

## Summary of talks at ESRC Research Seminar 5: Securitization and forensic genetics

ESRC Research ‘Seminar series on genetics, technology, security and justice. Crossing, contesting and comparing boundaries.’

Fri, 24 March 2017, 12:00 – 17:30, Northumbria University, Great Hall, Sutherland Building, College Street, Newcastle upon Tyne, NE1 8ST, UK

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### **Paul Wiles (UK Biometrics Commissioner)** *Current developments and challenges in the UK biometrics legal landscape*

Professor Wiles began the session by outlining the current situation of the collection of biometric data, stating mainly that the focus would be on DNA and fingerprints, since these are the biometrics currently subject to legislative controls, and outlining the governance processes in England and Wales. He explained the increase in the proportionality of the regulations since 2001 and provided a brief outline of the history of the retention of DNA in England & Wales and the changes that have come into place since the 2008 S & Marper case and the introduction of the Protection of Freedoms Act 2012. The introduction of this act has resulted in changing the rules regarding the retention of DNA profiles (DNA samples may now not be retained) and fingerprints linked to whether the accused was convicted or not (previously, samples and profiles were taken and retained on the basis of arrest). Further biometrics were also collected by police, and facial image retention has been held to be unlawful by a domestic court on a similar basis of proportionality as used by the European Court of Human Rights in the S & Marper case on DNA and fingerprints.

#### *Current developments*

- Globalisation, the free movement of people and increased use of technology has resulted in the government showing an interest in ‘identity’. A number of new types of biometric data are being developed and being explored experimentally by police in the UK (e.g. voice recognition, gait analysis) and there are very limited governance arrangements in place to oversee the development of such new applications. The police have 19 million facial images on a database and that excludes the two databases held by the Metropolitan Police and some other databases held by individual forces. It is uncertain how many people the 19m facial images refers to, and how many duplicates there are. This questions the quality of the matching software. Faces are just one of many biometrics being developed.
- The Home Office Biometric Program is to develop new up-to-date databases to hold biometrics. In the past, access to different databases was controlled by having separate databases, the new databases will use ‘logical separation to control access’. The new databases will be open to pan-government use (which goes beyond just policing). As yet there is no governance arrangement in place. Pan-government use of identity data has links to the private sector and therefore leads to a number of ethical issues. In addition to the expansion and development of new biometric databases there is also the future development of ‘sociometrics’ based on big data analysis, which has the potential to both identify and authenticate individuals but also to predict patterns of behaviour.

## *Challenges/Lessons*

- The UK's cancelled ID Card programme raised a number of questions and challenges. The ID Card proposal failed because it did not gain public trust and political support, and not because of technical issues. The lesson is that the implementation of any new technology needs to have public and political trust. Of course, any new technology also needs to answer questions on quality and reliability. There is a temptation to simply judge a technology by the match probability results within the software but this is too limited and instead the overall system quality and reliability needs to be known. The deployment of any biometrics/sociometrics exists within a decision-making system. It is the quality and reliability of that 'total systems decision-making system' that matters, not just the technical capabilities. This involves very different actors in the system – investigating police officers, prosecutors, judges, juries – different people with different understandings and technical capabilities. The technology must be challengeable and stand up to rules of evidence in a court of law.

A number of questions were raised, including:

- If biometrics is used in investigations and surveillance, should they use different validity standards?
- Does proportionality differ between purposes?
- Do we need to be wary of technical overconfidence?

What will the impact be of deploying a new technology without understanding the consequences?

### **Peter Burgess (Ecole Normale Supérieure, Paris) *Forensic Security: Science and Uncertainty***

As a philosopher of security, Professor Burges is interested in 'what do things mean and what function do they have'? It is a question of science in relation to security. Science and security have always had an intimate relationship, they are almost 'hysterically associated' in the last 50 years, in the past we have used science to make us secure. However, the better we are at understanding the science, the more uncertainty occurs/the clearer it is how little we know/how unpredictable the world is. When considering the temporality of security, in relation to time, security is about the future, about the danger that hasn't struck yet but might, the threats which might befall on us and how can we predict them. Science attempts to bring certainty about tomorrow. The concept of risk has also grown in the last 20-30 years, a reflection of the fear of the experiences of the present and the future.

Science and law are also closely associated. Science is embedded in society, the law is a set of institutionalised rules regulating behaviour, a set of values/norms/ideals. In criminal law the scientific aspects are always the answer to the question – a legal question, an investigation question, a criminological question. When considering forensic genetics as the science, forensic genetics never flows into law directly, it needs to be mediated – between scientific findings and the legal part. There are witnesses, scientists, experts who mediate the results of what the science is telling us. The goal of a legal process is to find out the truth and trust is important. Forensic genetics is about identity – who belongs to that piece of DNA, who is that person. An interpretation is needed about who that criminal is. Traditional profiling is about 'what kind of person/suspect are we looking for based on recognisable

traits/behaviour/ choices/activities/places visited?’ Forensic genetics creates a different kind of profile, and asks ‘what kind of identity could this person have?’

The data available from forensic genetics processes are actually very simple. Here’s a bit of DNA/I am a bit of DNA, it doesn’t tell us where I have been, what I have been doing, what I have been thinking or who I am. It needs to be interpreted and attached to the social world – to give someone self. Identifying someone takes a leap from a super-technical, quantitative process to an outcome full of rich morally complex, ethical issues. The quality of being a criminal becomes biological.

There are a number of data protection issues, and there has been lots of research into this area. More digital data makes correlation easier, the linking of multiple data sources. Data has become the centre of attention; the issues will become greater as the ‘digitalisation of the person’ increases.

- *Epistemological issues*
  - o What is it we know when we see a DNA profile?
  - o What do the differences in DNA tell us?
  - o What kind of human being is this?
- *Metaphysical issues*
  - o What is this world we are living in being described in Forensic Genetic data?
  - o What kind of reality do we have?
- *Anthropological issues*
  - o What is a human being?
  - o Is humanity being weakened by digitalisation?
- *Sociological issues*
  - o What kind of society do we have when it is based on the granularity of a person? (something beyond what we can physically see).

**Veronika Lipphardt (University of Freiburg)** *Adapting the law to the technology? Germany’s current debate on DNA phenotyping*

The murder of two young women in October 2016 started the debate on forensic DNA phenotyping in Freiburg, Germany. The call for forensic phenotyping began in the media and via a right-wing flyer, simmering in the background to the uptake of refugees in Germany. There was a call to make Forensic DNA Phenotyping into law, requiring new regulations to be put in place. However, the law drafts by politicians did not foresee any restrictions but instead called for a carte-blanche law, basically along the lines ‘the law allows it’, with very few specifications or regulation. There are no ethics committees, no biometrics commissioner, no forensic science regulator; almost no data protection officer in Germany feels responsible for DNA data, they just want the law to regulate it so that legally no data protection issues would ensue. No institution who can implement checks and balances. The politicians rely solely on very few scientists as expert advisors. Experts in the fields of Science and Technology Studies, the social sciences or humanities, are not acknowledged as technology policy advisors.

Parallel to the law initiative, there was a media campaign. Since September 2016, the technology was overly positively portrayed by media – as very accurate and absolutely certain; and the very idea of security was built around this technology. There was a heavy push from police, forensic scientists and

technology developers – with these technologies we can solve this or that crime (e.g. the Freiburg case) quicker/easier. The public consequently believed that the technology was perfectly safe.

Arguments in favour of the technologies are:

- The laws in Germany are outdated and it needs to be adapted to the technology.
- The success rates of these technologies are very high and percentages are always cited (see below).
- There are no data protection issues because it is only for visible traits, similar to information you have in your passport.

Media analysis of DNA phenotyping carried out over a ten-year period, and results showed there was a much more balanced view in 2007.

The reason for increased pressure to allow DNA phenotyping is based on published high success rates. Examples were given that the success rate is 90-95% for blue or brown eyes, 75-90% for red, brown, blonde or black hair, 98% success for distinguishing between skin colour dark or light. Detailed analysis of this work has shown there are population issues with these calculations, but they aren't published in scientific papers.

The main issues surround:

- The tense political context currently experienced in Germany.
- The overtly positive representation of the science.
- The lack of critical review of the work.
- The need for careful regulation.
- The technology is seen as a 'quick fix'.
- The application of the technology in a country like Germany provides an over-focus on minorities and has a discriminatory effect – minorities will become over-represented in databases.
- Raises lots of statistical concerns – based on likelihood not probabilities.
- There has been no acknowledgement of data sensitivity
- No acknowledgement of scientific weaknesses.

The two murder cases of the two girls in Freiburg region was solved using standard investigative and forensic practices, and it turns out DNA phenotyping would not have solved this case (the suspect was identified by traditional methods). Therefore, technology is not always the answer. Today's multi-cultural, multi societal cities, make it very difficult.

**Estela Schindel (University of Konstanz)** *Biometrics, citizenship and border control. Knitting together a body and a name*

The separation of identity from a body of the disappeared in Argentina was portrayed. Depicting several artistic impressions of what it meant to be disappeared, including images of empty silhouettes which contained the names of missing loved ones. Many families are looking for the bodies of their loved ones, therefore they have a name but not grave. Complimentary imagery of mass graves

(individuals with no names until identified) and empty silhouettes (containing loved one's names but no skeleton or body to fill the silhouette).

In the southern hemisphere, DNA is very important in the identification of victims of state violence, not just criminals. Considering the border between countries, this is the place where the body and the identity is unpicked and knitted back together. At borders individuals (citizens and refugees) are vulnerable, as there is power by the state to exclude or include. Passports provide bridges of passage, but with the introduction of e-borders and biometric controls the link that knits together the body and the name is now dependent on data obtained from the bodies. So, what does that mean, and what are the implications?

Biometric data can provide the tool for identification. How images are depicted, or how a body is defined can impact the identification. The 'readability' or algorithmic translation of certain body features can include or exclude identification/individuals. Not all bodies are equally 'readable/compatible' biometrically, (e.g. fingerprints of children, older people, artisans etc.). Therefore, not all bodies are equally entitled.

For the European Commission the focus has been on multi-modal biometric systems – systems that use more than one biometric feature, because they increase the reliability of biometrics. There is a difference between first-generation and second-generation biometrics. Biometrics is the 'tool to identify and reliably confirm an individual's identity on the basis of physiological or behavioural characteristics, or a combination of both which are unique and unchanging'.

- First generation or physiologic biometrics
  - o Captures physical marks,
  - o used to establish identity,
  - o used for verification/authentication,
  - o there is knowledge and is used with consent,
  - o examples include: FP, DNA, faces, irises.
- Second generation or behavioural biometrics
  - o the recording and assessment of behavioural patterns,
  - o used to predict behaviour,
  - o used to establish profiles,
  - o does not need explicit cooperation,
  - o not known and often collected without consent (raises additional ethical concerns),
  - o examples include: gait, walk, heartbeat, body temperature, brain activity.

Much of the criticisms of biometric screening at borders is centred on privacy and data protection. The body is being broken down in data, abstracted from the known settings and reassembled as a series of algorithms. This can be considered to result in a 'data double', a virtual reality, a body transformed into pure information. Other authors argue, that rather than rendering the body irrelevant, the coupling of biometrics with high technology could raise questions about how our bodies can be related to identity. Therefore, much more than a question of data protection, namely the definition of the human body and the possibility of its racialization, is at stake.

**Arely Cruz-Santiago (Durham University) *Forensic genetics, citizenship and insecurity in Mexico***

In the global south, DNA databases have been created to identify victims of human rights violations in post-dictatorship scenarios. In Mexico, the authorities are ignoring the disappearances of people consequently communities have a different relationship with forensic technology. It is estimated there are 27,000 missing people/enforced disappearances.

The presentation outlined two case studies to illustrate the issues surrounding DNA databases and DNA identification in Mexico.

**Case Study 1: – Cotton Field Case**

- In 2001, the remains of eight females were found in a cotton field. There was limited information available as the bodies were badly decomposed. However, it was possible to determine that this had been a crime of a sexual nature.
- Prosecutors announced eight names of women aged 15-25 and notified families. Identifications were done by facial and photo comparisons, clothing, and two sets of DNA analysis carried out by the Local federal prosecutor and the Federal Prosecutor Office.
- The families of these girls were not allowed to see bodies, it was claimed it was for their own protection. The mother of one of the girls wanted confirmation that the bones she had received belonged to her daughter. She asked for an independent DNA analysis to be carried out by private laboratories in the US but local authorities denied this petition arguing that the procedure was not regulated by law. So, she removed a bone from the coffin of her daughter and kept it for future analysis.
- Due to the inconsistencies throughout the forensic process, families of the victims' filed a petition to the Inter-American Commission on Human Rights to investigate the case. Additionally, the families requested an independent reassessment of the identification process to be carried out by the Argentine Forensic Anthropology Team.
- Databases get developed containing hundreds of profiles, from many families where young women have disappeared and then don't get used effectively.

**Case Study 2: Citizen Led Forensic Database 2014-2015**

- The mistrust in authorities in Mexico has led to initiatives for Citizen Led Forensic DNA databases. These are databases where families of the disappeared volunteer their data to ensure a permanent record/archive of their profile should the remains of their loved ones be discovered.
- The reference samples were sent to Guatemala to the FAFG (The Guatemalan Forensic Anthropology Foundation), which is a non-governmental, autonomous organisation for analysis and safekeeping. It is estimated there are 440 DNA profiles stored now.
- The families want to keep the memory of their loved ones alive. However, there is lots of uncertainty/lots of unknowns.
- Mexico was described as a country that is a 'big mass grave'.

Emerging citizen led initiatives include groups actively looking for mass graves. This month alone (March), 245 bodies were recently found and identified. New governance mechanisms needed for emerging citizen-led DNA databases, as there are a number of security challenges this brings. The citizen-led initiative is a response and a commitment which has been created among the community

(not the authorities). There is a need to rethink state role in governing databases to provide mechanisms for identifying the disappeared of Mexico. Forensic practices have a way of generating hope, hope of finding loved ones.