

Title: Are people's DNA sequences their own business and nobody else's?

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A DNA sequence is the fingerprint of the twenty-first century, carrying not only a person's identity but also a range of other personal information, including a person's biology, health predispositions and origin.

"A person educated in mind and not in morals is a menace to society" [Ref. 1] } Morals and ethics must play a large role when dealing with such personal information. For the same reasons that neither a database of fingerprints nor current census information is in the public domain, under no circumstances should the full details of any national database be made universal. Such an action would transcend all accepted moral and ethical views on the individual's right to privacy. A greater consequence would be that this personal information would be open to abuse by employers and insurers. However, as in all ethical issues, circumstances vary in different situations. These must be taken into consideration when assessing the universality of DNA databases, ensuring that the individual's right to privacy and the use of such information for the benefit of common good are maintained in balance.

The primary function of national databases is for identification purposes. DNA profiling is an important factor when dealing with many major issues in modern society, including the prevention of crime and the control of immigration and emigration. DNA profiles are regularly used as evidence in courts. The United Kingdom, which has one of the largest forensic DNA databases in the world, holds over four million reference profiles [Ref. 2]. The probability of identifying a suspect when a crime-scene profile is checked against the national database was approximately 40% in 2004 [Ref. 3], a number which has risen with the increase in size of the database. It is clear how DNA profiling and national databases of the results are of increasingly crucial importance within the justice system.

Many countries have varying policies regarding their national DNA databases. Germany, Norway, Sweden and most states in the U.S.A. only store the profiles of those convicted. The U.K., however, stores the profiles of all suspects, whether convicted or acquitted [Ref. 4]. This leads to a greater, and therefore more useful, database (as indicated above), but cannot "be regarded as necessary in a democratic society" [Ref. 5]. I completely agree with this statement. I believe, however, that a more effective, yet ethical, database would be one in which the profiles of the entire population of a country are stored, as Portugal is planning to do [Ref. 3]. Another interpretation of the word "universal" in the essay topic question is that national databases would be collaborated to form a major international database. I believe that this would aid police hugely in the prevention of crime, especially as international crime and terrorism is on the rise. The USA Patriot Act already provides a means for the U.S. government to obtain DNA samples from other countries under certain circumstances [Ref. 4]. A DNA profile only determines the likelihood that genetic material came from a particular individual or group and does not contain additional information on matters such as the individual's health predispositions or origin [Ref. 4]. This system would lead to almost 100% efficiency of the database in the identification of individuals, yet would be unfair, where those acquitted are not treated in a different manner to the general population.

Another, more passive, use of DNA sequencing is for personal reasons. Medical predictions and health predispositions can be obtained from a DNA sample, and have obvious benefits to the individual; precautions taken against a predicted disease lead to a better chance of recovery in the event of contracting the disease in the future. This use of DNA sequencing will become increasingly more beneficial as the field of personal genomics develops, possibly leading to personalised medicine. This sequencing is different to DNA profiling. More personal information is obtained regarding matters such as psychological and health predispositions. Occasionally even full genome sequencing is carried out. While cost has been an issue with widespread F.G.S., the cost of sequencing has already fallen to \$5000 [Ref. 6] and will continue to fall, leading to a greater number of full genome sequences. Not many major ethical issues are usually raised in relation to this personal use, as the individual gives consent for testing.

Ethical issues are raised concerning the use of these DNA sequences for the benefit of the common good, in the form of scientific and medical research. In the long term, the more research carried out, generally the more beneficial to everybody. However, an individual's DNA sequence is very personal, and contains a huge amount of information. Very few would be willing to give up their right of privacy in the name of research. One system that I believe would be very effective in keeping both of these issues in balance would be to allow all DNA sequences, without exception, to be available for research purposes, but would complete anonymity must be ensured. If all sequences obtained for personal use were assigned a code, which only the owner has possession of, researchers would have access to a huge number of sequences, while the owners are assured their ethical right of privacy. The owner, through the personal code known only to him, also has access to his own sequence in the future, should the need arise.

Of course, this system would only be the tip of the iceberg in relation to the research versus right to privacy debate. Depending on the nature of the research, socio-economic factors or other information may be required. Without research, personal DNA sequences are useless, and vice versa. For me, the most important factor when dealing with controversial ethical issues is to maintain balance.

To sum up my views on the ethics of DNA sequences, their uses and people's right to privacy in relation to their sequences:

“More often there's a compromise between ethics and expedience” [Ref. 7] We must simply find that compromise.

References-

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