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Online Price Discrimination and Data Protection Law

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ONLINE PRICE DISCRIMINATION AND DATA PROTECTION LAW

Frederik J. Zuiderveen Borgesius

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Online Price Discrimination and Data Protection Law

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Abstract Online shops can offer each website customer a different price – a practice called first degree price discrimination, or personalised pricing. An online shop can recognise a customer, for instance through a cookie, and categorise the customer as a rich or a poor person. The shop could, for example, charge rich people higher prices. From an economic perspective, there are good arguments in favour of price discrimination. But many regard price discrimination as unfair or manipulative. This paper examines whether European data protection law applies to personalised pricing. Data protection law applies if personal data are processed. This paper argues that personalised pricing generally entails the processing of personal data. Therefore, data protection law generally applies to personalised pricing. That conclusion has several implications. For instance, data protection law requires a company to inform people about the purpose of processing their personal data. A company must inform customers if it personalises prices.

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1 Introduction

On the internet, companies can personalise prices based on information about consumers. For instance, companies could categorise a consumer as a “high spender” if his or her browsing profile suggests that he or she often buys expensive goods.¹ This paper examines whether data protection law applies to personalised pricing, and if so, what the implications are.

Section 2 introduces the practice of price discrimination. Section 3 shows that opinions differ on the question of whether personalised pricing is desirable. From an economic perspective, there are good arguments in favour of price discrimination. On the other hand, many regard price discrimination as unfair or manipulative.

Section 4 turns to data protection law. Data protection law applies if personal data are processed. This paper argues that personalised pricing, also called first degree price discrimination, generally entails the processing of personal data. Two implications of the applicability of data protection law are examined. First: data protection law requires a company to inform people about the purpose of processing their personal data. Hence, companies must say so if they personalise prices (section 5). Second: data protection law’s provision on automated decisions usually applies to price discrimination (section 6). However, that provision seems to be of little help to customers who are presented with personalised prices. Section 7 concludes.²

¹ A company called Bluekai (now a subsidiary of Oracle) enabled marketers to buy access to cookies identifying “high spenders”, “suburban spenders” or “big spenders” (‘Bluekai exchange – the largest auction marketplace for all audience data’ (2010) <www.bluekai.com/files/BrandedData.pdf> accessed 24 February 2014, p. 6-8).

² This paper builds on, and includes sentences from, Zuiderveen Borgesius F.J, *Improving Privacy Protection in the Area of Behavioural Targeting* (Kluwer Law International 2015).

2 Price discrimination on the internet

A 2001 Harvard Business Review article explains that an online shop could charge higher prices to some people. “Just as it's easy for customers to compare prices on the Internet, so is it easy for companies to track customers' behavior and adjust prices accordingly.”³ The article adds that “[t]he Internet also allows companies to identify customers who are happy to pay a premium.”⁴

In 2000 it was widely reported that Amazon offered different visitors different prices. When a regular customer deleted his computer's cookies, he saw the price of a DVD drop.⁵ Hence, it appeared that customers who previously ordered from Amazon were shown a higher price for a product than new customers.⁶ Many people reacted angrily.⁷ But Amazon said that it was merely trying out different prices in a random test. Amazon's CEO said: “We've never tested and we never will test prices based on customer demographics.”⁸ Amazon gave a refund to people who paid a price above the average.

In 2012, Soltani et al showed that several online shops in the US charged customers from certain areas (based on their IP address) different prices than people from other areas. This had the effect, likely unintentional, that people from high-income areas paid less.⁹ Mikians et al also found several examples of online shops that charge

³ Baker W, Marn M and Zawada C, ‘Price smarter on the Net’ (2001) 79(2) Harvard Business Review 122.

⁴ Id. See for an early paper on line price discrimination: Odlyzko A, ‘Privacy, economics, and price discrimination on the Internet’ (2003) Proceedings of the 5th international conference on Electronic commerce (ACM) 355.

⁵ See e.g.: Amazon's old customers ‘pay more’, BBC News, 8 September 2000 <<http://news.bbc.co.uk/2/hi/business/914691.stm>>

⁶ Ramasastry, A, ‘Web sites change prices based on customers' habits’ (CNN 24 June 2005) <<http://edition.cnn.com/2005/LAW/06/24/ramasastry.website.prices/>> accessed on 30 July 2015.

⁷ See for instance Krugman: “dynamic pricing is also undeniably unfair: some people pay more just because of who they are” (Krugman, P. ‘Reckonings; What Price Fairness?’ (4 October 2000) <www.nytimes.com/2000/10/04/opinion/reckonings-what-price-fairness.html> accessed on 29 July 2015).

⁸ ‘Bezos calls Amazon experiment ‘a mistake’ (Puget Sounds Business Journal) (28 September 2000) <<http://www.bisjournals.com/seattle/stories/2000/09/25/daily21.html>> accessed on 29 July 2015.

⁹ Valentino-Devries J, Singer-Vine J and Soltani A, ‘Websites Vary Prices, Deals Based on Users' Information’ (Wall Street Journal) (23 December 2012) <<http://online.wsj.com/article/SB10001424127887323777204578189391813881534.html>> accessed 13 July 2015; Angwin J, *Dragnet Nation: A Quest for Privacy, Security, and Freedom in a World of Relentless Surveillance* (Times Books 2014), p. 16.

customers from different regions different prices.¹⁰ Hannak et al have found examples of companies that offer discounts to mobile users and to people who are logged in to sites.¹¹

Price steering is related to price discrimination. Price steering is “personalizing search results to place more or less expensive products at the top of the list.”¹² Hence, a website suggests a certain product and price to a consumer, but the consumer can still buy another product. Price steering happens in practice. For instance, the travel site Orbitz showed Apple users more expensive hotels than it showed to PC users.¹³

New data analysis technologies, often summarised as “big data”, give new possibilities for personalised pricing. A White House report notes: “many companies already use big data for targeted marketing, and some are experimenting with personalized pricing, though examples of personalized pricing remain fairly limited.”¹⁴ The report adds that “[t]he increased availability of behavioral data has also encouraged a shift from (...) price discrimination based on broad demographic categories towards personalized pricing.”¹⁵

Currently it seems that companies rarely personalise prices. As Narayanan notes, “[t]he mystery about online price discrimination is why so *little* of it seems to be

¹⁰ Mikians J and others, ‘Crowd-assisted search for price discrimination in e-commerce: First results’ (Proceedings of the ninth ACM conference on Emerging networking experiments and technologies ACM, 2013) 1. In Europe. such pricing schemes may be illegal.

¹¹ Hannak A and others, ‘Measuring price discrimination and steering on e-commerce web sites’ (Proceedings of the 2014 Conference on Internet Measurement Conference ACM, 2014) 305, par. 5.2, par. 5.3.

¹² Hannak A and others, ‘Measuring price discrimination and steering on e-commerce web sites’ (Proceedings of the 2014 Conference on Internet Measurement Conference ACM, 2014) 305, par. 4.2, interpunction adapted.

¹³ Mattioli, D. ‘On Orbitz, Mac Users Steered to Pricier Hotels (Wall Street Journal)’ (23 August 2012) <<http://www.wsj.com/articles/SB10001424052702304458604577488822667325882>> accessed on 29 July 2015. Hannak et al have found various examples of price steering in the wild. Hannak A and others, ‘Measuring price discrimination and steering on e-commerce web sites’ (Proceedings of the 2014 Conference on Internet Measurement Conference ACM, 2014) 305, par. 4.2, interpunction adapted.

¹⁴ ‘Big Data and Differential Pricing’ (White House report, February 2015) <https://www.whitehouse.gov/sites/default/files/whitehouse_files/docs/Big_Data_Report_Nonembargo_v2.pdf> accessed on 29 July 2015, p. 2.

¹⁵ ‘Big Data and Differential Pricing’ (White House report, February 2015) <https://www.whitehouse.gov/sites/default/files/whitehouse_files/docs/Big_Data_Report_Nonembargo_v2.pdf> accessed on 29 July 2015, p. 4.

happening.”¹⁶ Perhaps companies are hesitant to personalise prices because they fear consumer backlash.¹⁷

Additionally, it is difficult to detect whether companies personalise prices based on an individual’s characteristics. Prices may fluctuate for other reasons. For instance, a shop may try out different prices at different times.¹⁸ And airline ticket prices tend to fluctuate based on many factors. Hence, if you delete your cookies and see a different price for an airline ticket, it is still not proven that the airline adapts prices to people’s cookie profiles. You might see a price difference that is unrelated to your cookie. In any case, the technology is there to personalise prices.

3 Price discrimination: good or bad?

Opinions differ on the question of whether price discrimination is desirable. On the one hand, many regard price discrimination as unfair or manipulative. In a US survey, Turow et al “found that [American adults] overwhelmingly object to most forms of behavioral targeting and all forms of price discrimination as ethically wrong.”¹⁹ In another survey, 78% of the respondents did not want tailored discounts if those

¹⁶ Arvind Narayanan, ‘Online price discrimination: Conspicuous by its absence’, <<http://33bits.org/2013/01/08/online-price-discrimination-conspicuous-by-its-absence/>> accessed 4 August 2015.

¹⁷ See Office of Fair Trading. ‘Online Targeting of Advertising and Prices’ (2010) <http://webarchive.nationalarchives.gov.uk/20140402142426/http://www.offt.gov.uk/shared_offt/business_leaflets/659703/OFT1231.pdf> accessed on 5 August 2015, p. 48; ‘Big Data and Differential Pricing’ (White House report, February 2015) <https://www.whitehouse.gov/sites/default/files/whitehouse_files/docs/Big_Data_Report_Nonembargo_v2.pdf> accessed on 29 July 2015, p. 13; Office of Fair Trading. ‘Online Targeting of Advertising and Prices’ (2010) <http://webarchive.nationalarchives.gov.uk/20140402142426/http://www.offt.gov.uk/shared_offt/business_leaflets/659703/OFT1231.pdf> accessed on 5 August 2015.

¹⁸ See Hannak A and others, ‘Measuring price discrimination and steering on e-commerce web sites’ (Proceedings of the 2014 Conference on Internet Measurement Conference ACM, 2014) 305; Office of Fair Trading. ‘Online Targeting of Advertising and Prices’ (2010) <http://webarchive.nationalarchives.gov.uk/20140402142426/http://www.offt.gov.uk/shared_offt/business_leaflets/659703/OFT1231.pdf> accessed on 5 August 2015.

¹⁹ Turow J, Feldman L, and Meltzer K, ‘Open to Exploitation: America’s Shoppers Online and Offline’ (Annenberg Public Policy Center of the University of Pennsylvania) (1 June 2005) <http://repository.upenn.edu/cgi/viewcontent.cgi?article=1035&context=asc_papers> accessed 29 July 2015, p. 4. See generally Turow J, *The Daily You: How the New Advertising Industry is Defining Your Identity and Your Worth* (Yale University Press 2011), p. 108-110.

discounts were based on the “on following what you did on *other* websites you have visited.”²⁰

It is not easy to pinpoint why many people find personalised pricing unfair.²¹ It appears many people are uncomfortable with personalised pricing because it can happen surreptitiously.²² But many questions are still open regarding people’s attitudes towards personalised pricing. Is people’s aversion to price discrimination partly triggered by the word discrimination? Do people only dislike personalised discounts as much as they dislike personalised premiums? (In a way, personalised premiums and personalised discounts concern the same practice. If Alice receives a personalised discount, and Bob pays a non-discounted price, one could say that Bob pays a premium.)

Several scholars warn that companies may benefit more from personalised pricing than consumers.²³ As Zarsky notes, “[v]endors can overcharge when the data collected indicates that the buyer is indifferent, uninformed or in a hurry.”²⁴ Some are sceptical of transferring wealth from consumers to companies. “Even the most hardheaded economist,” says Miller, “ought to concede that practices that increase overall social welfare but harm most consumers raise serious ethical concerns.”²⁵

²⁰ Turow et al. 2009 – Turow J et al., ‘Americans Reject Tailored Advertising and Three Activities that Enable it’ (29 September 2009) <<http://ssrn.com/abstract=1478214>> accessed 3 September 2015, p. 15.

²¹ See for an overview of arguments pro and contra price discrimination: Miller AA, ‘What Do We Worry About When We Worry About Price Discrimination? The Law and Ethics of Using Personal Information for Pricing’ (2013) 19 *Journal of Technology Law & Policy* 41.

²² ‘Big Data and Differential Pricing’ (White House report, February 2015) <https://www.whitehouse.gov/sites/default/files/whitehouse_files/docs/Big_Data_Report_Nonembargo_v2.pdf> accessed on 29 July 2015, p. 13; Office of Fair Trading. ‘Online Targeting of Advertising and Prices’ (2010) <http://webarchive.nationalarchives.gov.uk/20140402142426/http://www.offt.gov.uk/shared_offt/business_leaflets/659703/OFT1231.pdf> accessed on 5 August 2015, p. 21.

²³ See e.g. Strandburg KJ, ‘Free Fall: the Online Market’s Consumer Preference Disconnect’ (2013) *University of Chicago Legal Forum* 2013, 95 <<http://ssrn.com/abstract=2323961>> accessed 14 February 2014, p. 135-138.

²⁴ Zarsky T, ‘Desperately Seeking Solutions: Using Implementation-Based Solutions for the Troubles of Information Privacy in the Age of Data Mining and the Internet Society’ (2004) 56(1) *Maine Law Review* 13, p. 52. See also p. 30-31.

²⁵ Miller AA, ‘What Do We Worry About When We Worry About Price Discrimination? The Law and Ethics of Using Personal Information for Pricing’ (2013) 19 *Journal of Technology Law & Policy* 41, p. 69.

Additionally, it would be bad for the economy if consumers lost trust in online sellers in general.²⁶

From an economic perspective, price discrimination is good, under certain assumptions: “economic models of price discrimination tend to predict a positive increase in overall social welfare compared with flat rate pricing.”²⁷ However, if economists say they are in favour of price discrimination, they may refer to a larger set of practices than only personalised pricing. In economics, price discrimination is used in a broad sense: “the practice of a seller charging different prices to different customers, either for exactly the same good or for slightly different versions of the same good.”²⁸

Three types of price discrimination are distinguished in economic literature: first degree, second degree, and third degree price discrimination. With each type of price discrimination, the seller aims to charge some customers more, while not losing other customers.²⁹

First degree price discrimination, also called personalised pricing, concerns situations in which each customer pays a different price. As Varian puts it, personalised pricing “involves the seller charging a different price for each unit of the good (...).”³⁰ He adds that personalised pricing implies that “the price charged for each unit is equal to the maximum willingness to pay for that unit.”³¹

²⁶ Office of Fair Trading. ‘Online Targeting of Advertising and Prices’ (2010) <http://webarchive.nationalarchives.gov.uk/20140402142426/http://www.offt.gov.uk/shared_offt/business_leaflets/659703/OFT1231.pdf> accessed on 5 August 2015, p. 28.

²⁷ Miller AA, ‘What Do We Worry About When We Worry About Price Discrimination? The Law and Ethics of Using Personal Information for Pricing’ (2013) 19 *Journal of Technology Law & Policy* 41, p. 63.

²⁸ Phillips R, *Pricing and Revenue Optimisation* (Stanford University Press 2005), p. 74. See for a formal definition of price discrimination: Stigler, G. (1987) *Theory of price*. New York: Macmillan.

²⁹ ‘Big Data and Differential Pricing’ (White House report, February 2015) <https://www.whitehouse.gov/sites/default/files/whitehouse_files/docs/Big_Data_Report_Nonembargo_v2.pdf> accessed on 29 July 2015, p. 4.

³⁰ Varian HR, ‘Price discrimination’ in Schmalensee, Richard and Robert Willig (eds), *Handbook of industrial organisation* (Elsevier 1989), p. 600.

³¹ Varian HR, ‘Price discrimination’ in Schmalensee, Richard and Robert Willig (eds), *Handbook of industrial organisation* (Elsevier 1989), p. 600.

An example of personalised pricing is a second-hand car dealer who adapts the price of a car to the buyer.³² A more modern example is an online shop that recognises a customer and charges that customer a personalised price. For personalised pricing the seller needs information about the buyer.³³ This paper focuses on personalised pricing, the most controversial type of price discrimination. For completeness' sake, I also briefly describe second and third degree price discrimination.

Second degree price discrimination concerns, in short, quantity discounts. As Varian explains: “prices differ depending on the number of units of the good bought, but not across consumers. That is, each consumer faces the same price schedule, but the schedule involves different prices for different amounts of the good purchased.”³⁴ For example, in the cinema popcorn is often cheaper (per gram) if you buy a larger box. For second degree price discrimination the seller does not need information about the buyer.³⁵ Buyers self-select; they choose a different price by choosing a different quantity.

With third degree price discrimination, a seller charges different prices to different *types* of buyers.³⁶ Third degree price discrimination is widely used: many companies offer discounts to children, students, or elders. A company could also charge people from different geographical areas different prices. For instance, medicines could be sold at cheaper prices in developing countries. For third degree price discrimination it is not necessary to recognise individual buyers. Sellers only need to recognise one

³² ‘Big Data and Differential Pricing’ (White House report, February 2015) <https://www.whitehouse.gov/sites/default/files/whitehouse_files/docs/Big_Data_Report_Nonembargo_v2.pdf> accessed on 29 July 2015, p. 4.

³³ Acquisti A, ‘Identity management, privacy, and price discrimination’ (2008)(2) IEEE Security & Privacy 46, p. 20; Varian HR, ‘Price discrimination’ in Schmalensee, Richard and Robert Willig (eds), *Handbook of industrial organisation* (Elsevier 1989), p. 603.

³⁴ Varian HR, ‘Price discrimination’ in Schmalensee, Richard and Robert Willig (eds), *Handbook of industrial organization* (Elsevier 1989), p. 600.

³⁵ “Second-degree price discrimination consists of customers voluntarily choosing differential prices for different versions or quantities of a good or service. This form of pricing therefore isn’t based on personal information and doesn’t rely on individual recognition.” (Acquisti A, ‘Identity management, privacy, and price discrimination’ (2008)(2) IEEE Security & Privacy 46, p. 21).

³⁶ Varian HR, ‘Price discrimination’ in Schmalensee, Richard and Robert Willig (eds), *Handbook of industrial organization* (Elsevier 1989), p. 600: “different purchasers are charged different prices, but each purchaser pays a constant amount for each unit of the good bought.”

characteristic of the buyer – for instance: is the buyer a student?³⁷ Different buyer types can self-select. For example, when business travellers buy expensive airline tickets (without a stay over on Saturday night), other travellers can buy cheaper tickets.

Generally speaking, laws in Europe do not seem to prohibit personalised pricing. Moreover, the principle of contractual freedom implies that price discrimination is generally allowed. Contractual freedom suggests, in the words of Smits: “not only are parties free to decide whether they want to contract at all and with whom, but they can also determine the contents of their contracts.”³⁸ The principle of contractual freedom implies that sellers may choose the price of a product they sell. If a buyer purchases the product for that price, from the perspective of contractual freedom there is no problem.

Indeed, in most European countries, courts do not assess the fairness of the price when assessing the fairness of a consumer contract.³⁹ Under the Unfair Contract Terms Directive, standard contract terms are unfair when they cause a significant imbalance between the rights of a consumer and a company. One might think that a personalised high price could cause such a significant imbalance. However, the directive excludes the price of the unfairness test.⁴⁰

³⁷ Acquisti A, ‘Identity management, privacy, and price discrimination’ (2008)(2) IEEE Security & Privacy 46, p. 21.

³⁸ Smits describes the principle of contractual freedom as follows: “not only are parties free to decide whether they want to contract at all and with whom, but they can also determine the contents of their contracts.” J Smits, ‘The Law of Contract’ in J Hage and B Akkermans (eds), *Introduction to Law* (Springer, Dordrecht, 2014), p. 53. See on contractual freedom and price discrimination: (with a US focus): Miller AA, ‘What Do We Worry About When We Worry About Price Discrimination? The Law and Ethics of Using Personal Information for Pricing’ (2013) 19 *Journal of Technology Law & Policy* 41, p. 68.

³⁹ Chr. von Bar, E. Clive (eds.), *Principles, definitions and model rules of European Private Law. Draft Common Frame of reference (Full edition), Volume 1*, Munich: Sellier European law publishers, 2009, Comment B at Article II.–9:403 DCFR, p. 648-649. In other words, the principle of “*iustum pretium*” has limited influence in most European legal systems. See also Hesselink, Martijn W. ‘Could a Fair Price Rule (or its Absence) be Unjust? On the Relationship between Contract Law, Justice and Democracy, Centre for the Study of European Contract Law Working Paper Series No. 2014-05; Amsterdam Law School Research Paper No. 2014-36’ (2014) <<http://ssrn.com/abstract=2456662>> accessed on 6 September 2015.

⁴⁰ Article 4(2) of the Unfair Contract Terms Directive: “Assessment of the unfair nature of the terms shall relate neither to the definition of the main subject matter of the contract nor to the adequacy of the

But contractual freedom is never absolute. If personalising prices leads, indirectly, to illegal discrimination (for instance on the basis of race), the practice may be illegal.⁴¹ And, under certain circumstances, in the Europe Union, adapting the price to a customer's nationality is illegal.⁴² This paper, however, focuses on data protection law. Other fields of law, such as consumer law and non-discrimination law are outside the paper's scope. We turn to data protection law in the next section.

4 Data protection law usually applies to personalised pricing

Data protection law is a legal tool that aims to ensure that the processing of personal data happens fairly, lawfully and transparently.⁴³ Data protection law grants rights to people whose data are being processed (data subjects), and imposes obligations on parties that process personal data (data controllers, limited and referred to as companies in this paper).⁴⁴ This paper focuses on the EU Data Protection Directive,⁴⁵ and also makes some remarks about the e-Privacy Directive.⁴⁶

price and remuneration, on the one hand, as against the services or goods supplies in exchange, on the other, in so far as these terms are in plain intelligible language.”

⁴¹ See on indirect discrimination: European Agency for Fundamental Rights, Handbook on European non-discrimination law (Publications Office of the European Union 2010), p. 29-31.

⁴² See Hans Schulte-Nölke et al 'Discrimination of Consumers in the Digital Single Market, Study For The Directorate General for Internal Policies Policy Department A: Economic And Scientific Policy (report European Parliament, IP/A/IMCO/ST/2013-03, PE 507.456' (November 2013) <[www.europarl.europa.eu/RegData/etudes/etudes/join/2013/507456/IPOL-IMCO_ET\(2013\)507456_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/etudes/join/2013/507456/IPOL-IMCO_ET(2013)507456_EN.pdf)> accessed on 5 August 2015.

⁴³ See article 6(1) of the Data Protection Directive. See generally: De Hert P and Gutwirth S, 'Privacy, Data Protection and Law Enforcement. Opacity of the Individual and Transparency of Power' in Claes E, Duff A and Gutwirth S (eds), Privacy and the Criminal Law (Intersentia 2006); Zuiderveen Borgesius F.J, Improving Privacy Protection in the Area of Behavioural Targeting (Kluwer Law International 2015), chapter 4.

⁴⁴ Public sector bodies can also be data controllers; such situations fall outside the scope of this paper. Data subjects and data controllers are defined in article 2(a) and 2(d) of the Data Protection Directive.

⁴⁵ Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data (Official Journal L 281, 23/11/1995 p. 0031 – 0050).

⁴⁶ Directive 2002/58/EC of the European Parliament and of the Council of 12 July 2002 concerning the processing of personal data and the protection of privacy in the electronic communications sector (Directive on privacy and electronic communications) (Official Journal L 201, 31/07/2002 P. 0037 – 0047), as amended by Directive 2006/24/EC [the Data Retention Directive], and Directive 2009/136/EC [the Citizen's Rights Directive].

European data protection law is triggered when “personal data” are processed.⁴⁷ Almost everything that can be done with personal data, such as storing and analysing data, falls within the definition of “processing.”⁴⁸ The Data Protection Directive defines personal data as: “any information relating to an identified or identifiable natural person (‘data subject’) (...)”⁴⁹ Typical examples of personal data are names, person email addresses, and identification numbers.⁵⁰

Does data protection law apply to personalised pricing? Let’s take the following hypothetical. Nile.com is an online shop that sells books and other products. When customers register for the site, they give Nile.com their name, personal email address, and delivery address.

Alice often buys at Nile.com. Alice only buys expensive luxury goods. She never searches for cheaper alternatives on the site, and never looks at second-hand offerings. Nile.com correctly concludes that Alice is wealthy. When Alice logs in again, Nile.com increases all prices that Alice sees with 10% - without informing her. Alice does not realise she pays a premium, and continues to buy luxury goods at Nile.com. The 10% extra that Alice pays is pure profit for Nile.com.⁵¹

Bob is also registered as a Nile.com customer, but he rarely buys there. When Bob visits the site he always spends hours comparing different products, and searching for second-hand offerings. Nile.com correctly concludes that Bob does not have much money. Unbeknownst to Bob, Nile.com decides to offer Bob a 10% discount on all prices. The personalised discount leads Bob to buy more products at Nile.com. Per product sold to Bob, Nile.com makes less profit. But, since Bob now buys more products, in the aggregate the price discount still translates into profit for Nile.com.

⁴⁷ Article 1(1) of the Data Protection Directive.

⁴⁸ Article 2(e) of the Data Protection Directive.

⁴⁹ Article 2(a) of the Data Protection Directive. See also recital 26 of the Data Protection Directive.

⁵⁰ Article 2(a) of the Data Protection Directive. See also Article 29 Working Party, ‘Opinion 4/2007 on the concept of personal data’ (WP 136), 20 June 2007.

⁵¹ For the hypotheticals I draw inspiration from Zarsky T, ‘Mine Your Own Business: Making the Case for the Implications of the Data Mining of Personal Information in the Forum of Public Opinion’ (2002) 5 Yale Journal of Law and Technology 1.

As Nile.com recognises Alice and Bob on the basis of their log-in information (name, address, etc.), Nile.com processes personal data. Hence, data protection law applies to the price discrimination examples regarding Alice and Bob.

Say that Carol is a *new* customer for Nile.com, who has not registered for the site. Nile.com operates many websites, and can follow a visitor to those websites through a cookie with a unique identifier.⁵² Nile.com does not know Carol's name, but recognises her as the person behind the cookie with ID *xyz*. By observing Carol's browsing behaviour, Nile.com learns a lot about Carol – but not her name. Nile.com knows that the person behind the cookie with ID *xyz* often visits price comparison websites, buys mostly low quality cheap products, and buys most products second-hand. Nile.com concludes – correctly – that the person behind the cookie with ID *xyz* is poor. Therefore, when the person behind the cookie with ID *xyz* visits the Nile.com shopping website, Nile.com shows that person prices with a 10% discount. The person behind the cookie with ID *xyz* – Carol – does not realise she receives a personalised discount.

Whether the Carol example concerns personal data processing is contentious. Many companies say that a cookie with a unique identifier tied to an individual profile should not be qualified as personal data.⁵³ But European Data Protection Authorities say that cookies with unique identifiers are personal data because they “enable data subjects to be ‘singled out’, even if their real names are not known”.⁵⁴ Many scholars, but not all,⁵⁵ agree that cookies with unique identifiers should be seen as personal data.⁵⁶

⁵² See on different tracking technologies: F.J. Zuiderveen Borgesius, *Improving privacy Protection in the Area of Behavioural Targeting*, Kluwer law International 2015, chapter 4.

⁵³ See for instance: Interactive Advertising Bureau Europe. *Your Online Choices. A Guide to Online Behavioural Advertising*, About <www.youronlinechoices.com/uk/about-behavioural-advertising> accessed 25 June 2015.

⁵⁴ Article 29 Working Party, ‘Opinion 2/2010 on Online Behavioural Advertising’ (WP 171) 22 June 2010.

⁵⁵ See for instance Zwenne GJ, *De verwaterde privacywet [Diluted Privacy Law], Inaugural lecture of Prof. Dr. G. J. Zwenne to the office of Professor of Law and the Information Society at the University of Leiden on Friday, 12 April 2013* (Universiteit Leiden 2013).

⁵⁶ See for instance: De Hert P. and Gutwirth S., “Regulating profiling in a democratic constitutional state” in Hildebrandt M. and Gutwirth S. (eds), *Profiling the European Citizen*, Springer 2008; Leenes

In sum, the examples of Alice and Bob clearly concern personal data processing. Whether personalising prices for the person behind the cookie with ID *xyz* (Carol) concerns personal data processing is subject to debate. Hence, EU data protection law applies to many types of personalised pricing, because personalised pricing often entails the processing of personal data.

The fact that data protection law applies does not imply that processing personal data is prohibited. But if a company processes personal data, it must comply with the data protection rules. For instance, the company may only process personal data fairly and lawfully.⁵⁷ Two types of data protection rules are examined below: regarding transparent processing and certain automated decisions.⁵⁸

5 Data protection law: transparency requirements

One of data protection law's main tools to foster fairness is the requirement that data processing happens transparently. The directive lists the "information to be given to the data subject" by the company.⁵⁹ A company must provide at least information regarding its identity and "the purposes of the processing".⁶⁰ The company must provide more information when necessary to guarantee fair processing.⁶¹

A company must inform customers if it personalises prices. After all, data protection law requires a company that processes personal data to disclose the processing purposes to the data subject. This requirement also applies if the purpose is personalising prices. Companies must often inform customers (data subjects) about personalising prices, because personalising prices often entails personal data processing. As the examples regarding Alice and Bob concern personal data processing, Nile.com must inform them about personalising prices.

R., "Do they know me? Deconstructing identifiability" (2008) 4(1-2) University of Ottawa Law and Technology Journal 135.

⁵⁷ Article 6(1) of the Data Protection Directive: fairly and lawfully; article 10 and 11 of the Data Protection Directive: transparently.

⁵⁸ The requirement of a legal basis for processing (article 7 of the Data Protection Directive) falls outside the scope of this paper.

⁵⁹ As noted, for readability this paper speaks of companies rather than of data controllers.

⁶⁰ Article 10 and 11 of the Data Protection Directive.

⁶¹ Article 10 and 11 of the Data Protection Directive.

As said, for the example regarding Carol (the person behind the cookie with ID *xyz*) it is contentious whether personal data are processed. But even if the Carol example does not concern personal data processing, Nile.com must still inform Carol about the processing purpose. The e-Privacy Directive only allows storing a cookie on somebody's computer, after that person has given consent for the cookie, "having been provided with clear and comprehensive information, in accordance with [the general Data Protection] Directive 95/46/EC, inter alia, about the purposes of the processing."⁶² Hence, the e-Privacy Directive requires Nile.com to obtain Carol's informed consent before it stores a cookie on Carol's computer. If one of the purposes of processing the cookie is personalising prices, Nile.com must say so. The requirement to explain the purpose of a cookie applies, regardless of whether personal data are processed.⁶³

It seems plausible that companies would prefer not telling a customer about a personalised price, especially when a customer pays a higher price. If an online shop tells people it personalises prices, people might react negatively. Or people might fear that price discrimination leads to higher prices, and might therefore search for better prices elsewhere.

I am not aware of any company that informs its online customers that it personalises prices. Several explanations are possible. One possibility is that companies that are subject to EU data protection law never personalise prices. Another possibility is that some companies that are subject to EU data protection law do personalise prices, but do not comply with data protection law's transparency requirements. Nevertheless, only one conclusion seems possible about personalised pricing and data protection law: In many cases, personalising prices entails personal data processing – in those cases, a company must generally inform customers about personalising prices.

⁶² Article 5(3) of the e-Privacy Directive.

⁶³ See: F.J. Zuiderveen Borgesius, 'Personal data processing for behavioural targeting: which legal basis?', *International Data Privacy Law*, 2015.

6 Data protection law: automated decisions

Article 15 of the Data Protection Directive is also relevant for personalised pricing. Article 15, sometimes called the Kafka provision, concerns automated decisions. The provision contains an in-principle prohibition of certain fully automated decisions with far-reaching effects. Article 15 applies, for instance, to credit scoring. The provision hasn't been applied much in practice. Therefore, the analysis below mainly relies on literature. The main rule of article 15 is as follows:

Member States shall grant the right to every person not to be subject to a decision which produces legal effects concerning him or significantly affects him and which is based solely on automated processing of data intended to evaluate certain personal aspects relating to him, such as his performance at work, creditworthiness, reliability, conduct, etc.⁶⁴

In short, people may not be subjected to certain automated decisions with far-reaching effects. The Directive says people have a right “right not to be subject to” certain decisions. But it is commonly assumed that this right implies an in-principle prohibition of such decisions.⁶⁵

Does article 15 apply to personalised pricing? Slightly rephrasing Bygrave, four conditions must be met for the provision to apply: (i) there must be a decision; (ii) that decision is based solely on automated data processing; (iii) the data used for the decision are intended to evaluate certain personal aspects of the person concerned; (iv) the decision must have legal or other significant effects for the person.⁶⁶

⁶⁴ Article 15(1) of the Data Protection Directive.

⁶⁵ See e.g. De Hert P and Gutwirth S, ‘Regulating profiling in a democratic constitutional state’ in Hildebrandt M and Gutwirth S (eds), *Profiling the European Citizen* (Springer 2008), p. 283.

⁶⁶ Bygrave LA, *Data protection law: approaching its rationale, logic and limits* (PhD thesis University of Oslo), vol 10 (Information Law Series, Kluwer Law International 2002), p. 320.

With personalised pricing, an algorithm (i) decides, (ii) automatically, a price for a customer.⁶⁷ Data processed for personalised pricing are (iii) intended to evaluate certain characteristics of the customer. Therefore, the first three conditions are met if a company personalises prices.⁶⁸

The fourth condition requires the decision to have “legal effects”, or to “significantly” affect the person. The Belgian Data Protection Authority suggests that an individually targeted advertisement that includes “a reduction and therefore a price offer” has legal effect.⁶⁹ Presumably, the Authority sees a price offer as an invitation to enter an agreement, which could indeed be seen as having a legal effect. This interpretation would make article 15 applicable to personalised prices.

An automated decision that “significantly” affects a person also falls within the scope of article 15. But the Data Protection Directive does not explain when a decision “significantly” affects a person. Bygrave suggests that personalised pricing, at least when it leads to higher prices, “significantly affects” a person:

[A] cybermarketing process could be plausibly said to have a significant (significantly adverse) effect on the persons concerned if it involves unfair discrimination in one or other form of “weblining” (e.g., the person visiting the website is offered products or services at a higher price than other, assumedly more valuable customers have to pay, or the person

⁶⁷ Article 15(1) of the Data Protection Directive.

⁶⁸ See Bygrave LA, *Data protection law: approaching its rationale, logic and limits (PhD thesis University of Oslo)*, vol 10 (Information Law Series, Kluwer Law International 2002).

⁶⁹ Commission for the Protection of Privacy Belgium 2012 – ‘Opinion of the CPP’s accord on the draft regulation of the European Parliament and of the Council on the protection of individuals with regard to the processing of personal data and on the free movement of such data’ (Opinion no. 35/2012), unofficial translation (21 November 2012) <www.privacycommission.be/sites/privacycommission/files/documents/Opinion_35_2012.pdf> accessed 1 October 2013, par. 80.

is denied an opportunity of purchasing products/services that are made available to others).⁷⁰

Exceptions to the in-principle prohibition

For personalised pricing, there are two relevant exceptions to the in-principle prohibition of automated decisions with significant effects.⁷¹ First, the directive allows an automated decision when it “is taken in the course of the entering into or performance of a contract, provided the request for the entering into or the performance of the contract, lodged by the data subject, has been satisfied.”⁷²

In theory, the legal effect of this exception might be as follows. Say a customer requests to enter a contract with Nile.com, for instance by clicking “buy this book” on the Nile.com site. Nile.com sells the book, and thus enters a contract with the customer. The customer’s request has been satisfied. Hence, the exception applies. Therefore the in-principle prohibition of certain automated decisions does not apply. Hence, if a customer buys a good against a personalised price, the prohibition of automated decisions does not seem to apply.⁷³

Article 15 lays down a second exception. Article 15 allows companies to automatically refuse entering a contract with somebody, if “there are suitable measures to safeguard his legitimate interests, such as arrangements allowing him to put his point of view.”⁷⁴ A company that uses software to automatically deny somebody a contract could ensure that the person can ask a human to reconsider the decision. This makes it easy for a company to comply with the provision. It might be enough if the company included a phone number on the website, where people can

⁷⁰ Bygrave LA, *Data protection law: approaching its rationale, logic and limits (PhD thesis University of Oslo)*, vol 10 (Information Law Series, Kluwer Law International 2002), p. 323-324 (punctuation adapted, internal footnote omitted).

⁷¹ A third exception is not discussed here, because of its limited relevance for personalised pricing. An automated decision is allowed if it’s authorised by a law that includes measures to safeguard the data subject’s legitimate interests (article 15(2)(b) of the Data Protection Directive).

⁷² Article 15(2)(a) of the Data Protection Directive.

⁷³ Bygrave notes that article 15 leaves a gap when a contract is closed. Bygrave LA, *Data protection law: approaching its rationale, logic and limits (PhD thesis University of Oslo)*, vol 10 (Information Law Series, Kluwer Law International 2002).

⁷⁴ Article 15(2)(a) of the Data Protection Directive.

ask a human to reconsider the automated decision to deny the contract. When this second exception applies, there is no contract. Hence, it appears that this second exception is irrelevant if somebody has bought a product for a personalised price.

The right to learn the logic behind processing

The Data Protection Directive grants the data subject the right to learn the underlying logic of an article 15 decision. A data subject has the right to obtain “knowledge of the logic involved in any automatic processing of data concerning him at least in the case of the automated decisions referred to in Article 15 (1).”⁷⁵

In theory, this right implies that a customer can ask a company to explain the logic behind being shown a personalised price. Hence, if customers know that they encounter personalised prices, they can request the company to explain the logic behind the price discrimination algorithm. Or, if customers suspect seeing personalised prices, they can ask for the logic behind the pricing scheme to confirm whether the suspicion is correct.

But there are several reasons not to expect too much from this right to learn the logic behind processing. First, the provision on automated decisions is hardly ever applied in practice. Second, the person has to ask for the information. Hence, if somebody is not aware of an automated decision, the provision is of little help. For instance, somebody might not realise receiving a personalised price. Third, the Directive’s recital 41 limits the right to learn the logic behind the automated decision. The right “must not adversely affect trade secrets or intellectual property.”⁷⁶ A company might claim it can’t fully explain its price personalisation system, because that would disclose too much about the software it uses. However, the recital does not allow the company to refuse all information.⁷⁷

⁷⁵ Article 12(a) of the Data protection Directive.

⁷⁶ Recital 41 of the Data Protection Directive.

⁷⁷ Recital 41 of the Data Protection Directive: “these considerations must not (...) result in the data subject being refused all information.”

In sum, article 15 applies, in theory, to personalised pricing. But it seems that in practice, the transparency obligations for companies (discussed in the prior section) could be more helpful for consumers.

7 Conclusion and suggestions for further research

This section summarises the findings from this paper, and gives suggestions for further research. Online shops can offer each website customer a different price – a practice called first degree price discrimination, or personalised pricing. An online shop can recognise a customer, for instance through a cookie, and categorise the customer as a rich or a poor person. Shops could adapt prices to such profiles.

Many difficult questions regarding price discrimination are still open. Why do many people say they dislike price discrimination? Is price discrimination fair as long as wealthy people pay more, and poorer people less? Is price discrimination only unfair if it harms groups that are already disadvantaged, such as certain immigrant groups? Is price discrimination only unfair if it leads to illegal indirect discrimination, for instance on the basis of race, gender, or nationality? Will price discrimination become more prevalent, or are companies too afraid of consumer backlash to engage in large-scale price discrimination? Does the principle of contractual freedom imply that online price discrimination is *always* allowed? When, if ever, should price discrimination *not* be allowed?

This paper examined whether European data protection law applies to personalised pricing. Data protection law applies if personal data are processed. This paper argues that personalised pricing generally entails the processing of personal data. Therefore, data protection law generally applies to personalised pricing. That conclusion has several implications. For instance, data protection law requires a company to inform people about the purpose of processing their personal data. And if a company uses a cookie to recognise somebody, the e-Privacy Directive requires the company to inform the person about the cookie's purpose. This requirement also applies if the purpose is personalising prices. In sum, in most circumstances, the law requires companies to inform people about online price discrimination.

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