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Reconsidering discrimination grounds in the data economy: An EU comparison of national constitutions

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ABSTRACT

The principle of equal treatment (i.e., all people have the right to be treated equally) is protected by non-discrimination provisions in national constitutions across the EU as well as the EU Charter of Fundamental Rights (CFEU). These provisions specify which grounds (e.g., gender, race, religion) are prohibited to use as the basis for making decisions on people, such as offering a person a job. In the data economy, in which large amounts of personal data are collected and analyzed, it has become possible to make decisions on people on the basis of all kinds of grounds, also grounds that are not protected in anti-discrimination law (e.g., zip code, shoe size, wealth). Even though mostly unintentional, patterns revealed by sophisticated data analysis can turn out to be discriminatory, either directly or indirectly. Particularly indirect discrimination (i.e., discrimination by proxy) can be hard to discover and enforce. From a substantive perspective, these technological developments also raise the question which discrimination grounds should be protected, since discrimination grounds are in flux and not harmonized across the EU. In this paper, through legal comparison, discrimination grounds across EU national constitutions and the CFEU are compared, to identify overlaps and differences. This overview is then used to start the discussion on the extent to which current legislation is still appropriate in the data economy or should perhaps be reconsidered.

1. Introduction

In the data economy, large amounts of personal data are collected and processed for making decisions on people.[1] Typically, data analyses can disclose patterns and profiles that can be used for automated decision-making. Businesses use this, for instance, for targeted advertising,[2] personalization of products and services,[3] online price

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[1] Sadowski, J. (2019). When data is capital: Datafication, accumulation, and extraction. *Big data & society*, *6*(1), p. 1-12; Custers, B.H.M., and Bachlechner, D. (2018) Advancing the EU Data Economy; Conditions for Realizing the Full Potential of Data Reuse, *Information Polity*, Vol. 22, No. 4, p. 291-309.

[2] See, for instance, Boerman, S.C., Kruikemeier, S. & Zuiderveen Borgesius, F.J. (2017) *Online Behavioral Advertising: A Literature Review and Research Agenda*, 46 JOURNAL OF ADVERTISING 363, 364.

[3] Pallant, J., Sands, S., & Karpen, I. (2020). Product customization: A profile of consumer demand. *Journal of Retailing and Consumer Services*, 54, 102030.

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discrimination[4] and curation of disinformation.[5] Governments use (the results of) these approaches, for instance, for tracking tax fraud,[6] addressing unemployment,[7] traffic regulation,[8] predicting terrorism,[9] and investigating crimes.[10]

The processing of these large amounts of personal data and the profiles and prediction models this yields, can cause concern with regard to privacy and discrimination.[11] In the data economy, it has become possible to make decisions on people on the basis of all kinds of grounds, even grounds that people prefer not to disclose (causing privacy issues)[12] or grounds that are prohibited as selection criteria under equal treatment acts (causing discrimination issues).[13] In essence, the new data analysis tools allow for selections and decisions on the basis of any kind of ground the data show as a relevant classifier. Obviously, under anti-discrimination law, several grounds (e.g., gender, race, religion) are prohibited to use as the basis for making decisions on people, such as offering a person a job.[14] Now, it has become possible to also use grounds that are not protected in anti-discrimination law (e.g., zip code, shoe size, wealth). Even though mostly unintentional, patterns revealed by sophisticated data analysis can turn out to be discriminatory, either directly or indirectly.

A typical example is that of Princeton Review, a US company that offers tutoring and exam training. This company used online price discrimination for its online tutoring service and charged different prices for customers, depending on their geographic location. As a (probably unintended) result, consumers with an Asian background were almost twice as likely to be offered a higher price than non-Asians.[15] This is indirect discrimination: geographic location is an apparently neutral and non-sensitive criterion, not prohibited for selection under non-discrimination law. However, this practice *de facto* has as a result a disparate impact on people from specific ethnic backgrounds. Ethnicity, obviously, is a sensitive criterion, prohibited for selection under non-discrimination law. In most jurisdictions, both direct and indirect discrimination are prohibited, regardless of whether it takes place intentional or unintentional.[16] However, since indirect discrimination (i.e., discrimination by proxy) can be hard to discover and enforce, this raises enforcement issues.[17]

Nothing new so far – a lot of literature is available on (existing and potential) bias, discrimination, and fairness in algorithmic decision-making.[18] Some of this literature also explicitly recognizes the disconnect between these issues and existing legal frameworks for non-discrimination.[19] Much of this literature stems from the domain of law and technology rather than the domain of anti-discrimination law and human

[4] Zuiderveen Borgesius, F., & Poort, J. (2017). Online price discrimination and EU data privacy law. *Journal of consumer policy*, *40*, p. 347-366.

[5] Wohn, D. Y., Fiesler, C., Hemphill, L., De Choudhury, M., & Matias, J. N. (2017, May). How to handle online risks? Discussing content curation and moderation in social media. In *Proceedings of the 2017 CHI Conference Extended Abstracts on Human Factors in Computing Systems* (pp. 1271-1276); Heuer, H., & Breiter, A. (2020). How fake news affect trust in the output of a machine learning system for news curation. In *Disinformation in Open Online Media: Second Multidisciplinary International Symposium, MISDOOM 2020, Leiden, The Netherlands, October 26–27, 2020, Proceedings 2* (pp. 18-36). Springer International Publishing.

[6] De Roux, D., Perez, B., Moreno, A., Villamil, M. D. P., & Figueroa, C. (2018, July). Tax fraud detection for under-reporting declarations using an unsupervised machine learning approach. In *Proceedings of the 24th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining* (pp. 215-222).

[7] O'Connell, P. J., McGuinness, S., & Kelly, E. (2010). *A statistical profiling model of long-term unemployment risk in Ireland* (No. 345). ESRI Working paper.

[8] Al-Hussein, W. A., Por, L. Y., Kiah, M. L. M., & Zaidan, B. B. (2022). Driver behavior profiling and recognition using deep-learning methods: In accordance with traffic regulations and experts guidelines. *International journal of environmental research and public health*, *19*(3), 1470.

[9] Bang, J., Basuchoudhary, A., David, J., & Mitra, A. (2018). Predicting terrorism: a machine learning approach. *Predicting terrorism: a machine learning approach*; Buffa, C., Sagan, V., Brunner, G., & Phillips, Z. (2022). Predicting Terrorism in Europe with Remote Sensing, Spatial Statistics, and Machine Learning. *ISPRS International Journal of Geo-Information*, *11*(4), 211.

[10] Ferguson AG (2019) Predictive Policing Theory. In: Rice Lave T, Miller EJ (eds) The Cambridge Handbook of Policing in the United States. Cambridge University Press; Custers, B.H.M. (2022) AI in Criminal Law: An Overview of AI Applications in Substantive and Procedural Criminal Law, in: B.H.M. Custers & E. Fosch Villaronga (eds.) *Law and Artificial Intelligence*, Heidelberg: Springer, p. 205-223; Caldwell, M., Andrews, J.T.A., Tanay, T., Griffin, L.D. (2020) AI enabled future crime, Crime Science 9:14

[11] Barocas S, Selbst AD (2016) Big Data's Disparate Impact. 104 *California Law Review* 671.

[12] Custers, B.H.M. (2012) Predicting data that people refuse to disclose; how data mining predictions challenge informational self-determination. *Privacy Observatory Magazine*, 3.

[13] Carmichael, L., Stalla-Bourdillon, S., & Staab, S. (2016). Data mining and automated discrimination: a mixed legal/technical perspective. *IEEE Intelligent Systems*, *31*(6), p. 51-55; Barocas S, Selbst AD (2016) Big Data's Disparate Impact. 104 *California Law Review* 671.

[14] Ellis, E., & Watson, P. (2012). *EU anti-discrimination law*. OUP Oxford.

[15] Larson, J., Mattu, S., Angwin, J. (2015) *Unintended Consequences of Geographic Targeting*, 1 september 2015, https://static.propublica.org/projects/princeton-review/princeton-review-methodology.pdf.

[16] See Tobler, C. (2005) *Indirect discrimination: a case study into the development of the legal concept of indirect discrimination under EC law*. Antwerpen: Intersentia; Khaitan, T. (2017) Indirect discrimination. In *The Routledge handbook of the ethics of discrimination*, p. 30-41. London: Routledge.

[17] Note that tools are being developed to detect and measure indirect discrimination, see Zliobaite, I. (2015). A survey on measuring indirect discrimination in machine learning. *arXiv preprint arXiv:1511.00148*.

[18] Some examples include Barocas S, Selbst AD (2016) Big Data's Disparate Impact. 104 *California Law Review* 671; Hildebrandt, M., Gutwirth, S. (2008) *Profiling the European Citizen*. Springer, Heidelberg; O'Neil, C. (2016) *Weapons of Math Destruction; How big data increases inequality and threatens democracy*, New York: Crown; Custers B.H.M., Calders T., Schermer B., Zarsky T. (eds.) *Discrimination and Privacy in the Information Society*. Heidelberg: Springer; Bruyne J. de, Vanleenhove, C. (2021) *Artificial Intelligence and the Law: A Belgian Perspective*. Intersentia, Cambridge, UK.

[19] See, for instance, Wachter, S., Mittelstadt, B., and Russell, Chr. (2021) Why Fairness Cannot Be Automated: Bridging the Gap Between EU Non-Discrimination Law and AI (March 3, 2020). *Computer Law & Security Review* 41 (2021): 105567.

rights law.[20] Anti-discrimination law often seems to be more focused on case law and the judicial interpretations and contextual approaches contained in such case law.[21] A lot of the literature on fairness, accountability, and transparency in algorithmic decision-making, machine learning and AI focuses on identifying these issues,[22] but increasingly there is also attention for addressing these issues, for instance, with contributions on making these technologies discrimination aware[23] and on automating fairness.[24]

In this paper, we intend to provide a contribution to this debate by focusing on anti-discrimination laws rather than on analyzing the issues these technologies raise and trying to improve their designs. As will be explained in Section 2, when we say we focus on anti-discrimination law in the EU, this means we focus on antidiscrimination provisions in national constitutional laws. We try to address the disconnect between bias, discrimination, and fairness and existing EU legal frameworks for non-discrimination from the latter perspective. The focus is on regulating non-discrimination and fairness, rather than on automating it. Given the knowledge on bias and discrimination in these technologies, we investigate to what extent and how these legal frameworks fall short and how this could be addressed.

Hence, apart from obfuscated, indirect discrimination, we address another issue, namely which grounds should be prohibited as selection criteria in this new context. This raises questions regarding fairness. For instance, it seems generally accepted by consumers that airline tickets are cheaper when booked well in advance.[25] But consumers are much less supportive of increased prices for umbrellas when it is raining or paying more for a can of coca cola when it is very warm. Food deliveries that are up to 50% more expensive for consumers in wealthy neighborhoods are even more complicated.[26] Another example of a selection criterion that causes concern among consumers is a practice by ride-hailing service Uber, that uses information on low battery on a consumer's cell phone as an indicator that the consumer is likely to pay a higher price for a ride.[27] The technologies allow for grouping people into completely novel categories, such as dog owners, sad teens, video gamers, single parents, or gamblers, but none of characteristics are covered in anti-discrimination laws.[28]

More examples that illustrate fairness issues in new selection criteria can be found in the area of online price discrimination. Wealth and social status can influence the price of products. For instance, loyal customers can often get discounts, but being a loyal customer often requires first buying a lot. Prices are also often determined on the basis of location, but consumers seem to find location-based pricing less fair than purchase history-based pricing.[29] Prices can also depend on the type of device used, but consumers are even less willing to accept device type-based pricing than location-based pricing.[30] Obviously, the type of device a person can afford, the location where a person lives, and the purchase history are all strongly determined by a person's wealth and social status.

Throughout the EU, wealth and social status are not commonly protected grounds of discrimination. As we will show, about half of the EU member states have included wealth and social status in their constitution as a prohibited ground of discrimination, the other half of the EU member states have not, which means that in those countries wealth and social status is perfectly legal to use as a selection criterion (unless prohibited in secondary legislation).[31]

The principle of equal treatment (i.e., all people have the right to be treated equally) is protected by non-discrimination provisions in national constitutions across the EU as well as the EU Charter of Fundamental Rights (CFEU). But national constitutions and the CFEU are not harmonized, they differ (sometimes widely) in the grounds of discrimination they list. Also, these provisions are in flux. For instance, discrimination grounds like sexual orientation or genetic background were

[20] For the debate in the area of human rights law, see, for instance, McGregor, L., Murray, D., & Ng, V. (2019) International human rights law as a framework for algorithmic accountability. *International & Comparative Law Quarterly*, 68(2), 309-343; Gerards, J. (2019) The fundamental rights challenges of algorithms. *Netherlands Quarterly of Human Rights*, 37(3), 205-209.

[21] Section 5 discusses some exceptions to this observation: Fineman, M.A. (2015) Equality and Difference – the Restrained State, 66 *Alabama Law Review* 609, 614; Krupiy, T. (2021) Meeting the Chimera: How the CEDAW Can Address Digital Discrimination, *International Human Rights Law Review* 10 (2021) pp. 1-39; Gerards, J., Zuiderveen Borgesius, F. (2022) Protected Grounds and the System of Non-Discrimination Law in the Context of Algorithmic Decision-Making and Artificial Intelligence, *Colorado Technology Law Journal*, volume 20, issue 1, pp. 1-55.

[22] Shin, D., & Park, Y. J. (2019) Role of fairness, accountability, and transparency in algorithmic affordance. *Computers in Human Behavior*, 98, 277-284.

[23] Pedreshi, D., Ruggieri, S., & Turini, F. (2008) Discrimination-aware data mining. In *Proceedings of the 14th ACM SIGKDD international conference on Knowledge discovery and data mining,* p. 560-568; Berendt, B., & Preibusch, S. (2017) Toward accountable discrimination-aware data mining: the Importance of keeping the human in the loop—and under the looking glass. *Big data*, 5(2), p. 135-152.

[24] Wachter, S., Mittelstadt, B., and Russell, Chr. (2021) Why Fairness Cannot Be Automated: Bridging the Gap Between EU Non-Discrimination Law and AI (March 3, 2020). *Computer Law & Security Review* 41 (2021): 105567.

[25] Poort, J. and Zuiderveen Borgesius, F.J. (2019) Does everyone have a price? Understanding people's attitude towards online and offline price discrimination. *Internet Policy Review*, 8(1).

[26] Maxwell, S. & Garbarino, E. (2010) The identification of social norms of price discrimination on the internet. *Journal of Product & Brand Management*, 19(3), p. 218-224.

[27] Dakers, M. (2016) Uber knows customers with dying batteries are more likely to accept surge pricing. *The Telegraph*, October 30, 2017.

[28] Wachter, S. (2022) The theory of artificial immutability: Protecting algorithmic groups under anti-discrimination law. *arXiv preprint* arXiv:2205.01166.

[29] Priester, A., Robbert, T. & Roth, S. (2020) A special price just for you: effects of personalized dynamic pricing on consumer fairness perceptions. *J Revenue Pricing Manag* 19, p. 99–112.

[30] Hufnagel, G., Schwaiger, M., Weritz, L. (2022) Seeking the perfect price: Consumer responses to personalized price discrimination in e-commerce, *Journal of Business Research*, Vol. 143, p. 346-365.

[31] Some scholars have already suggested to consider socio-economic status as a 'suspect' category, see Gerards, J., Zuiderveen Borgesius, F. (2022) Protected Grounds and the System of Non-Discrimination Law in the Context of Algorithmic Decision-Making and Artificial Intelligence, *Colorado Technology Law Journal*, volume 20, issue 1, pp. 1-55.

historically not included in constitutions when they were first drafted but are gradually finding their way into revised constitutions.[32] Given this lack of harmonization and the changing legal, societal, and technological landscape, it makes sense to investigate which grounds of discrimination should be protected under anti-discrimination law.

In order to further shape the discussion on which grounds of discrimination should be protected, we present in this paper a legal comparison of discrimination grounds across constitutions of EU member states and the CFEU.[33] This legal comparison checks whether there is indeed a lack of harmonization, as is often implicitly assumed in existing literature on bias, discrimination, and fairness in algorithmic decision-making. We identify overlaps and differences that can subsequently be used in the discussion on the extent to which current legislation is still appropriate in the data economy or should perhaps be reconsidered.

This paper is structured as follows. Section 2 explains the methodology used for our legal comparison and the limitations of this approach. Section 3 discusses why developments in technology and the data economy call for reconsidering discrimination grounds. Section 4 investigates the current legal landscape by examining the provisions in the CFEU and the national constitutions of each EU member state. Section 5 provides a discussion on the extent to which current legislation is still appropriate in the data economy or should perhaps be reconsidered. Section 6 provides conclusions, including suggestions for future research.

2. Methodology

The approach taken in this research consists of a comparative analysis of national constitutions combined with desk research. The desk research was added to overcome the limitations of the comparative analysis discussed at the end of this section. The results of the comparative analysis are presented in Section 4 and the results of the desk research are discussed in Section 5.

The comparison of grounds of discrimination in EU constitutions was performed on the basis of available translations in English of each constitution. Since there are 27 EU member states, 27 national constitutions were included in this research. Please note that even though most countries have secondary legislation regulating equal treatment and non-discrimination, these equal treatment acts (as they are often called) were not included in this research.[34] We focused on national constitutions and the anti-discrimination provisions therein. The reason for the focus on national constitutions is because these offer the highest level of protection. Secondary legislation is often less generic (e.g., sectoral legislation), only applicable in particular circumstances. Since this research intends to provide a high-level overview looking at national constitutions was considered sufficient. Furthermore, there are also practical reasons for excluding secondary legislation: secondary legislation is often scattered, harder to access, requires detailed understanding of each national legal system, and language barriers exist. For the same reasons, this research did not specifically focus on national case law in these areas.

The Constitute Project has made available the English translations of many constitutions worldwide, including constitutions of all EU member states.[35] These translations were used as the basis for our comparison. In each constitution, on the basis of search terms like 'discrimination', 'equal', 'equality', 'equal treatment' or any of the most common grounds of discrimination (e.g., race, gender, religion), the provision(s) containing the list of discrimination grounds were identified. Provisions protection other rights and freedoms, such as the freedom of religion, were not included. The focus was on those provisions protecting equal treatment and/or non-discrimination. In most constitutions, there is exactly one provision that particularly addresses this and lists grounds for discrimination. In some constitutions (Belgium, Poland, Sweden),[36] there are several provisions regulating this, and in some constitutions (Ireland, Latvia, Luxembourg), there are no provisions that contain discrimination grounds (simply protecting equal treatment without specifying the grounds). For more details, see Section 4.

Due to language differences and to choices made by national legislators, sometimes different wording was chosen for what seems to be (mostly) the same ground of discrimination. For this reason, some of the labels were combined in categories. For instance, we combined gender, sex, and sexual identity. Sexual orientation, however, was not included in this category. Some constitutions refer to race, others to ethnicity and yet others to skin color, but all these labels were combined, given their close relationship. The same applies to religion and faith, which were combined. Religion and faith, however, were considered a separate category from more

[32] Sexual orientation was included in national constitutions in Portugal in 2004, in Sweden in 2011, and in The Netherlands in 2023. For developments in secondary legislation leading to these constitutional amendments, see also Waaldijk, C., & Bonini-Baraldi, M. T. (2006) *Sexual orientation discrimination in the European Union: National laws and the employment equality directive*. TMC Asser Press.

[33] Note that EU anti-discrimination law is obviously much broader than anti-discrimination provisions in national constitutions. For instance, Directive 2000/43/EC addresses discrimination on grounds of race and ethnic origin, Directive 2000/78/EC addresses discrimination at work on grounds of religion or belief, disability, age or sexual orientation, Directive 2006/54/EC regulates equal treatment for men and women in matters of employment and occupation, and Directive 2004/113/EC regulates equal treatment for men and women in the access to and supply of goods and services. These are just a few examples of regulation in this area – more specific regulation exists for protection of persons with disabilities, children, the elderly, etc. For more details, see for instance, FRA (2018) *Handbook on European non-discrimination law*, European Union Agency for Fundamental Rights, Vienna, Austria; See also Ellis, E., Watson, Ph. (2012) *EU anti-discrimination law*, Oxford: Oxford University Press.

[34] Note that EU harmonization is mostly through directives, see footnote 33, allowing some leeway for differences in implementation in national legal frameworks.

[35] https://www.constituteproject.org/?lang=en.

[36] In Belgium: articles 11 and 131 of the Belgian constitution. In Poland: articles 32, 33, and 233 of the Polish constitution. In Sweden: articles 2 and 12 of the Swedish constitution.

secular beliefs, including ideology, opinion, philosophy, and convictions. Political views and opinions were also considered a separate category, given their specific importance in democratic processes, the Rule of Law, and fundamental rights. Impairment and disability were combined as a category, but set apart from health, given the chronic nature of the former and the potentially temporary nature of the latter. Oftenmentioned labels like (social) origin, ancestry, and birth were combined given their close proximity in meaning. Personal and social states were combined for the same reason. Finally, property status, financial status, and wealth were combined, also because they seem to intend the same aspect of life. All this resulted in a total of 15 categories for the national constitutions. A 16th category (genetics) was identified in the CFEU, but not encountered in any of the national constitutions.

When counting the number of grounds of discrimination in each constitution, as a basic rule everything that was comma-separated was counted as a separate item. Only when these items fall into separate categories, they were counted as separate. For instance, the Bulgarian ground 'national or social origin' was counted as two grounds, because it falls into the category nationality and in the category social origin.[37] When two comma-separated grounds fall into the same category, it was counted twice, to show the diversity of the legislator. For instance, the Slovakian constitution mentions both color of skin and race, which falls into the same category.[38] Obviously, skin color and race are not the same thing, as people from different races can still have the same skin color.

Determining whether an enumeration of grounds of discrimination is exhaustive or not was based on the phrasing of the provision. Firstly, if grounds of discrimination are presented as examples, the enumeration is considered non-exhaustive. For instance, the CFEU uses the phrasing 'any grounds such as […]' which clearly leaves open the possible existence of other grounds than those listed. Secondly, if after listing the grounds of discrimination, a phrase like '[…] or other characteristics', '[…] or other status', or similar phrasing, is inserted, it is clear that the legislator intended a non-exhaustive listing. Thirdly, if no grounds are mentioned, it is also clear that there is no exhaustive enumeration (as there is no enumeration at all). If none of these three types of phrasing is used, it is clear from the phrasing that the legislator intended to provide an exhaustive enumeration.

It is clear that this approach has its limitations. The first major limitation is that we only considered constitutions, we did not include secondary legislation or case law. The arguments for this choice were already provided earlier in this section. The second major limitation is that we used the constitute project for consulting national constitutions. Although this information is regularly updated, some of the information may have been outdated. Also, some of the translations may contain some bias, as in each language words may have different connotations, that go beyond the literal ('dictionary') meaning of a particular word. Giving the plethora of languages used throughout the EU, examining the constitutions in their own language causes practical issues, rendering the translations the best option. The third limitation is that this approach yields little information on what the gaps are in anti-discrimination laws and what can be done about these gaps. This is compensated via desk research, the results of which are discussed in detailed in Section 5. The fourth limitation lies in the grouping of discrimination grounds in different categories. The grouping of discrimination grounds may render some discrimination grounds less visible, despite their importance. For instance, combining gender, sex and sexual identity risks mixing very different concepts and render some aspects less visible. At a practical level, this does not undermine our findings, as it still allows to reflect on exhaustive versus non-exhaustive lists of protected grounds. However, grouping some of these discrimination grounds is an oversimplification and does not sufficiently recognize the rights of some groups of people. Such simplifications, while chosen here for practical reasons, should probably be avoided in future research that further investigates these topics in more detail. The fifth limitation is that this approach looks mostly backwards at what countries have done with regard to constitutional non-discrimination provisions rather than look forward at new changes that are under discussion. This would require an analysis of parliamentary debates and legislative proposals in each country, which is beyond the scope of this paper.

3. Discriminating data patterns

Before digging into the legal comparison, it is important to briefly discuss why developments in technology and the data economy call for reconsidering discrimination grounds. The two major reasons are that in the digital age (1) decision-making is increasingly based on available data that can yield novel, unexpected patterns, which increases the probability of unintended and/or indirect forms of discrimination,[39] and (2) decision-making can be based on criteria that are not listed in anti-discrimination provisions but can still be considered unfair by people. Sections 3.1 and 3.2 will respectively discuss these reasons in more detail.

3.1. *Discrimination by proxy*

Every person uses rules of thumb, including stereotypes, to simplify and better understand the world we live in. Since some of this stereotyping can have undesirable results, legislation prohibits some grounds of discrimination, often characteristics that people cannot really influence, such as their gender and ethnicity. Some of these characteristics have been fought for very hard, such as gender equality, freedom of religion, and racial equality. Openly using these characteristics

[37] Article 6 of the Bulgarian constitution.
[38] Article 12.2 of the Slovakian constitution.

[39] Barocas S, Selbst AD (2016) Big Data's Disparate Impact. 104 *California Law Review* 671; Custers, B.H.M., Calders, T., Schermer, B., and Zarsky, T. (eds.) (2013) *Discrimination and Privacy in the Information Society: Data Mining and Profiling in Large Databases*, Heidelberg: Springer; Harcourt, B.E. (2007) *Against Prediction: Profiling, Policing and Punishing in an Actuarial Age*. Chicago: University of Chicago Press; Schauer, F. (2003) *Profiles, Probabilities and Stereotypes*. Cambridge MA: Harvard University Press.

for decision-makings (i.e., direct discrimination), such as refusing a person a job on the basis of his ethnic background, provides a clear violation of anti-discrimination laws in most countries. However, concealed discrimination, for instance, refusing a person a job on the basis of his ethnic background, but without saying that ethnicity is the reason for this, creates difficulties. It is often not the law, but the enforcement of the law that is problematic. In many legal systems in the US and the EU, indirect discrimination (i.e., discrimination on apparently neutral grounds but with the same effect as direct discrimination) is also prohibited. For instance, a restaurant policy prohibiting access for dogs means that guide dogs assisting a visually impaired person are also not allowed. De factor this means that the policy has (indirectly) a discriminatory nature towards blind people, even though the policy does not (directly) discriminate against them.

Indirect discrimination can be intentional or unintentional.[40] In case of intentional indirect discrimination (also called masking), people want to conceal the real grounds for a particular decision, for instance, because they fear legal repercussions or because the underlying reasons may be frowned upon by others. Obviously, indirect discrimination can be hard to prove. For instance, when a person is told she was rejected a job because another candidate better matched the team, it can be hard for her to prove the rejection was in fact primarily based on gender or ethnicity.

Decision-making is increasingly based on data. Such decision-making is unlikely to result in intentional discrimination since the software has no such thing as intentions. However, that does not mean that decisions based on data are neutral and non-discriminating. Decisions based on data can be (unintentionally) discrimination because they perpetuate bias in the data that is used for decision-making.

When an algorithm is used to find the ideal profile for a top manager, on the basis of the data available it may discover that the ideal candidate is a middle-aged white male. Obviously, this is a self-fulfilling prophecy.[41] If a dataset contains a lot of managers with this profile, the algorithm will conclude a pattern that was already expected. People with different backgrounds were not included in the dataset and thus not given a fair chance.

It should be noted that more accurate data may not solve this problem. Also, removing sensitive data (such as ethnicity and gender) from the datasets may not avoid the discovery of discriminating patterns.[42] The models and data analytics tools can be biased themselves. Developing data analytics tools that are able to avoid yielding discriminating patterns actually requires the use of sensitive data when building them.[43]

Indirect discrimination (i.e., discrimination by proxy) occurs a lot in automated decision-making and profiling. Because there are so many attributes involved in the data analytics, it seems easy to circumvent those attributes that constitute grounds for discrimination. However, when apparently neutral characteristics are correlated to sensitive characteristics, discrimination may occur. A typical example of this is redlining, in which characteristics are ascribed to people on the basis of their zip codes (an apparently neutral characteristic), whereas zip codes may be a strong indicator for someone's ethnic background (a ground of discrimination).[44]

3.2. *New discrimination grounds and (perceived) fairness*

When so many characteristics other than those considered grounds of discrimination can be used for decision-making, it raises two questions. The first is about enforcement (how can forms of indirect discrimination be disclosed and addressed) and the second is about fairness (are the current grounds of discrimination still the correct set to use for fair outcomes). The first question is addressed in literature and the current focus seems to be on technological solutions, such as developing discrimination-aware data mining tools[45] that avoid yielding discriminating patterns and developing tools that can detect discrimination.[46]

In this paper we focus on the second question: are the current grounds of discrimination still the correct set to use for fair outcomes. The answer to this question is probably: no, it is not. The first (perhaps weak) indicator for this is that there is no agreement on the set of grounds of discrimination. As will be shown in Section 4, across the EU there is no agreement on what the grounds of discrimination should be. Each member state has a different set. A second (stronger) indicator is that the set of grounds of discrimination is constantly changing (mostly expanding). Since the grounds of discrimination are often laid down in national constitutions, these changes are slow. Nevertheless, they do take place. For instance, as of 2023 the constitution of the Netherlands includes two new grounds of discrimination: disability and sexual orientation.[47] Another

[40] Dinur, R. (2021) Intentional and Unintentional Discrimination: What Are They and What Makes Them Morally Different, *Journal of moral philosophy*, 19(2), p. 111-138.

[41] Teeuw, W.B., Vedder, A.H., Custers, B.H.M., Dorbeck-Jung, B.R., Faber, E.C.C., Iacob, S.M., Koops, B.J., Leenes, R.E., Poot, H.J.G. de, Rip, A., & Vudisa, J.N. (2008) *Security Applications for Converging Technologies: Impact on the constitutional state and the legal order*. O&B 269, The Hague: WODC.

[42] Kamiran, F., & Calders, T. (2009) *Classifying without Discriminating, in* IEEE International Conference on Computer, Control & Communication, http://ieeexplore.ieee.org/document/4909197/?reload=true.

[43] Zliobaite, I & Custers, B.H.M. (2016) Using Sensitive Personal Data May Be Becessary for Avoiding Discrimination in Data-Driven Decision Models, 24 *Artificial Intelligence & Law*, 183 (2016).

[44] See also Squires, G. D., & Woodruff, F. (2019). Redlining. *The Wiley Blackwell encyclopedia of urban and regional studies*, p. 1-8. Hoboken NJ: Wiley-Blackwell.

[45] Pedreshi, D., Ruggieri, S., & Turini, F. (2008) Discrimination-aware data mining. In *Proceedings of the 14th ACM SIGKDD international conference on Knowledge discovery and data mining,* p. 560-568; Berendt, B., & Preibusch, S. (2017) Toward accountable discrimination-aware data mining: the Importance of keeping the human in the loop—and under the looking glass. *Big data*, 5(2), p. 135-152.

[46] Pedreschi, D., Ruggieri, S., Turini, F. (2013) The discovery of discrimination, in: Custers, B.H.M., Calders, T., Schermer, B., and Zarsky, T. (eds.) (2013) Discrimination and Privacy in the Information Society: Data Mining and Profiling in Large Databases, Heidelberg: Springer.

[47] Corder, M. (2023) Dutch Senate expands constitutional ban on discrimination, *Washington Post*, 17 January 2023,

example is the EU Charter of Fundamental Rights (CFEU), that includes genetic data as a ground of discrimination. The CFEU, which only had full legal effect as of 2009, is of relatively recent date compared to national constitutions in the EU. None of the national constitutions lists genetic data as a ground of discrimination.

The current grounds of discrimination are relatively easy to identify (see Section 4) but assessing whether these are appropriate for fair outcomes is much harder. This mainly depends on the question of what constitutes fair outcomes. Fairness is a normative question but can be investigated through social science research. For instance, research shows that online consumers perceive pricing of products on the basis of their location less fair than on the basis of their purchase history (i.e., loyalty).[48] However, online consumers perceive pricing of products on the basis of their location as fairer than on the basis of their device type.[49] Note that none of these grounds for decision-making (location, purchase history, and device type) are listed as grounds of discrimination.

What is (perceived to be) fair may strongly depend on the context and it is beyond the scope of this paper to comprehensively assess this. The main point here is that (perceived) fairness is subject to changes, particularly when decision-making is increasingly based on data. This opens the possibility to base decisions on grounds not listed in anti-discrimination law (which are therefore perfectly legal), while at the same time resulting in decisions that are (perceived as) unfair.

4. Findings

Before continuing the discussion on reconsidering discrimination grounds in the data economy, it is useful to first investigate the current EU legal landscape, particularly the current grounds of discrimination.

4.1. *Comparison of EU constitutions*

The first item to compare are the discrimination grounds listed in the relevant provision in each constitution. As was explained in Section 2, the grounds of discrimination were grouped into 15 categories. These categories and how often they are mentioned in the constitutions of the EU Member States are shown in Fig. 1.

As can be seen in Fig. 1, religion/faith is the most often mentioned discrimination ground. The top three of the most frequently mentioned discrimination grounds is religion, gender, and race. The least frequently mentioned discrimination grounds are sexual orientation, age, and health. Fig. 1 clearly shows that discrimination grounds are not harmonized across the EU, at least not on a constitutional level.

Table 1 – Countries with exhaustive versus non-exhaustive enumerations of discrimination grounds in their national constitution. The CFEU is non-exhaustive in its listing.

Exhaustive enumeration	Non-exhaustive enumeration
Austria, Belgium, Bulgaria, Denmark, France, Germany, Greece, Italy, Lithuania, Malta, Poland, Portugal, Romania (13 out of 27)	Croatia, Cyprus, Czech Republic, Estonia, Finland, Hungary, Ireland, Latvia, Luxembourg, The Netherlands, Slovakia, Slovenia, Spain, Sweden (14 out of 27) + CFEU

Obviously, it can be argued that discrimination grounds are harmonized across the EU through the CFEU. Clearly, article 21 of the CFEU incorporates many discrimination grounds (more than in any national constitution), encompassing most of the grounds in Fig. 1. However, the CFEU does not explicitly mention health, education, and personal/social status. The CFEU does not provide an exhaustive list of discrimination grounds. One discrimination ground listed in the CFEU but in none of the national constitutions is that of genetic features.

There are differences in how the grounds of discrimination are listed in the national constitutions. This is either phrased in an exhaustive or non-exhaustive way, see Table 1. A total of 13 out of 27 national constitutions provide exhaustive enumerations of the grounds of discrimination in their national constitution. This is the case in Austria, Belgium, Bulgaria, Denmark, France, Germany, Greece, Italy, Lithuania, Malta, Poland, Portugal, and Romania.

The other 14 constitutions provide a non-exhaustive list of discrimination grounds. Most of these countries (Croatia, Cyprus, the Czech Republic, Estonia, Finland, Hungary, the Netherlands, Slovakia, Slovenia, Spain, and Sweden) end the enumeration with a phrase like '[…] or other characteristics', '[…] or other status', or similar phrasing, making clear that the legislator intended a non-exhaustive listing. Three countries provide no enumeration at all (Ireland, Latvia, and Luxembourg). The CFEU has a different approach to establish a non-exhaustive list of discrimination grounds: the discrimination grounds listed are presented as examples, leaving room for other, non-listed discrimination grounds.

It is clear that there is no harmonized approach when it comes to an exhaustive versus non-exhaustive listing. At first sight a non-exhaustive enumeration seems the most sensible, as it creates flexibility: if needed, additional grounds of discrimination can be included when interpreting these provisions. For instance, if new technological developments cause concern because a new discrimination ground is generally considered unfair, this approach is technology neutral. Secondary legislation and case law can then offer further protection for these new discrimination grounds.

However, this is also the downside of non-exhaustive enumerations of grounds of discrimination, as it may reduce legal certainty. In situations for which no secondary legislation or case law exists (or does not yet exist), it may be unclear to what extent protection against discrimination is available. For

https://www.washingtonpost.com/politics/dutch-senate-expands-constitutional-ban-on-discrimination/2023/01/17/4562a4ce-9678-11ed-a173-61e055ec24ef_story.html.

[48] Priester, A., Robbert, T. & Roth, S. (2020) A special price just for you: effects of personalized dynamic pricing on consumer fairness perceptions. *J Revenue Pricing Manag* 19, p. 99–112.

[49] Hufnagel, G., Schwaiger, M., Weritz, L. (2022) Seeking the perfect price: Consumer responses to personalized price discrimination in e-commerce, *Journal of Business Research*, Vol. 143, p. 346-365.

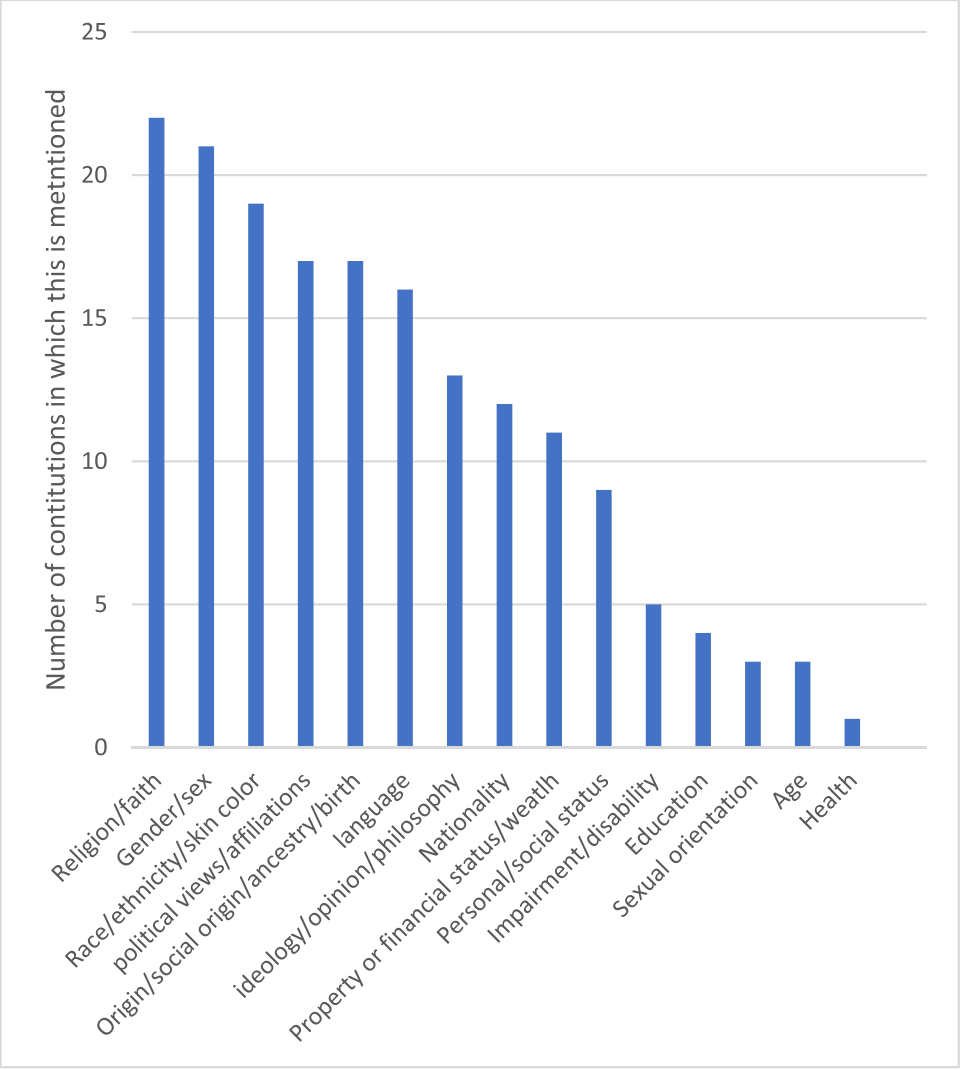

Fig. 1 – Frequency of the different grounds for discrimination in the national constitutions of the EU member states (N = 27).

a new, unlisted ground of discrimination such as genetic data, it may be unclear whether if falls under the 'et cetera' provision. This would probably require an interpretation that connects the new ground of discrimination to one of the grounds that actually is listed. For instance, in the case of genetic data, it could be argued that this is protected because genetic data are closely related to health status.

If secondary legislation and case law exist, this can provide more clarity for specific situations, but obviously not every new ground is covered by this, which means legal certainty will still be limited. Also, the level of protection offered by secondary legislation and case law is arguably lower than that offered by listing a ground of discrimination in a national constitution. The highest level of legal certainty is explicitly mentioning a ground of discrimination, so that it is beyond doubt that this ground is not to be used for decision-making. This offers concrete and substantial protection.

As is shown in Fig. 2, the number of grounds of discrimination listed in the national constitutions across the EU varies quite a lot. Bulgaria and Slovakia have the longest list, with 12 grounds of discrimination. As mentioned before, Ireland, Latvia, and Luxembourg mention no grounds of discrimination whatsoever. Of the countries that do list grounds of discrimination, Belgium and Denmark have the lowest number, each only two grounds of discrimination. None of these constitutions reaches the record number of 14 grounds of discrimination listed in the CFEU. The average across all constitutions is 7 grounds of discrimination. The mode, i.e., the statistical value that appears most often, is 9.

4.2. *Comparison with the CFEU*

Looking at the list of discrimination grounds in Article 21 of the CFEU, it is clear that the EU legislator tried to find a phrasing that encompasses the provisions in the national constitutions of the EU member states. The CFEU has listed a record number of 15 discrimination grounds, more than any national constitution.[50] The grounds listed in the CFEU cover

[50] For the growing number of discrimination grounds in EU law, see Holzleithner, E. (2004) Mainstreaming equality: Dis/Entangling grounds of discrimination. *Transnat'l L. & Contemp. Probs.*, 14, 927.

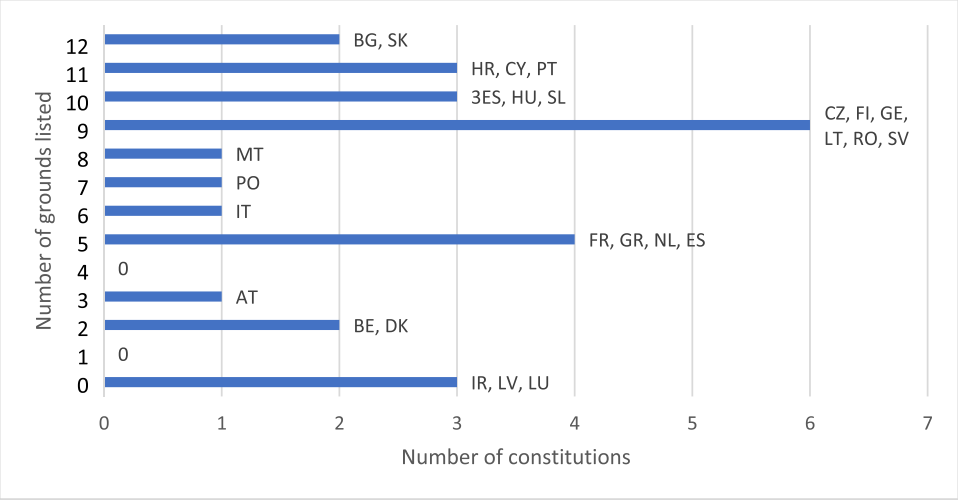

Fig. 2 – Number of discrimination grounds in each constitution. The average is 7 discrimination grounds per constitution. The CFEU (not included) contains 15 grounds.

almost all the grounds listed in the combined national constitutions.[51] Health, education, and personal/social status are the only grounds not mentioned in the CFEU. And the CFEU lists a unique ground, i.e., genetic features, that is not mentioned in any of the constitutions.

The phrasing of the CFEU provision is unique in another way, which is that all the grounds of discrimination that are mentioned are presented as examples. Many constitutions have non-exhaustive lists of discrimination grounds, but the CFEU provision is unique in its syntaxis, putting forward the grounds as examples. This phrasing puts slightly more focus on the discrimination itself than on the grounds of discrimination. This could be a first step to a paradigm shift in which the grounds of discrimination become less important (see Section 5). Note that this phrasing also puts to the background any supposed hierarchy in the discrimination grounds listed.[52]

Clearly Article 21 CFEU is an attempt to harmonize equal treatment across the EU.[53] By encompassing so many grounds, it is a provision that is recognized by all member states. At the same time, Article 21 CFEU is an attempt to go beyond combining and reflecting existing national legislation. By including grounds like genetic features and sexual orientation it is also an attempt to be up to date, forward looking, and future proof.

Despite the way in which Article 21 CFEU is phrased and shaped, it may have limited sustainability. New grounds of discrimination may be needed in the future, due to changes in (data processing) technology and (fairness perceptions in) society. Changing the text of the CFEU may be as difficult and cumbersome as changing a national constitution. It can also be questioned whether an ever-expanding list of discrimination grounds is the way to go, as it may water down the protection it intends to offer. As will be discussed in the next section, this heavily depends on fairness perceptions and the goals of anti-discrimination law.

5. Discussion

The comparison of discrimination grounds in the previous section shows a clear lack of harmonization across the EU, a finding often implicitly assumed in existing literature on bias, discrimination, and fairness in algorithmic decision-making. This lack of harmonization is a strong indicator that there is disagreement on what is the most appropriate set of discrimination grounds. Part of the lack of harmonization could be due to delays in updating national constitutions, which can be long and tedious processes. It may take considerable time and effort to change the grounds of discrimination in national constitutions, but it does happen. This shows that legislators somehow want to keep pace with the developments in society and ensure that the grounds of discrimination listed in their constitution reflect existing norms and perceptions in society.

Given that it is slow and difficult to keep changing national constitutions, there are two approaches to protect discrimination grounds other than those (already) listed in primary legislation. The first is to offer protection via secondary legislation.

[51] 14 grounds are listed in Article 21.1 CFEU. One ground, i.e., nationality, is mentioned separately in Article 21.2 CFEU.

[52] Howard, E. (2006). The case for a considered hierarchy of discrimination grounds in EU law. *Maastricht Journal of European and Comparative Law*, 13(4), 445-470.

[53] Formally the scope of the CFEU is restricted to EU institutions, bodies, offices, and agencies when implementing EU law according to Article 51 CFEU. However, it is likely that substantive provisions like article 21 CFEU have horizontal direct effect, meaning that they can also be invoked against citizens and companies and not only against EU institutions, bodies, offices, and agencies. See Muir, E. (2019) The Horizontal Effects of Charter Rights Given Expression to in EU Legislation, from Mangold to Bauer. *Review of European Administrative Law*, 12(2), 185-215; Frantziou, E. (2015) The Horizontal Effect of the Charter of Fundamental Rights of the EU: Rediscovering the Reasons for Horizontality. *European Law Journal*, 21, 657– 679.

The second is to include an 'et cetera' provision in the national constitution, rendering the list of discrimination grounds non-exhaustive, like many countries have already done. Although both approaches, particularly when combined, undeniable are a quick fix that can serve as a stopgap, they do not seem to fully address the problem of offering robust protection against new discrimination grounds.

Increased use of non-exhaustive lists of discrimination grounds has its pros and cons. Although exhaustive lists (i.e., closed lists) of discrimination grounds have the advantage of legal certainty and (probably) easier enforcement, non-exhaustive lists (i.e., semi-closed and open lists) have the clear advantage of flexibility. But non-exhaustive lists also cause issues with legal certainty and enforcement. Particularly open lists (i.e., not mentioning examples of grounds of discrimination at all, which is the case in Ireland, Latvia, and Luxembourg), provides very little guidance, both for companies and government institutions that have to comply with anti-discrimination law and for courts who have to apply this legislation in specific cases.

Clearly, exhaustive lists are problematic, as they are too easy to circumvent (intentionally and unintentionally) by machine learning and artificial intelligence systems. Indirect discrimination is hard to detect and therefore, legislation is hard to enforce. Gerards and Zuiderveen Borgesius provide four arguments in favor of non-exhaustive lists (i.e., semi-open lists).[54] First, semi-open lists (as opposed to open lists) can have an important benchmark function to emphasize the symbolic value of anti-discrimination law. Citizens and courts use listed grounds of discrimination to assess, on the basis of similarities, whether new grounds also constitute a form of unfair discrimination. Second, non-exhaustive lists mean that courts do not need to connect indirect discrimination to one of the listed grounds of discrimination. This way, courts can focus more on the fairness aspect than on proving that indirect discrimination took place. Third, non-exhaustive lists allow for more focus on equal treatment than on non-discrimination, the former being a more positive approach (focusing on equal opportunities) than the latter (focusing on prohibitions). Fourth, non-exhaustive lists clearly have the advantage of flexibility, allowing for the addition of new protected grounds by means of case law.

Although not impossible, adding new grounds to existing legislation is complicated. Data science and related technologies are developing very fast, making it hard to predict which new grounds of discrimination will become relevant in the near future. Legislators will probably always have difficulties keeping pace with these developments, as changing legislation is by its very nature often a relatively slow process, as it requires societal and political debate and sometimes even a crisis.

However, this is not merely an issue of legislation keeping up with developments in technology and society. It is also an issue of finding out what exactly is considered fair or unfair in the context of making decisions on (the basis of data on) people. Here, we propose two approaches for addressing this.

The first approach is to try to get a better understanding of how the list of discrimination grounds in legislation should look like. Only when it is clear which characteristics are unfair to use in particular decision-making, these characteristics can be put on the list of prohibited discrimination grounds. This requires extensive and on-going research on fairness in decision-making, particularly in the area of social science, ethics, and law.

The second approach would be a paradigm shift, in which anti-discrimination law is no longer based on lists of discrimination grounds, but rather on unfair decisions. As countries like Ireland, Latvia, and Luxemburg (see Fig. 2) already show, grounds of discrimination do not need to be listed in constitutional equal treatment provisions. Although listing discrimination grounds can clarify the intentions of the legislator, it is not essential.

The traditional approach has always been that equal treatment is achieved through prohibiting discrimination and that, in turn, prohibiting discrimination is achieved through listing a set of discrimination grounds that are not to be used for decision-making (in particular contexts). In fact, this approach has failed in several ways: the lists of discrimination grounds were never complete, enforcement has always been difficult (particularly when dealing with indirect discrimination), the legislation only applied to limited sets of contexts (such as hiring people), and it has never prevented stigmatization and polarization of those groups it intended to offer protection. Furthermore, an ever-expanding list of discrimination grounds may also entail watering down the protection offered for groups addressed by each of the grounds.[55]

This is also related to the problem of intersectional discrimination (intersectionality), i.e., the problem that empowerment and oppression are often the result of multiple discriminating factors.[56] The legal framework seems to assume that discrimination takes place on the basis of one particular discrimination ground (e.g., gender or ethnicity or religion) and then offers protection. In reality, however, discrimination may also take place on the basis of multiple discrimination grounds (e.g., gender and ethnicity and religion) at the same time. It may be hard to flesh out the weight of each factor in this and the gravity of the entire discrimination, even though some forms of discrimination may be more harmful than others. The current legal framework does not seem to be tailored to this. For instance, the legal framework facilitates determining whether there is discrimination, but not how serious the discrimination is (e.g., there are no degrees of dis-

[54] Note that some scholars distinguish closed, semi-closed, and open lists of ground of discrimination, see Gerards, J., Zuiderveen Borgesius, F. (2022) Protected Grounds and the System of Non-Discrimination Law in the Context of Algorithmic Decision-Making and Artificial Intelligence, *Colorado Technology Law Journal*, volume 20, issue 1, pp. 1-55.

[55] Holzleithner, E. (2004). Mainstreaming equality: Dis/Entangling grounds of discrimination. *Transnat'l L. & Contemp. Probs.*, 14, 927. See also Solove, D.J. (2023) Data Is What Data Does: Regulating Use, Harm, and Risk Instead of Sensitive Data, Washington DC: GW Law.

[56] Crenshaw, K. (1991) Mapping the Margins: Intersectionality, Identity Politics, and Violence against Women of Color". *Stanford Law Review*. 43 (6), p. 1241–1299; Cooper, B. (2016) Intersectionality, in: Disch, L., Hawkesworth, M. (eds.) *The Oxford Handbook of Feminist Theory*. Oxford: Oxford University Press. p. 385–406.

crimination to distinguish). Although an extensive analysis of intersectional discrimination is beyond the scope of this paper, it is clear that the current approach in anti-discrimination law addresses one factor at a time, making it less suitable to address intersectionality. Focusing more on unfair decisions rather than on lists of discrimination grounds could help overcome this.

If the goal of equal treatment legislation is to offer equal opportunities to groups in society, perhaps that could be the kind of phrasing that can also be used in legislation. Rather than prohibiting existing and new grounds of discrimination, the focus could be on equal opportunities, fairness, and social justice.[57] This approach can also be seen in EU case law: In some cases, the focus is on the non-discrimination rationale, in other cases the focus is on the equal treatment rationale.[58]

This approach towards protecting people from unfair decisions is not novel. Fineman proposes to shift away from the protected characteristics to considering how individuals are situated in institutional and social relationships.[59] This approach puts more emphasis on the vulnerability of people when offering protection. These vulnerabilities stem from the different economic, social, cultural, and institutional relationships that people are in and influence their opportunities. Building on this, Krupiy developed a test for protecting individuals from discrimination in the context of algorithmic decision-making.[60] Part of this test is that there is discrimination if the deployment of algorithmic decision-making creates an unequal relationship between people and as a result inhibits people to access opportunities. Given the limitations of existing legal frameworks for non-discrimination, proposals like these, focusing on vulnerabilities of people rather than on protected characteristics clearly adds value to this debate.

Here, it can help to also look at approaches in other areas of law. For instance, in consumer law, the focus is on unfair treatment, rather than on equality.[61] Another example is tort law, in which any wrongdoing that causes loss or harm to a person, results in legal liability. Translated to equal treatment legislation, it could mean that anyone interfering with equal opportunities would be legally liable for such actions.

Another area of law that is highly relevant to look at is EU data protection law. The EU General Data Protection Regulation (GDPR) lists 'special categories of data' in Article 9, often referred to as 'sensitive data'. This list looks very much like the lists in constitutional anti-discrimination provisions.[62] Special categories of data are data revealing racial or ethnic origin, political opinions, religious or philosophical beliefs, or trade union membership, and the processing of genetic data, biometric data for the purpose of uniquely identifying a natural person, data concerning health or data concerning a natural person's sex life or sexual orientation. The GDPR recognizes the special nature of these types of data, particularly for decision-making, and therefore offers additional protection to data subjects when it comes to processing these categories of data. In principle, processing these types of data is prohibited, unless an exception applies.

The heightened protection for sensitive data recognizes that some situations involving personal data constitute higher risks for data subjects. However, Solove has argued that this is a dead end, as these categories are arbitrary and lack any coherent theory for identifying them, and the use of proxies easily circumvents the protection offered.[63] In essence, this focus on sensitive data in EU data protection law overlooks the fact that meaningful regulation requires more than looking at the data itself. It requires looking at the harm data and decisions based on data can cause. Sometimes non-sensitive data can still create harm, sometimes sensitive data is used in harmless ways.

Solove makes a point for data protection law that is similar to the point that scholars like Fineman and Krupiy make for anti-discrimination law. However, Solove goes one step further and argues that the list of sensitive characteristics can be removed altogether from data protection law. This proposal does not sufficiently acknowledge the symbolic value of listing these characteristics and the legal certainty and guidance for interpretation that these provisions offer. Obviously, this applies to data protection law, but also to anti-discrimination law. Hence, it seems that the best protection is offered by non-exhaustive lists of grounds of discrimination (as argued by Gerards and Zuiderveen Borgesius) *and* more focus on vulnerabilities of people (as argued by Fineman and Krupiy).

A shift towards more focus on ensuring fair decisions and fair outcomes rather than focusing only of lists of discrimination grounds may sound reasonable, but also raises the question how to put this into practice. In our view, this could work similar to the living instrument doctrine the European Court of Human Rights (ECtHR) has adopted over the years to interpret human rights in the light of new situations and circum-

[57] See also Arnardóttir, O. M. (2014). The differences that make a difference: recent developments on the discrimination grounds and the margin of appreciation under Article 14 of the European Convention on Human Rights. *Human Rights Law Review*, *14*(4), 647-670.

[58] Gerards, J. (2013). The discrimination grounds of article 14 of the European convention on Human Rights. *Human Rights Law Review*, *13*(1), 99-124.

[59] Fineman, M.A. (2015) Equality and Difference – the Restrained State, 66 *Alabama Law Review* 609, 614; Fineman, M.A. (2013) Equality, Autonomy and the Vulnerable Subject in Law and Politics, in: A. Grear and M.A. Fineman (eds.) *Vulnerability: Reflections on a New Ethical Foundation for Law and Politics*, Ashgate Publishing Limited.

[60] Krupiy, T. (2021) Meeting the Chimera: How the CEDAW Can Address Digital Discrimination, *International Human Rights Law Review* 10 (2021) pp. 1-39; See also Krupiy, T. (2020) A vulnerability analysis: Theorising the impact of artificial intelligence decision-making processes on individuals, society and human diversity from a social justice perspective. *Computer Law and Security Review*, 38, pp. 1-25. https://doi.org/10.1016/j.clsr.2020.105429.

[61] The Unfair Consumer Contract Terms Directive (93/13/EC) and the Unfair Commercial Practice Directive (2005/29/EC) both focus on fairness.

[62] Custers, B.H.M., and Schermer, B.W. (2014) Responsibly Innovating Data Mining and Profiling Tools; A New Approach to Discrimination Sensitive and Privacy Sensitive Attributes, In: J. van den Hoven, B.J. Koops, H. Romijn, T. Swierstra and N. Doorn (eds.) *Responsible Innovation Volume 1: Innovative Solutions for Global Issues*. Dordrecht: Springer, p. 335-350.

[63] Solove, D.J. (2023) Data Is What Data Does: Regulating Use, Harm, a Risk Instead of Sensitive Data, Washington DC: GW Law.

stances.[64] Courts can use this approach to determine what is fair on a case-by-case basis, depending on the circumstances.

In consumer law, the term fairness is already interpreted in this way by courts. In liability law, the term harm is also interpreted in this way, on a case-by-case basis depending on the specific details of a case. Similarly, terms like equal opportunities, fairness, and social justice can be interpreted by courts on an on-going basis. Note that we do not argue to get rid of the current lists of discrimination grounds and, therefore, these grounds can be used to further interpret what fair outcomes should look like.

For instance, not selecting a person for a job on the basis of her religion is a violation of current anti-discrimination law based on existing discrimination grounds and would be unfair in terms of the outcome of this decision. The unfairness in this case can easily be based on religion as an unacceptable criterion for making such a decision and the broader exclusion of people on the job market based on their religion. In the case of Uber using information on a low battery on a consumer's cell phone as an indicator that the consumer is likely to pay a higher price for a ride,[65] the listed discrimination grounds cannot be used, simply because a low battery is not listed in current legislation. The focus on fair outcomes can then be used by courts to decide whether this practice is allowed.

6. Conclusion

In the data economy, it has become possible to make decisions on people on the basis of all kinds of grounds, also grounds that are not protected in anti-discrimination law. This may lead to decisions and decision-making that is considered unfair. In case the grounds used for decision-making are a proxy for the grounds protected in anti-discrimination law, this also constitutes (indirect) discrimination.

Although changes in anti-discrimination law try to keep up with these developments, mostly by expanding the lists of discrimination grounds, this approach seems to be failing, for at least four reasons. The first reason is that implementing these changes often takes a long time, during which there is no protection offered. The second reason is that there is not always a shared understanding of fairness, which means there exists disagreement on which grounds require protection. As shown in this paper, this results in a lack of harmonization in the EU on grounds of discrimination. The third reason is that grounds of discrimination can easily be circumvented through decisions based on proxies. The fourth reason is that indirect discrimination (i.e., discrimination by proxy) can be very hard to enforce.

The constant effort to update the lists of discrimination grounds in legislation is valuable to address unfair situations. Via secondary legislation and case law additional protection may be offered. However, this is a reactive rather than a proactive approach. It results in an ever-expanding list of discrimination grounds, which may actually water down the protection that the legislation intends to offer. In this approach, any type of data that can be used as a proxy for a listed ground of discrimination should also itself be listed as a ground of discrimination. Also, this approach may miss its target, as some grounds listed may be used for decision-making in harmless ways ('false positives'), while, at the same time, some grounds not listed may be used for decision-making in harmful ways ('false negatives').

Hence, the current approach requires reconsideration. Rather than focusing on grounds of discrimination, the focus could (also) be on the harm that data and decisions based on data may cause. This sounds like data protection law. However, also in EU data protection law the 'lists' approach was chosen, by listing special categories of data ('sensitive data') in Article 9 GDPR. The failure of this approach is now becoming clear, and legal scholars argue to focus on the use, harm, and risk of data rather than on lists of sensitive characteristics.[66] This does not mean doing away with lists of protection grounds in data protection law or anti-discrimination law, but rather combining it with more focus on vulnerabilities of people. Removing lists of discrimination grounds would fail to acknowledge that the protected characteristics provide symbolic value and offer legal certainty and guidance for further interpretation.

But the listing of discrimination grounds, whether exhaustive or non-exhaustive, in itself is insufficient, which is why a new approach focusing on vulnerabilities of people is needed. The focus on vulnerabilities would also help in interpreting the 'et cetera' provisions in non-exhaustive lists. Et cetera is a very open provision that can be interpreted in many ways. Obviously, it should not be interpreted as 'any other characteristic', but rather as 'any other characteristic similar to the previous'. Further guidance for interpretation could be 'any characteristic yielding similar harm or unfairness'. The legislator could consider changing the legal text accordingly, somewhat shifting the focus from the discrimination grounds to the underlying harm or unfairness these try to address.

Such a new approach requires different phrasing of legislation, with terminology focusing on fairness of decisions, particularly to harms and risks. It also requires further research, mostly in the area of social science, ethics, and law on what exactly is fair in particular situations and contexts. Such notions can also be further developed in case law. Data protection law may not be the right example to learn from, but consumer law and liability law are areas of law that are very familiar with focusing legislation on harm, risks, and fairness.

If the goal of legislation is to protect people, it makes sense to phrase this very explicitly. In a way, listing grounds of discrimination is protection by proxy: it operationalizes the protection through a list of attributes rather than focusing on the

[64] Letsas, G. (2013) The ECHR as a living instrument: its meaning and legitimacy, in: Føllesdal, A., Peters, B., Ulfstein, G. (eds.) *Constituting Europe: The European Court of Human Rights in a National, European and Global Context*. Cambridge: Cambridge University Press. p. 106–141; Mowbray, A. (2005) The Creativity of the European Court of Human Rights, *Human Rights Law Review*, 5 (1), p. 57–79.

[65] Dakers, M. (2016) Uber knows customers with dying batteries are more likely to accept surge pricing. *The Telegraph*, October 30, 2017.

[66] Solove, D.J. (2023) Data Is What Data Does: Regulating Use, Harm, and Risk Instead of Sensitive Data, Washington DC: GW Law.

underlying goals of equal treatment and fairness. As with all proxies, there will be false positives and false negatives. Focusing on equal treatment and fairness may not be the perfect solution (as there will still be enforcement issues and issues determining what is fair), but it puts the goals of anti-discrimination laws much more central. The starting point could be that anyone interfering with equal opportunities would be legally liable for such actions. This is a paradigm shift that may be necessary to offer adequate and future proof protection against discrimination in the data economy.

Declaration of Competing Interest

There are no conflicts of interests to report.

Data availability

No data was used for the research described in the article.