Race, Ethnicity, Biotechnology and the Law:
Potentiality and challenges for law enforcement in the digital age

Eszter Kovács Szitkay

Eötvös Loránd Research Network, Centre for Social Sciences, Institute for Legal Studies & University of Public Service, Doctoral School of Law Enforcement, Budapest

Andras L. Pap

Eötvös Loránd Research Network, Centre for Social Sciences, Institute for Legal Studies, Eötvös University, Faculty of Business Economics, Budapest

Abstract

The authors, working on a project mapping how law conceptualizes and operationalizes race, ethnicity and nationality, provide an assessment of the triadic relationship between law, law enforcement practices and science. The article begins by providing an overview of the obstacles, challenges and controversies in the legal institutionalization and operationalization of ethnic/racial/national group affiliation. Subsequently, the article turns to the assessment of how "objective" criteria, data and constructions provided by science and biotechnology translate into the legal discourse and more specifically law enforcement practice in the digital age. The case study in the final section of the article provides an overview of how suspect description and the datafication is ethnicizied in Hungarian digital law enforcement registries.

Keywords: profiling, biotechnology, race, ethnicity, law

Introduction

The article revisits through the prism of the modern, digitalized technological environment, the long-standing question of how to relate to ethnicity in policing. The article begins by providing an overview of the obstacles, challenges and controversies in the legal institutionalization and operationalization of ethnic/racial/national group affiliation, and in particular in law enforcement. Subsequently, the paper turns to the assessment of how "objective" criteria, data and constructions provided by Artificial Intelligence (AI), and forensic biotechnology translate into conceptualizing ethnicity, and specifically in law enforcement practice and registries. To contextualize the discussion, the final section of the article provides an overview of how suspect description and the dataification is ethnicizied in Hungarian digital law enforcement registries.[1]

The context: legal concepts and operationalization for race, ethnicity and nationality

Conceptualization and operationalization of race and ethnicity comes up in two dimensions: definitions and classifications pertaining to the groups, and how membership criteria are established in these communities.

The conceptualization of communities to be targeted by legal regimes takes place in a climate of ambiguity, sensitivity and suspicion. The terms are used in differing ways in academic literature, and in legal and administrative documents, also depending on the social and geographic context. For example, 'race' is used in reference to quite a different set of human characteristics in the US as in continental Europe. A controversial category, it is generally not considered to be a fruitful analytical concept in the social sciences, where it is widely understood to be a social construct rather than a biological trait without a theoretically or politically uniform definition (see Tajfel, 1981).

Race-based international and domestic legal instruments identify race with the apprehension of physical appearance, and put perception and external classifications in the center when prohibiting discrimination, or violence on racial grounds. In this, it is rarely distinguished from ethnicity. However, ethnic minorities are multifaceted groups. While many of their claims are grounded in the anti-discrimination rhetoric employed by racial minorities, some "ethnically defined" groups may also have cultural claims (and protections) that national minorities would make. The international legal terminology habitually differentiates between the two groups on the grounds that ethnic minorities are different from national minorities in the sense that they do not have nation states as national homelands (see e.g. Hannum, 2001). These groups make claims for collective rights, bypass the anti-discriminatory logic and seek recognition of cultural and political rights, particularly autonomy or the toleration of various cultural practices that differ from the majority's, which often require formal exceptions from generally applicable norms and regulations.

Conceptualizing and operationalizing membership is even less unambiguous (Pap 2021). Ethno-national group affiliation can be ascertained in several ways: (i) through self-identification; (ii) by other members or elected, appointed representatives of the community (leaving aside legitimacy-, or ontological questions regarding the authenticity or genuineness of these actors); (iii) through classification by the perception of outsiders; (iv) by using proxies such as names, residence, etc. and (v) by outsiders but using 'objective' criteria. In regard to operationalization strategies: for anti-discrimination measures, and hate crime protections subjective elements for identification with the protected group are secondary, and external perceptions should serve as the basis for classification. Policies implementing this anti-discrimination principle may rely on a number of markers: skin color, citizenship, place of birth, country of origin, language (mother tongue, language used), name, color, customs (like diet or clothing), religion, parents' origin, or even eating habits. Defining membership criteria comes up in a completely different way when group formation is based on claims for different kinds of preferences and privileges. In this case, subjective identification with the group is an essential requirement, but the legal frameworks may establish a set of objective criteria that needs to be met besides. In the context of drafting affirmative action and ethnicity-based social inclusion policies, external perception, self-declaration, and anonymized data collection may be varied and combined.

Law, law enforcement and ethnicity

As shown above, the field of law enforcement is not exempt from the dilemmas of conceptualizing and operationalizing race and ethnicity. For example, the legislator as well as officers and prosecutors need to navigate between self-identification and outsiders' perception when registering or classifying a racially motivated hate crime. Classification is also central in refugee procedures, where race, ethnicity, or membership in a "particular social group" (see e.g. Sternberg, 2011), which can be a basis for persecution is a crucial element, and where the asylum-seeker will make a claim pertaining to her affiliation, and recipient authorities will carry out a validation procedure: first establishing whether the group in question is actually in danger of persecution, and second, whether the claimant is a member of the group.

Operationalizing ethnicity also comes up in the "classic" police work of identifying missing victims or perpetrators (Pap 2008). Here creating, registering and processing ethno-racial data comes up if a suspect description by the victim or a witness includes ethno-racial descriptions. In this regard, there are four distinct scenarios how police action may rely upon ethnicity or race, and different constitutional measures apply for

each. The first, unproblematic scenario is when the victim or witness to a crime provides a detailed description of a specific suspect which includes ethno-racial characteristics. In these situations, courts have invariably found that it was legal to use such information—in search warrants, for example. A second, somewhat different scenario is in which the description provided by the victim or witness contains very little concrete detail about the suspect beyond her race or ethnicity. In such cases, on several occasions, the courts' stance was that race and ethnicity can be operative in negative descriptions only; for example, if the informant identified the perpetrator as black, then that information can serve as basis for the police not to stop whites and Asians, but it would border on discrimination for them to start stopping blacks without any further reason for doing so beside their skin color.

The third case is ethno-racial profiling, applied in traffic and border stop and search, anti-terrorist action, etc. This practice relies on the tenet that ethnicity in itself makes criminal involvement more likely, and this assumption is not based on any specific or general information about a given, concrete individual. Finally, the fourth case, which features prominently in the war against terror, involves preventive measures that rely on official, written directives about certain racial, ethnic, national or citizenship-based considerations. In these cases, the application of ethno-racial profiles is no longer left to the discretion of the police, border guards and airport security personnel. Instead, ethnic profiling becomes an officially formulated prescription.

Furthermore, are elaborated in more detail in the next section, ethno-racial conceptualization comes up in modern, digitalized, artificial intelligence (AI)-enhanced, algorithmic and molecularized policing in a diverse set of practices, from predictive law enforcement analytics, through forensic DNA to facial recognition software.

Law, law enforcement, science, datafication and ethnicity

Race, ethnicity and science

We need to begin with the observation that identity politics, political activity and "theorizing founded in the shared experiences of injustice of members of certain social groups" (Heyes, 2016) has been arguably the dominant trend in the second half of the twentieth century.[2] However, contemporary models for opera-

tionalizing ethnicity also rely on a variety of "objective" criteria. For example, ethnic preferences in citizenship often require the knowledge of the national language (see Pogonyi, 2022, 13), native American and other Indian tribes will determine membership by registered blood-quantum requirements. Furthermore, there are numerous accounts how "objective" conceptualization of ethnicity operationalizes "science" – irrespective that post-WWII social science discourse rejects biological approaches to race and ethnicity based on the stance that race is a social construct. However, as we will see, when there is a policy, commercial or political need and will, "scientific" language to describe and encapsulate ethnicity is revisited.

Technologies continuously expand the boundaries of ethno-racial conceptualization. For example, AI can accurately predict self-reported race, even from corrupted, cropped, and noised medical images, often when clinical experts cannot - and can also predict sex and distinguish between adult and pediatric patients from chest x-rays (Purkayastha et al., 2022; Yi et al., 2021; Eng et al., 2021). The development of cheap and fast genetic analysis brought a sweeping change in how the understanding of the race and ethnicity is perceived, lived and operationalized.

It is peculiar that a significant contributor to these processes and mechanism is the highly lucrative commercial enterprise of providing genetic ancestry accounts. Various government/state services (from law enforcement to naturalization) and even the medical profession will to a varying degree rely on this form of direct to consumer commercial ancestry conceptualization of molecularized heritage – despite the fact that a large body of literature raises serious doubts on the scientific validity of these projects.

Forensic ethno-racial data generation

The new wave of innovations in forensics seeks to support criminal investigations by making inferences about the racial or ethnic appearance of unidentified suspects using genetic markers of phenotype or ancestry. The process had been termed as creating 'biological witnesses' within a new "forensic imaginary" (Williams, 2010). These new techniques analyze genetic traits for skin tone and the next, yet not fully developed stage of research targets face shape, and allow the 'prediction' of the race or ethnicity of a crime suspect (Skinner, 2018, 330-332).

2   See second wave feminism, the Black Civil Rights movement in the U.S., LGBT movements, indigenous movements, for example.

A recent project can, for example predict a person's ancestry and physical traits without the need for a match with an existing sample in a database. It was used to identify a sailor who died after his ship sank during World War II. In the United States, police departments have for years been using private DNA phenotyping services to generate facial images of suspects which then can be distributed as mugshots to the public to assist in investigations (Schwartz, 2022).

As Skinner explains, the application of genetic science to police forensics understood in terms of three overlapping waves (Williams & Wienroth, 2014):

> "*The first saw, from the 1980s onwards, the establishment of genetic testing as a credible identification tool and means of linking known suspects to crimes. The second involved, in the next two decades, the growth of national police DNA databases containing millions of records that are routinely, speculatively searched in an attempt to match as yet unknown people to offences. We are now entering a third wave where new techniques infer personal characteristics of as yet unknown suspects using crime scene samples. … The growing list of potentially detectable Externally Visible Characteristics (EVCs) includes age, eye colour, hair colour, and skin pigmentation*" (Skinner, 2013, p. 978).

The reliability of these technologies is questionable, for example, in 2012, the Minister of the Interior for the German federal state of Baden-Württemberg apologized to the Roma community for the bungled interpretation by police of DNA evidence in the investigation of a series of murders in Heilbronn in 2007 (Skinner, 2018, 332). Here DNA phenotyping predicted that a sample taken from a crime scene involving the murder of a police officer belonged to a woman of Eastern European ancestry. The same DNA was then linked to dozens of serious crimes across Western Europe, prompting a theory that the perpetrator was a serial offender from a traveling Roma community. It turned out that the recurring genetic material belonged to a female Polish factory worker who had accidentally contaminated the cotton swabs used to collect the samples (Schwartz, 2022).

Law enforcement agencies also build and apply Y-chromosome haplotype reference databases. Skinner explains that the database is racialised along a number of different dimensions, besides being

> "*(…) predominantly young and almost 80 per cent male. (…) now 27 per cent of the entire black population has a record on the database, including 42 per cent of black males and 77 per cent of young black men. (…) the NDNAD is racialised in its composition, the categorisation of all profiles by 'ethnic appearance', experiments with ethnic profiling of crime scene DNA, and the procedures of ethnic monitoring*" (Skinner, 2013, 982).

It needs to be added that "(…) *the harm of over-representation of ethnic minorities might be multiplied by the use of 'familial searching' – a technique that looks not only for exact matches between suspect DNA and database records but extends the search to near blood relatives*" (ibid).

Skinner argues that not only will such technologies implicate ethically dubious policing practices such as 'DNA dragnets' that involve mass testing of local suspect populations on the basis of the predicted ethnicity of an unknown suspect, but the DNA database also "can be misused for unethical scientific research purposes such as attempts to isolate genes that predispose particular ethnic populations to criminality" (ibid).

Besides questions pertaining to the overall efficiency and the potential abuses of the technology, Skinner also warns about the methodology for conceptualization for operationalization, arguing that

> "*(…) ethnic categories and systems of categorisation used in the NDNAD are deemed 'not fit for purpose' (as…) NDNAD race data is based on the judgement of the police officers who classify genetic samples usually at the time of arrest using the following 'ethnic appearance' codes (previously known as Identity Codes): … It is hard to reconcile data generated using these '6+1' categories with other datasets in the criminal justice system that use the 2001 Census '16+1' classification*" (ibid, 985).

Beyond the DNA

Controversies regarding modern technologies are not limited to genetics: in 2020, Google, IBM, Amazon and Microsoft announced that they were stepping back from facial-recognition software development amid concerns that it reinforces racial and gender bias. The widely applied technology uses a vast number of images to create 'faceprints' of people by mapping the geometry of certain facial features and classifies data into categories such as gender, age or race, and to compare it to other faceprints stored in databases. Ac-

cording to a 2019 report by the US National Institute of Standards and Technology, African-American and Asian faces were misidentified 10 to 100 times more often than Caucasian men, and the software also had difficulties identifying women (Dayton, 2020).

Predictive law enforcement habitually relies on big data and AI. An algorithmic bias was shown for example in investigating the risk scores used in the Correctional Offender Management Profiling for Alternative Sanctions (COMPAS) for recidivism. It was found that white defendants were more often mislabeled as 'low risk' compared to black defendants, and the risk score was more likely to falsely flag black defendants as 'high risk' (FRA, 2018, 7-8)[3].

Another scientific language through which ethnicity can be conceptualized and operationalized is voice recognition. While the traditional use of voice recognition in law enforcement was used in criminal proceedings matching a recording with an identified suspect, AI-enabled "language biometrics" has been used recently put in use in asylum procedures analyzing dialects in verifying applicants regarding their (geographic and ethnic) origin.[4] Language analysis is standard in the Netherlands and Norway for some nationalities and optional when there are indications that the applicant has provided false information. It is widely used in Belgium, Germany and Sweden (Kilpatrick & Jones, 2022, 15-17).

The case study of Hungary

This final section provides an overview of how suspect description and the datafication is ethnicizied in Hungarian digital law enforcement registries. We begin with the overview of the legal framework for processing of ethnic data, and continue by showing how ethnic data processing surfaces in law enforcement practice.

The legal framework for ethnic data processing

"Personal data indicating ethnic origin" is classified as special data by Act CXII of 2011 on the Right to Informational Self-Determination and Freedom of Information

(Infoact). The provision does not define ethnicity, but the law sets forth specific rules for processing these data types, including the requirement on "inevitable necessity and proportionality" to the implementation of an international agreement promulgated by law; being prescribed by law in connection to the enforcement of the fundamental rights ensured by the constitution, the Fundamental Law; for reasons of national security; national defense; for the "prevention, detection and prosecution of criminal offences"; being necessary for, and proportionate to, the protection of the vital interests of the data subject or of another person, or the elimination or the prevention of a direct threat to the life, physical integrity or property of persons; or if the data subject explicitly disclosed the processing of the data is necessary and proportionate (Act CXII of 2011, Article 5).

Besides EU norms (such as the GDPR), the strict regime has been present since the 1990 political transition. Before, for example, between 1971 and 1989, the ethnicity of Roma offenders were still registered (Kerezsi & Gosztonyi, 2014, 239-240). In sum, the collection and processing of ethnic data is not prohibited, but it is protected by a strict legal framework.

The "path" of ethnic data through law enforcement practices

In line with the above, information (data) pertaining to ethnicity may appear under a number of scenarios in the Hungarian legal and law enforcement framework Such cases involve hate crimes (where ethno-racial victim selection is part of the concept), in guidelines for police cooperation with (ethno-national) minority communities and for policing in multicultural communities. Let us address these in detail.

Criminal justice

There are several instances where the recognition (and processing) of ethno-racial data becomes part of the criminal process. One such case is where the perpetrator or the victim voluntarily declares his/her ethnicity, which may, or may not be relevant in the investigation/ criminal proceedings, but could and should be part of the official transcript and case file. In practice, however, as we found, this this information is not mostly not re-

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3   Note that machine learning also includes 'proxy information' such as postcode, which can indicate ethnic origin in cases of segregated areas in cities, or more directly, a person's country of birth, and combining 'likes' on social media with other data can also be used to determine a person's sexual orientation, ethnic origin or religion.

4   Automated text and speech recognition has been used by Germany's Federal Office for Migration and Refugees (BAMF) since 2017 (*AlgorithmWatch*, 2020; Federal Office for Migration and Refugees, 2020)

corded and stored separately, if anything, it is presented as part of the facts in a "free text" manner.

The next scenario relates to hate crimes: here, the very concept of (a racially motivated) hate crime implies that the victim is chosen due to her/his perceived membership in the given ethno-racial community. Since the victim may not immediately identify himself/herself as a hate crime victim, the investigators need to carry out a screening process: based on a set of indicators laid down by law: in ORFK Order 30/2019 (18 July) of the Chief of the National Police on the implementation of police tasks related to the handling of hate crimes. The following prejudice indicators shall be recorded in the police report of the incident and shall be investigated in the criminal proceedings to assist in the detection of hate crimes:

(a) the perception and opinion of the victim or other witness in regards of the perception of the victim;

(b) the suspect's characteristics, appearance and behaviour in relation to the offence, in particular his or her the gestures used, the clothing worn and the verbal expressions used;

(c) the perceived or real group difference between the suspect and the victim, which may include persons acting on behalf of or belonging to the victim;

d) the victim's appearance and behavior, including typically his/her preferred/chosen location, the foreign language or accent, clothing that symbolizes race, religion or belief;

e) the suspect's prejudicial attitudes, which may be indicated by the programs/events he/she attends, preferred bands, reading material, social media platforms;

(f) participation in organized hate groups, which may be indicated by the use of the suspect's group symbolism The presence of a suspect group may be indicated by its appearance and gestures, or by the group itself (by participating in the commission of the crime);

(g) the location of the offence, which may be indicative of the victim's community affiliation or linked to a previous hate crime;

(h) the date of the act, which may be linked to the victim's community celebrations, events or historical events favored by the suspect;

(i) the degree, manner and means of the violence, in particular its exaggerated or particularly humiliating, self-serving or symbolic means;

(j) the publicity, which is primarily intended to convey the perpetrator's message;

(k) the absence of any other motive, in particular the unpremeditated assault or humiliation of an unknown victim." (ORFK Order 30/2019, Art. 8.)

A number of questions arise: can the police officer ask the victim about their ethnicity in order to reveal a prejudicial motive? Or, can the police record their perception in official registries? (Gyűlölet-bűncselekmények elleni Munkacsoport, n.d.) Unfortunately, the permissive conditional mode of the Order does not provide explicit guidance and officers find this extremely difficult. Even if the legal framework clearly allows for it. Act XC of 2017 on Criminal Procedure (Section 97 (1)) also stipulates that

"The court, the prosecution and the investigating authority may, for the purpose of conducting criminal proceedings, obtain and process all personal data necessary for the performance of its functions as defined in this Act".

Thus not only can and should the police register ethno-racial data/information coming from the victim, witness or suspect, but it is also a legal and professional obligation, if it is a necessity for the potential classification of a (hate) crime.

The third scenario for the appearance of ethno-racial data/information in the criminal procedure pertains to suspect description. The victim's or witness's description of the perpetrator is recorded using the method of "personality description." Personality description is a forensic tool used for the identification of a person, corpse or body, containing a set of information designed and codified to include: the general human biological characteristics (biological sex, age, height, weight, build, type and location of obesity, posture, colour composition); the physiological characteristics of each part of the body (size, shape, asymmetry, deformity of the face and parts of the body); functional

characteristics (gait, speech, behaviour, smell); and - other characteristics (tattoos, body jewelry, clothing, etc.) (Anti, 2017, 75-82).

The description may point to a specific ethnicity - or the witness may make a statement about the perpetrator and Section 3 (2) c) of Act LXXXVIII of 2013 on the wanted persons registration system and on the search and identification of persons and things sets forth that "The register of wanted persons shall contain … specific data concerning the racial origin, religious beliefs, sexual conduct and political opinions of the wanted person". Nevertheless, ethno-racial features are never used *expressis verbis* in the description of the wanted person in Hungary – rather synonyms or euphemisms, such as "dark skinned" or "creol" are used that are commonly understood.

In sum, we have found that although the ever so strict rules would allow room for the processing of special ethnic data, and in certain cases, to do so is even a legal obligation: such data is not actually collected in any form by the criminal justice system. If it appears during the procedure (e.g. in the witness statement), such data is not recorded systematically either as personal or as desegregated, statistical data (Kerezsi & Gosztonyi, 2014, p. 240). The various registration systems do not have the IT facilities (a rubric) for processing.

Chief of Police Orders on multicultural policing

The other stream of recognizing ethnicity in police work relates to policies pertaining to policing multicultural communities. In line with international recommendations, in 2011 the chief of the national police issued two orders on policing multicultural communities and cooperation with Roma self-governments (and an adjacent methodological guideline in 2012),[5] which are identified as institutional partners for the force. ORFK Order 27/2011 (XII. 30.) on police measures in a multicultural environment establishes a "minority liaison" and a working group (Pap, 2019, 23-25). When mentioning minority communities, the instruction only mentions Roma and refugees explicitly, but not other minorities or immigrant groups listed in the Nationality Act. Thus, once again, we see an example of an explicit legal basis for the appearance and processing of ethnic data.

Concluding remarks on the Hungarian case

The collection and processing of ethnic data in the field provides a unique opportunity to scrutinize general problems of conceptualizing and operationalizing ethnicity. It reveals the challenges vague legal classification causes for practice. What emerges from the so-called Murphy's Law of racism, which aptly captures the problem that is common to all these cases: conceptualizing and operationalizing ethnicity is never a problem for the perpetrator, only for human rights defenders, academics, and the police (Pap, 2012, 88). The phenomenon is prevalent, beyond the criminal justice system, for example it is also present in desegregation litigation (Pap, 2012, 100-104). In sum, despite all good intentions, a counter-productive practice evolved: the (not-) collection of ethnic data is based on an overzealous interpretation of the law, which has failed to achieve its protective function on one hand, and also makes law enforcement practice difficult.

Conclusions

This article was aimed at triangulating models and languages of conceptualization and operationalization for race, ethnicity and nationality by law, and with a special focus on law enforcement. We showed that when there is a policy, commercial or political need and will, new, digitalized "scientific" language to describe and encapsulate ethnicity is revisited.

Ethno-racial data processing is a difficult question for policing, but there are strong arguments for the use of ethnic identifiers in data collection in order to be able to detect and correct discriminatory treatment and outcomes (see e.g. Chopin *et al.*, 2014; Osoba & Welser, 2017; FRA, 2019). Also, since the world is not colour-blind, it is an unreasonable expectation for police to be such. Furthermore, such data processing is a necessity for classifying certain (say, hate) crimes, and can serve as a useful and, it is important to stress, legal tool to identify suspects. While in the EU Article 9 of the GDPR confirms that the processing of sensitive data (including race and ethnicity) is prohibited, it does provide for ten exceptions, which should suffice for narrowly tailored, legally defined police work that duly takes into

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5   a multikulturális környezetben végrehajtott rendőri intézkedésekről szóló 27/2011. (XII. 30.) ORFK utasítás, a roma kisebbségi önkormányzatok közötti együttműködésről, kapcsolattartásról szóló 22/2011. (X. 21.) ORFK utasítás, (2012. január 19-én kelt.) 29000/126311/2012 ált. számú módszertani útmutató.

consideration guidelines and recommendations European and other watchdog organizations.[6]

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6 For guidance see the law enforcement directive, Directive (EU) 2016/680 of the European Parliament, and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data by competent authorities for the purposes of the prevention, investigation, detection or prosecution of criminal offences or the execution of criminal penalties, and on the free movement of such data, and repealing Council Framework Decision 2008/977/JHA, OJ L 119, 4.5.2016, pp. 89-131). Also consider how in 2017 the European Parliament called to identify and take measures to minimize algorithmic discrimination and bias and to develop a strong and common ethical framework for the transparent processing of personal data and automated decision (European Parliament resolution of 14 March 2017 on fundamental rights implications of big data: privacy, data protection, nondiscrimination, security and law-enforcement (2016/2225(INI)).

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