuals is in introns, the ~97% of human genome, that part of the genome which for a long time were regarded as “junk DNA” [3].

3 Few concepts have as tarnished and contentious a history as ‘race’ [4]. Among both the scientific and lay communities, the notion that humans can be grouped into different races has been enshrined by some and dismissed by others. Even the definition of race varies considerably, depending on context and criteria [5,6]. Nevertheless, race continues to be used in a variety of applications. Forensic databases in the US are typically organized according to traditional racial and ethnic categories (e.g., African-American, European-American, Hispanic). Investigators funded by the US National Institutes of Health are required to show that minority populations are adequately represented in biomedical studies. Responses to medical therapies, such as drugs, are often compared among populations that are divided according to traditional racial divisions. Among the general public, the validity of racial categories is often taken for granted. Not surprisingly, biomedical scientists are divided in their opinions about race. Some characterize it as “biologically meaningless” [7] or “not based on scientific evidence” [8], whereas others advocate the use of race in making decisions about medical treatment or the design of research studies [9-11]. Amid this controversy, modern human genetics has generated a staggering array of new data. For the first time, it is possible to study human genetic variation using not just a few dozen polymorphisms, but hundreds or even thousands. In addition to neutral polymorphisms that inform us about population history, increasing numbers of variants that contribute to disease are being discovered.

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Recent large scale, whole genome sequencings shows an entirely different picture of the human genetic variations [12]. An integrated map of genetic variation from 1,092 human genomes [13] depicts the huge complexity of genetic differences and shows how naïve it is to try to describe genetic differences with a single number and percent (like trying to describe an entire country only with its GPS coordinates). Yes, "All Man Are Created Equal", says, in the well-willing minds of the Founding Fathers and inscribed into the Constitution of the USA. [14]. However, The Creator seemed to have completely different ideas in his mind, when created the biological world, including Humans. The political correctness (i.e. wish-thinking) is one think, the material reality is another and the scientific community (and individual scientists) are often forced to search their place (best survival) between these two extremes.

Let us assume, that we, the scientists are created equal and we all have the same fair and democratic access to scientific resources, to make significant discoveries, being published and recognized. There are, of course, well known and non-deniable differences in the monetary resources of different countries with clear disadvantage for the experimental sciences in poor countries even if the intelligence level of the local scientists is the same as in any other countries. However, the scientific potential of all scientists should be about the same in a large and well-developed country, like the USA.

4 If, say, the American scientists are really created equal, and they entry into their scientific carrier is race-neutral, it could be expected that their success rate will be about the same and also race-neutral. There is, of course, no public statistics about the correlation between ethnicity, race, religion of the scientists and their scientific achievements. The existence and/or accessibility of such register and statistics would be very conflicting and therefore politically incorrect. However the ideological censorship is not absolutely watertight in this subject. We have the Nobel Prize that became the ultimate recognition of the ultimate scientific achievements. The Nobel Foundation awards annually maximally 3 prizes in originally 5 (recently 6) major scientific areas (maximally 18 prizes altogether every year).

Alfred Nobel donated his fortune (gained from the discovery and industrial development of the dynamite) in 1895. His intention for the donation is clearly formulated in his Last Will: he wanted to honor scientists who "...shall have conferred the greatest benefit on mankind", and it is explicitly stated that "It is my [Nobel's] expressed wish that in awarding the prizes no consideration be given to the nationality of the candidates, but that the most worthy shall receive the prize ..." [15,16]. Consequently the nationality of the laureates is carefully monitored. An independent organization found it interesting to monitor even the religious affiliation of the laureates and proudly announces that: "At least 193 Jews and people of half- or three-quarters-Jewish ancestry have been awarded the Nobel Prize, accounting for 23% of all individual recipients worldwide between 1901 and 2013, and constituting 37% of all US recipients during the same period. In the research fields of Chemistry, Economics, Physics, and Physiology/Medicine, the corresponding world and US percentages are 27% and 39%, respectively. Among women laureates in the four research fields, the Jewish percentages (world and US) are 38% and 50%, respectively. Of organizations awarded the Nobel Peace Prize, 23% were founded principally by Jews or by people of half-Jewish descent. (Jews currently make up approximately 0.2% of the world's population and 2% of the US population.)" [17]. 5 These numbers means, that the Nobel Foundation awards the Prize to 137-times more frequently to Jewish candidates worldwide, and 26-times more frequently to those in America,

than would be expected from the size of the Jewish population [18]. Considering that Judaism means a distinct, well maintained ancestry, culture (ethnicity) - in addition to common religion - we can conclude that a small minority group of scientists are genetically predisposed for success in sciences, i.e. whatever is needed to the ultimate scientific recognition they have it in large excess. There is no political correctness or politeness here.

Does it make sense for you?

We scientists are devoted to our profession, searching for the truth or essentials, the really fundamental and permanent features of the life and nature. However we have to understand and accept that we "can turn on the light" but we cannot open the eyes of the public, the so called "mankind".

And it is nothing new, it always having been by that way.

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