Platforms and hyper-choice on the World Wide Web

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Abstract

Choice is a sine qua non of contemporary life. From childhood until death, we are faced with an unending series of choices through which we cultivate a sense of self, govern conduct, and shape the future. Nowadays, individuals increasingly experience and enact consumer choice online through web-based platforms such as Yelp.com, TripAdvisor.com and Amazon.com. These platforms not only provide a sprawling array of goods and services to choose from, but also reviews, ratings and ranking devices and systems of classification to navigate this landscape of choice. This paper suggests a radical reconsideration of platform architectures and design features to consider how they reconfigure and respecify choice, 'choosers', and choice-making practices. Platforms are not simply cameras that present choice and enable comparisons between different options, but are more akin to engines that govern, drive and expand choice, configuring users within particular discourses, practices and subjectivities. In making sense of the entangled trajectories of consumer choice, platform architectures and Big Data, I suggest that 'hyper-choice' emerges as a condition of the contemporary platform-driven web. I examine hyper-choice not only in terms of the relationship between platforms and a growing abundance of choice, but more importantly how platforms reconfigure choice in ways that go beyond and fundamentally challenge existing understandings of what choice is, who and what is involved in producing knowledge about choice, and what it means to be a 'chooser'.

Keywords

Choice, platforms, classification, ratings, produsage, Web 2.0

Introduction

In contemporary consumer societies, individuals experience more choice than ever before. From childhood until death, we face a 'wide-ranging and unending series of choices' across almost every domain of life (Clarke, 2010: 58). We choose which food to eat, what clothes to wear, our style of haircut, what types of insurance to purchase (or not), the level and types of consumption practices that we undertake, and so on. Choice, that is, the options that individuals have at their disposal as well as the ability to compare between them and make a decision, has been argued to be fundamental to individual freedom, autonomy and well-being (Leotti et al., 2010), and the development of Western society (Rosenthal, 2005). Although choice is a phenomenon that is unequally distributed throughout consumer societies (discussed later in section), at the same time it enables people to cultivate an individual

sense of self and exercise the right to direct their own lives and practices of consumption. As Iyengar suggests, there is a feedback loop between self-identity and choice: 'If I am this, then I should choose that; if I choose that, then I must be this' (2011: 109). It would appear that choice is a universal good, that is, more choice is better. However, choice is both complex and problematic.

A challenge concerning choice is that consumer societies have an over-abundance of it (Clarke, 2010; Iyengar, 2011). For example, counting the products in his local supermarket, Schwartz (2005) observed that there were 275 varieties of cereal, 230 types of soup,

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285 kinds of cookies and 40 toothpastes, to name a few. Whilst too little choice can be detrimental, *too much* choice threatens to overwhelm individuals and undermine the benefits that choice can provide. In this way, choice has been critically examined as a paradox (Schwartz, 2005), an explosion (Iyengar, 2011), a tyranny (Salecl, 2011), and even a myth (Greenfield, 2011). Elsewhere the notion of 'hyper-choice' has been developed to describe an objective condition of consumer societies whereby an 'ever-increasing amount of buying occurs amidst an ever-increasing amount of new products, brands, and brand extensions' (Mick et al., 2004: 207). Similarly, Larceneux et al. (2007) construe hyper-choice as a situated phenomenon whereby individuals are faced with too many or too varied options, which in turn overwhelms their capacity to make choices. Choice is thus positioned as 'hyper' in terms of the scale and speed at which it is expanding and differentiating.

Yet individuals are not passive in contemporary choice-infused environments. They actively draw on a range of tools, knowledge and heuristics in order to help them navigate choice and make 'informed' decisions. Nowadays, one of the most important and pervasive tools is the Internet and, more specifically, the web. The advent of what is popularly referred to as 'Web 2.0' has opened up a world of choice (Han, 2011) and choice-making functionalities through a proliferation of consumer and e-commerce websites. For example, popular e-commerce websites such as Amazon.com and eBay.com position users as co-producers of sprawling online market places (e.g., reading and writing reviews, providing ratings, making purchases). 'Comparison shopping websites' provide tools for users to compare prices between sellers (e.g., Shopbot.com, BizRate.com). Similarly, 'reviews websites' (e.g., TripAdvisor.com, Yelp.com) and 'ratings websites' (e.g., RateMyTeachers.com, DoctorScoreCard.com) provide users with information to compare businesses and professionals.

In exploring this topic, Graham (2016) undertook a foundational study of how choice is shaped online through the design features and architecture of websites. Graham argues that the aforementioned kinds of sites neither determine choice nor simply provide a neutral space for the liberal ideal of 'free choice' to play out, but instead constitute and structure the experience of having and making choice. Such websites thus obtain a 'logic of choice' (in some ways akin to Ziewitz's (2012) 'logic of evaluation'). Moreover, the empirical analysis of websites undertaken by Graham (2016) revealed an interesting type or sub-species of choice-infused websites, that is, large-scale platforms that go beyond the baseline or 'normal' understanding and experience of choice. Graham argues that the design features and architecture of platforms such as Amazon significantly expand the scope, scale and speed of choice-making, blur the line between users and content producers (Bruns and Schmidt, 2011), and embody a form of empiricism that radically challenges how we come to know and differentiate choice. Indeed, the author alludes to the 'hyper' nature of these kinds of choice-infused platforms, although this idea is not pursued further (see Graham, 2016, abstract).

These kinds of platforms provide an interesting analytical focal point for further investigation. In what ways do their design features and architecture appear to drive, expand, speed up, and reconfigure choice in a 'hyper' way? However, more than simply energising or exciting the choice-making process, I seek to attend to how platforms appear to 'go beyond' and 'overshoot' or 'overstep' our normal understanding of what choice is and how it is constituted, drawing on the lexical definition of the prefix 'hyper' and its Greek roots (Oxford English Dictionary, 2017). Hence, our focus is not simply on hyper-choice as the relationship between platforms and a growing abundance or glut of choice, but more importantly on how platforms *reconfigure* choice in interesting and profound ways that reimagine, re-specify and challenge our foundational understandings of what choice is, who and what is involved in producing knowledge about choice, and what it means to be a 'chooser'.

To be sure, choice is not a universally available phenomenon. Not everyone experiences choice in the same way – it is differentially constructed and experienced (Ben-Porath, 2010; Sen, 1977, 1999), and is not equally distributed throughout the population. Differences in individuals' social realities have a significant impact not only on the choices they have on offer, but also their ability to choose between them. Choice is differential, just as opportunity is not uniform. Despite claims that the Internet produces uniform benefits and opportunities for economic growth, differing degrees of Internet connectivity result in uneven economic impacts across geographies and social strata (Friederici et al., 2017). These geographical inequalities of Internet access are also concomitant with differences in the modes of participation available to users in different geographical contexts. Indeed, peoples' experience of choice on the web would be markedly different in countries where Internet access is filtered or controlled by the state. Thus the expansion of choice I have elaborated so far in this paper is not experienced universally. In light of these considerations, the focus of this paper is on *particular forms and experiences* of choice in the context of large-scale, commercial web platforms. In this paper I focus on,

and critically examine, practices of choice and consumption in privileged Western countries predominantly in North America and Western Europe, and countries such as Australia and New Zealand.

Having made some important clarifications about the types and experiences of choice I invoke in this study, the remainder of the paper is organised as follows. In the next section, I examine how platforms leverage user-generated Big Data and ratings and rankings devices to undertake a politics of commensuration that fundamentally reconfigures knowledge production about choice. Drawing on theories in the sociology of classification and standards and science and technology studies (STS), I argue that this novel form of empiricism radically challenges, and perhaps even nullifies, existing categories and standards that used to define choice. In 'Choice and the politics of commensuration within produsage-driven platforms' section I use illustrative case examples of popular choice-infused platforms (Graham, 2016) to discuss how their design features and architecture shape choice in a way that breaks down, hybridises, and challenges the longstanding conceptual dualisms that we use to understand consumer choice and web use, such as producers versus consumers, and users versus producers. In the final section I examine how the individuality, self-governing capacities and subjectivity of users is actively harnessed and attempted to be shaped by platforms. Drawing on Foucauldian governmentality and key theories in STS and the philosophy of technology, I argue that platforms, through their architecture and design features, imbue a productive mode of power that seeks to produce and reproduce particular kinds of consumerist and neoliberal subjectivities pertinent to the goals and imaginaries of the platform operators.

Taken together, I argue that these factors point towards a condition of *hyper-choice* as one possible trajectory and emergent feature of contemporary choice-infused platforms such as TripAdvisor.com and Yelp.com. The concept of hyper-choice developed in this paper opens up new opportunities and research directions to appraise and critically evaluate the way in which platforms organise and reconfigure human experience through a logic of choice. In exploring this important – and scarcely studied – phenomenon, the paper invites readers to go beyond what it means to experience and enact choice in an era of Big Data and platforms.

Choice and commensurability on platforms: The reconfiguration of choice and choice-making practices

A key aspect of choice on the web concerns the practices of 'choosing', that is, the ability for users to compare between heterogeneous goods and/or services in particular ways, in order to evaluate their merits and properties against a common standard or metric. For example, when choosing somewhere to eat, a user on Yelp.com might compare between a French restaurant versus a Chinese restaurant, trading off between five-star user ratings versus affordability and location. The longstanding notion of commensurability (cf. Kuhn, 1982) is key to understanding how practices of choosing are made not only made practicable but also *reconfigured* via the design of web spaces. Comparing two dissimilar items (e.g., an orange and an apple) is possible providing we have a common nomenclature or standard – or technology – to compare them by. Thus ratings, rankings and sorting devices become enrolled in different ways to make commensurability (and thus choice) possible through the web.

Yet choice is also about knowledge. How can we know which option is a better choice amongst various alternatives? Ziewitz positions this in terms of a 'politics of commensuration' that frames commensuration as a social process enacted through practical facilities of *classification and sorting* (2012: 54–56). Commensuration is 'the process of transforming disparate forms of value into homogeneous units, which allows information reduction, uncertainty absorption, and simplification of decision-making' (Scott and Orlikowski, 2012: 115). In reasoning about these 'forms of value' and 'units', platforms such as TripAdvisor construct choice by classifying things in particular ways. Recent scholarship has examined the role of commensurability through a case study of TripAdvisor, which enables users to find and compare between accommodation and travel options (Scott and Orlikowski, 2012). They argue that user-generated ratings and reviews on Trip Advisor have reconfigured the hotel industry because these technologies enable comparisons between accommodation options that are regarded as categorically different and incommensurable in the travel industry. The authors use the example of the ManorHouse (a hotel) and the PubInn (a pub), which are not seen as direct competitors in the industry because they are in different classes of accommodation, and are listed in *entirely separate* industry guidebooks. Yet, they argue that the review and rating system on Trip Advisor renders these options commensurable and in doing so '[intensifies] this material nullification of industry standards' (Scott and Orlikowski, 2012: 121).

Processes of sorting and commensuration on platforms have important consequences for the categories we use to define and navigate choice. Moreover, *classification* and *categories* are central to understanding how knowledge is produced about choice (as in the options on offer). To clarify what is meant by classification I

draw on the foundational definition provided by Bowker and Star:

> A classification is a spatial, temporal, or spatio-temporal segmentation of the world. A 'classification system' is a set of boxes (metaphorical or literal) into which things can be put to then do some kind of work – bureaucratic or knowledge production. (Bowker and Star, 1996: 10, emphasis original)

The way in which categories order social processes is important to how choice is constructed and facilitated through platforms such as TripAdvisor. Ranking and rating devices have become a sort of 'information infrastructure' (Bowker et al., 2010) providing practical facilities to categorise the world, effectively becoming standardised tools that constitute 'recipes for reality' (Busch, 2011). Choice-making practices and modes of knowledge production in platform environments are remarkably different than in traditional settings. For instance, Blank's (2007) two-fold framework of reviews systems consists of 'connoisseurial' reviews by singular experts, and 'procedural' reviews produced through tests and standardised procedures, which usefully conceptualise traditional choice-making practices but do not attend to the radically different form of empiricism we observe in the context of large-scale platforms. Yet construing these kinds of devices and functionalities as simply making everything commensurable and producing difference fails to consider a more important point: platform ratings and reviews systems are reconfiguring existing standards, driven (at least in part) by the need to organise and facilitate choice in consumer societies that have an overabundance of it.

As discussed previously, Scott and Orlikowski (2012) argue that the platform infrastructure of TripAdvisor intensifies a nullification of existing industry standards. In this way, existing categories that are context-specific, such as classes of accommodation in the travel industry (e.g., pubs versus hotels) do not come to define and structure choice in the way they used to. Ratings, reviews and rankings devices (as infrastructure for choice on platforms) reinvent, reimagine, and perhaps even in the case of TripAdvisor collapse, existing categories and systems of classification that we use to define choice. To be sure, standardisation differentiation and categorisation systems for choice are not new phenomena. For example, Busch highlights how the Sears Roebuck catalogue, issued in 1894, 'massively increased consumers' choices' by using standardised categories and characteristics of commensurability to differentiate over 200,000 items (2011: 153). However, in the context of digital platforms we observe that established standards for commensuration and categories that define and order choice are radically reconfigured. The politics of commensuration engendered through platforms 'goes beyond', 'overshoots', and respecifies how consumer choice is normally or traditionally constructed and framed. This is one of the 'hyper' aspects of choice in the context of large-scale consumer platforms such as TripAdvisor.

Yet as Graham (2016, Chapter 4) demonstrates, there is a constellation of devices, including but not limited to ratings and reviews, that websites deploy in order to engender a politics of commensuration within the web space. For instance, platforms such as Amazon.com enable options on offer to be rendered commensurable according to how many other users have viewed or purchased them (i.e., number of page hits and number of purchases). This provides the ability to rapidly sort options by how popular they are with other users (see Figure 1), even in the absence of other information such as product ratings. Such devices differ to rating devices insofar as an option might be *popular* (i.e., many people are viewing it) or *bestselling* (i.e., many people are purchasing it) regardless of how highly it is rated. For example, at the time of writing, the book 'Allegiant' by Veronica Roth was ranked 4th on the Kindle best-seller list on Amazon.com, despite only receiving an average of three stars out of five (after 8,241 reviews). Ostensibly at least, platforms are able to leverage and triangulate massive stores of user-generated data (purchases, product views, clickstreams) to not only respecify and reimagine previously existing categories that used to define choice, but also increasingly speed up the choice-making process and make it easier for users. For instance, if a user can't find a rating for a particular product or service they wish to compare, then they might be able to sort the options on offer by popularity; or if there is not enough data to rank the options by popularity, they can look at the sorted list of bestsellers; and so on. Crucially, what these kinds of algorithmic devices and functionalities
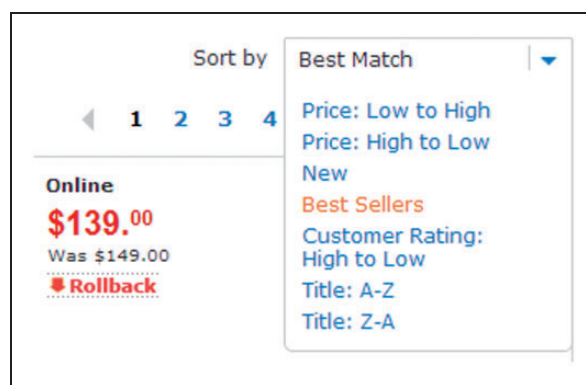

Figure 1. Sorting options by best-selling/popular (Walmart.com).

depend upon a sufficiently large amount of user-generated data to render them practical. If there is only a small user population to derive data-driven patterns from and a small number of options to compare between, their usefulness and practicality arguably diminishes.

Thus another hyper aspect of choice on platforms is how user-generated Big Data and economies of scale are leveraged not only to facilitate choice under conditions of abundance, but moreover to *speed up* choice-making practices and *expand* the scope and scale of choice. We observe that there is a rapid feedback loop between users and platforms, and moreover that this relationship is recursive: as more users are attracted to the platform (interpreted here as visiting the platform in order to make choices quickly and easily), more data becomes available to enhance the choice-making functionality, which results in more users visiting and revisiting. However, whilst the arguments presented in this section form part of the picture of what is different – I suggest *hyper* – about choice in a platform context, it does not attend to the way in which platforms not only depend upon but actively target and subjectify users in ways that go beyond and greatly overstep conventional choice-making practices and subject/object dichotomies. It is to these issues that we now turn.

Choice and the politics of commensuration within produsage-driven platforms

Using a range of illustrative examples in the previous section I have shown how platforms configure choice through a complex entanglement of user-generated Big Data, architectures that deploy ratings, rankings and sorting devices, and a politics of commensuration that involves classification practices and knowledge production via categories. In this way, the design features and architecture of platforms such as eBay.com are a kind of 'invisible engine' that choice runs on, facilitating and structuring how transactions and economic interactions between different actors take place (Evans et al., 2006: 349–355). Platform operators and users alike have intricately interconnected, often asymmetric, relationships and interests in this arrangement. Indeed, Gillespie calls to attention the 'politics' of platforms, highlighting the 'tensions inherent in their service: between user-generated and commercially-produced content, between cultivating community and serving up advertising, between intervening in the delivery of content and remaining neutral' (Gillespie, 2010: 348). To examine this further, one important aspect we must consider is what the 'technical architecture [of platforms] allows and prohibits' (Gillespie, 2010: 359). If the architectural features of platforms are part of the 'engine' that drives choice, then users are not only passive consumers-qua-choosers, but also in one sense the Big Data 'fuel' that platforms run on.

The work involved in creating and maintaining platforms involves a heterogeneous array of individuals, including programmers, designers and paid content checkers. Users are also an essential element. Considerable work is involved in navigating, enacting and co-constructing choice on platforms, as users are not simply consuming, but also labouring to *use, produce* and *evaluate* content. For example, account reputations on eBay.com are crucial to the economics of the platform, and responsibility is placed on both sellers and buyers to attract and maintain positive feedback from one another. As eBay states: 'Some buyers have been frustrated by the increasing number of sellers who refuse to accept bids from buyers with a feedback rating of "less than 10" or "any negative feedback"' (eBay, 2017). Thus to participate on eBay, users must necessarily perform additional work above and beyond the simplistic characterisation of comparing alternative options and making a choice (and potentially also making a transaction).

This fusion of usage and production has been conceptualised in terms of 'produsage'. Bruns' notion of *produsage* broadly describes the multi-directional flows of information that characterise the user-led content-creation environment of contemporary platforms (Bruns, 2008). In this way, the dualism of the user-as-consumer (of web content) versus user-as-producer does not account for the blurring of roles that users have, whereby they can 'switch easily and effortlessly between these two roles – allowing, ultimately, for the emergence of a hybrid role in between: that of the produser' (Bruns and Schmidt, 2011: 3–4). Produsers of choice-infused platforms must perform constant work to compare between options, experience and enact choice, and produce and sell goods and services. Without this work, the platform economy risks a downturn or even failure. Platform operators govern an interactive space that choice runs on (or is an emergent property of), without needing to curate and control it directly.

In this sense, platforms tend be oriented towards what Ritzer has termed 'prosumer capitalism' (2015a). Ritzer and Jurgenson argue that 'in producer and consumer capitalism, corporations are likely to exert great control over the production and/or consumption of content (goods and services), but in prosumer capitalism companies are more likely to stand back and to meddle less with the prosumers who are producing and consuming the content' (2010: 31). The idea of 'prosumption' provides an interpretive key to the platform logic of choice-infused websites, which involves

both production and consumption rather than a specific focus on either one (Ritzer and Jurgenson, 2010: 14). This augments the notion of 'produsage' (Bruns and Schmidt, 2011), as it attends not only to the user experience, but also the economies and politics of commensuration within platforms. It accounts further for the considerable work or labour that is involved in producing, navigating and transacting choice on these platforms. Who are *prosumers* in this scenario? They are users who not only work to 'produse' content in the web space, but in doing so also shape the market processes and economies in which choice operates. Ritzer provides a key insight, arguing that users are

> '... increasingly making all-but-the-most-complex travel arrangements on one's own through various websites (e.g., Travelocity, Expedia); doing all of the work on websites such as Amazon.com including making the appropriate choices for items to be purchased, providing needed delivery and payment information, and making one's way through the various steps needed to complete the process; as buyers doing the largely digital work of providing a body of information on themselves to eBay and if (when) they are sellers on that which they are offering for sale.' (Ritzer, 2015b: 12)

Through the prosumption processes of such platforms, users provide free digital labour that is highly beneficial to other users, but even more so for website operators (Anderson, 2010). There is a blurring of leisure and labour time (Fuchs, 2014) that characterises digital prosumption on these platforms. For example, Yelp.com does not directly sell goods or services, but the devices and functionalities it provides users to navigate choice (i.e., comparing businesses and restaurants) generates massive amounts of data that, as I have argued before, operationalise and sustain a dynamically changing landscape of choice through the platform. This reconfiguration of choice through prosumption on platforms has a performative effect on the market (Callon, 1998), which recursively responds to new and emergent 'prosumer' activities generated around the clock. Figure 2 shows an example of private services on PeoplePerHour that are extremely tailored and niche services, and may be popular today, but not tomorrow. Platforms configure users as *prosumers of* a dynamically shifting landscape of choice, rather than a landscape of choice that is static (where the options on offer change relatively infrequently over time, such as one might experience in a local convenience store or a choice-infused website such as Ikea.com, for example).

This performative dimension suggests that these platforms are, drawing on MacKenzie (2006), not simply 'cameras' that present choice and enable comparisons between different options, but also 'engines' that drive and expand choice and categories that come to define choice. This idea resonates with the notion of platforms as 'invisible engines' discussed previously (see Evans et al., 2006). One implication is that platform architectures may engender *more* choice at the same time as structuring how users (qua produsers) navigate it. In a sense, these commercially-oriented large-scale platforms appear to intensify post-Fordist prosumption processes to a hyper level: goods and services are able to be produced, compared and transacted at great speed. The implication for users is that their experience of choice is co-extensive with, and

Figure 2. Highly individualised and specialized private services (PeoplePerHour.com).

differentiated via, the actions of a multitude of others who inhabit the platform, which in turn are structured through the platform architectures. Choice in this sense 'goes beyond' or 'overshoots' its conventional boundaries, pointing towards the notion of 'hyper-choice' as a relevant way to understand what is happening to choice and choice-making practices in the context of platforms. Seemingly benign features of platform architectures *intensify and produce choice*, and more importantly produce the appearance of choice by structuring the field of action of users in particular ways. In this sense platform architectures are constitutive of a productive form of power (Foucault, 1982) that not only facilitates and constrains action, but, as I will examine in the next section, also construct and seek to produce certain forms of subjectivity.

Constructing (or exploiting) choice through individualisation and subjectivity

The discussion so far has demonstrated the crucial role that users have to play in constructing and maintaining choice-infused platforms. In this final section I will develop this further by looking at the way in which platforms actively seek to *drive and shape users* towards participating and contributing to the online space, which seeks to govern users and construct their field of action in strategic ways. Revisiting the example of Yelp, we might consider how large-scale consumer choice platforms such as Yelp constantly present users with opportunities to 'produse' content, for

example by uploading photos and videos of visits to restaurants as part of their reviews. At the same time, users are presented with 'offer[s] of subjectivation' (Latour, 2005: 213) that simultaneously individualise them and also produce content that relates to and produces knowledge about the options on offer. For example, Figure 3 shows how each photo uploaded by '*Jane D.*' (de-identified alias) has a 'like' button (i.e., unary rating), which offers users a chance to become 'produsers' and not only evaluate *Jane D.*'s content, but also take up this offer of subjectivation to express themselves as someone who 'likes' the food and beverages from the restaurant that is under evaluation (i.e., 'Coffee Anthology').

In contrast to the liberalist perspective that choice constitutes the freedom that individuals have to make rational decisions, this example of Yelp further serves to illustrate how choice on platforms is something that can be engineered, shaped, calculated and governed in order to 'structure the possible field of action' of users (Foucault, 1982: 790). Foucault argues that there is a key relationship between the choosing subject and the notion of 'interest', that is, 'a subject of interest, by which I mean a source of interest, the starting point of an interest, or the site of a mechanism of interests' (Foucault and Senellart, 2008: 273). Thus the interests of the subject (in this case user) become the interests of government (platform operator): users become the correlate of a governmentality that manufactures and shapes the environment and variables in which 'choice' is exercised. As web users we are no less 'governed through our freedom' than in other domains of
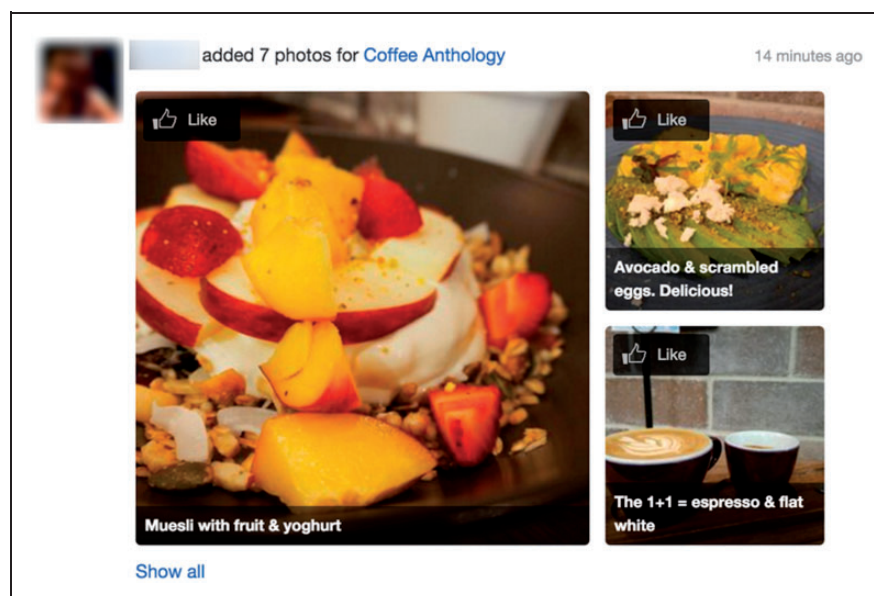

Figure 3. Offers of subjectivation through user-generated media (Yelp.com).

existence (Rose, 1999: 62) and we exercise 'free choice' on platforms that shape and govern us through our agential capacities. Thus platforms offer particular kinds of subjectivity to users, and moreover these are digitally mediated *consumer subjectivities* that construct users as distinctly neoliberal subjects. Sauter (2013) draws on Rose's ideas to highlight 'how information and communication technologies (ICTs) contribute to converting the rational-economic expectations of neoliberal governments into the subjective personal aims of citizens' (2013: 8). Applying this to examine the Pinterest platform, Sauter argues that it 'encourage[s] users to self-manage their lives, maximise their potential ... constantly seeking to improve and perfect themselves and display this activity publicly' (2013: 8). Thus platforms such as Yelp do not simply provide tools for users to make comparisons and enact choice, but offer opportunities to become the kinds of citizen-consumer subjects that align with, or do not deviate too far from, the goals and rationalities of the platform (such as the accumulation and retention of users).

In advancing this argument further, we observe how platform users are often subjected to technologies of performance measurement that provides numeric levels of their contribution to the platform (e.g., 'Level 3 Contributor'), which is attributed to, and makes up, their individual profile. This configures users towards a logic of competition and self-advancement that is expressed through their individuality. Figure 4 exemplifies the subjectification of users on Tripadvisor.co.uk, quantifying and measuring their activity or contribution to the platform by measuring it quantitatively. Activity conducted within the web space is tied to the self through the individualising effects of profiles (e.g., 'Jill Smith' *is a* Level 5 Contributor), and becomes meaningful in the context of the broad networked public composed of individuals who convene together in the online space (boyd, 2011). Indeed, beyond the illustrative example provided here, the quantification of these kinds of user practices has been studied empirically by David and Pinch (2006) and Pinch (2012).

It follows that a key aspect of individualisation and subjectivation on choice-infused platforms is the role of the user profile. As Graham argues, platforms often urge users to log into the site using existing social networking site (SNS) profiles under the proviso that doing so is much faster and more convenient than setting up a new user profile manually (2016: 206). Moreover, if a user decides to log in using their SNS profile, they are subsequently using the site not as an anonymous reader, but in a sense *as themselves*. Unlike other kinds of web spaces, users of these platforms are not anonymous and undifferentiated entities, but are configured as unique individuals with a self-identifying name and personalising characteristics and attributes, visible to private social networks and networked publics. For example, if a user of TripAdvisor logs in using their Facebook account and clicks 'like' on a particular hotel, they are liking the hotel in the capacity of their *self*. They authorise the platform to use their data, which, in the case of Facebook, often includes rich and detailed personal information, and this in turn is redeployed by the platform.
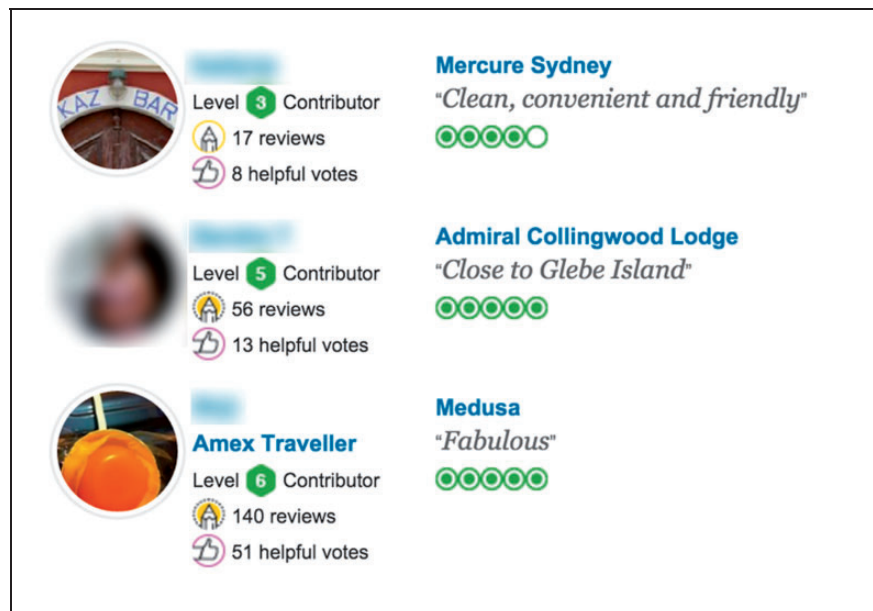

Figure 4. Individualisation and subjectification of users through performance measurement (TripAdvisor.com).

As Figure 5 shows, Trip Advisor co-opts users' existing social networks to encourage them to join their friends by participating within the site. This is an offer that the user can accept or refuse – if they refuse to sign in with Facebook, they subsequently miss out on participating on TripAdvisor as part of their friendship network. This 'offer of subjectivation' (Latour, 2005: 213) incites the user to operate as a unique and authentic user-consumer and produser of the platform, i.e., a user who is configured within a consumerist discourse of choice and is actively enrolled in producing, for example, reviews and ratings that are visible to, and open to evaluation from, private social networks and the general networked public. To the extent that users engage with and take up these offers of subjectivation, platforms have a productive power that creates certain forms of subjectivity as digitally experienced expressions of self. To be sure, I am not suggesting that platforms cause or determine particular forms of subjectivity, but rather that these technologies 'attribute various capacities, qualities and statuses to particular agents ... that these agents come to experience themselves through' (Dean, 2010: 44).

Thus the design architecture of choice-infused platforms attempts to link up the interests and rationalities of the operators with the interests and self-governing capacities of users. If users are satisfied, they will come back, are more likely to make a transaction, and they

will keep produsing content within the space. As previously discussed, this provides free digital labour for platforms (Amazon built an empire on user-submitted ratings), and users may do so because in varying degrees they govern themselves through and/or are *affected* by the labels, badges and categories that signify individuality, social status, reputation and achievement (e.g., 'Top #100 reviewer' on Amazon, or '100% positive feedback' on eBay). Ekbia and Nardi reason about the 'affective rewards' that these types of systems produce, arguing that users and enterprises (read here as platforms) both gain benefits, although the benefits are asymmetrically weighted in favour of enterprises (2014, section 1.2). These processes of governing users through their affective subjectivities shapes and drive choice by configuring users as instruments of knowledge production (e.g., generating ratings and reviews). Both the platform and the user are not left unchanged by their interactions and entanglement in this environment constructed through flows of Big Data and practices of categorisation and commensuration. A *particular* type of choice and experience of choice-making is produced with and via the self-governing capacities, actions, and individuality of users. As Introna argues, 'they [users] internalize these calculating practices, and the knowledge they legitimate, to become self-governed subjects' (2016: 36). Individuals' subjectivities and interests link up to, and become
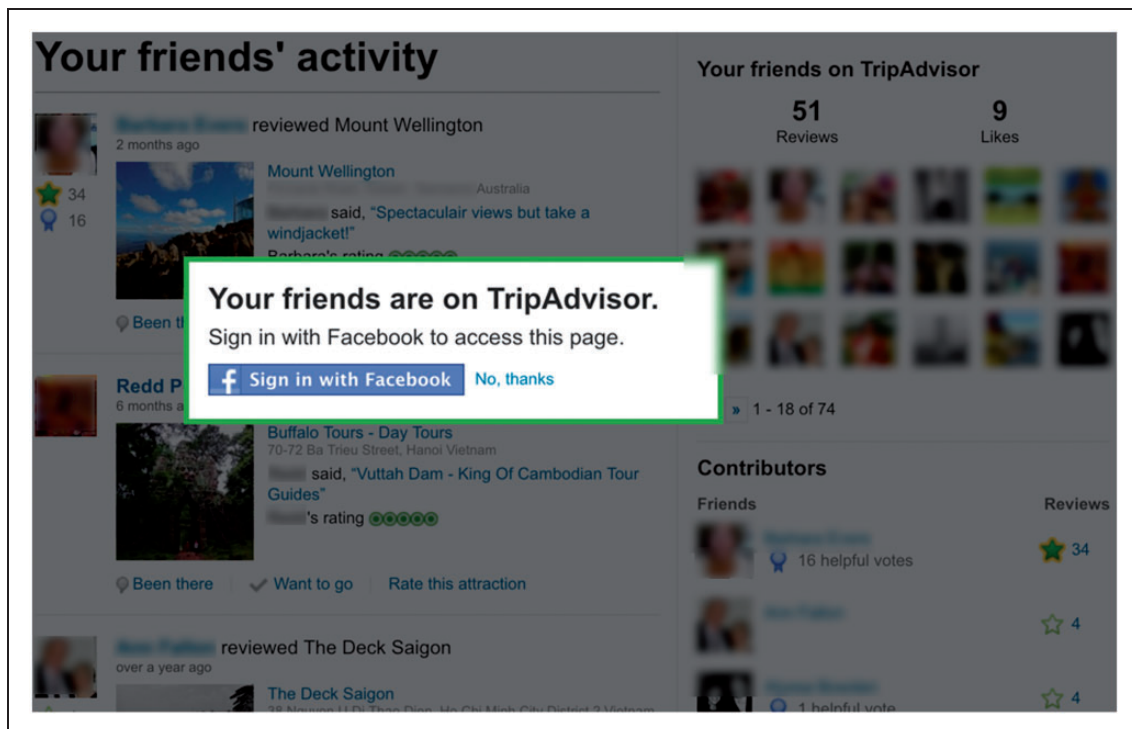

Figure 5. Harnessing users' social networks to gain and retain attention on the website (TripAdvisor.com).

enmeshed with, the interests and rationalities of platforms.

This is interesting in light of Bucher's argument that algorithms that underpin Web 2.0 may lead users to internalise the subjectivities of the website operators (2012). It may be possible that website users, through repeated use of categories over time, may come to internalise the subjectivities of the website operators, which I have identified here in the context of choice-infused platforms as pro-capitalist and characteristically neoliberal constructions of self. As Hearn (2010) argues, Web 2.0 practices 'function to direct human meaning-making and self-identity in highly motivated and profitable ways' (abstract, 2010). Again, this is not to argue that these processes are deterministic, but to highlight a powerful aspect of how such platforms shape both choice and users. Thus platforms may in fact intensify and reproduce consumerist and pro-capitalist modalities of choice, contributing to the expansion of consumer choice (read hyper-choice) that I discussed in the introduction to this paper, whilst at the same time ostensibly appearing to reduce and narrow down choice for users.

Although these kinds of governmental strategies and effects are certainly not reducible to choice, it is evident that choice, platform architectures and users are bound up together in a complex relationship. To a certain extent, platforms and individual subjectivity are co-constitutive, existing and transforming in a feedback loop mediated through the architecture of the space. Choice, in this platform configuration, appears to take on a machinic aspect as it is not clear where the machine (platform features and architecture) starts and the human (user) ends. In this sense choice appears to have an inter-objectivity that resonates with Morton's notion of 'hyperobjects', whereby 'nothing is ever experienced directly, but only as mediated through other entities in some shared sensual space' (2013: 86). Although I would not go so far as to construe choice as a hyperobject in the broader sense used by Morton, in the context of large-scale platforms choice and choice-making practices appear to exhibit 'hyper' qualities. For example, we come to know the value of things through ratings devices, which mediate the opinions and experiential knowledge of an unknown public distributed across space and time ('product X has a 2-star rating based on 1,000 user ratings'). Similarly, we come to know the identities of human entities on platforms through the platform-specific systems of classification that are used to categorise, order and differentiate them. Thus, as for technology and human agency more generally, platforms, users, and choice do not merely have complex relationships, but in differing degrees co-constitute one another (Verbeek, 2005). Choice in the context of platforms transcends

our conventional understandings of it, both ontologically (what choice is and the entities that are involved) and epistemologically (how choice is categorised, ordered and produced, as well as the shifting practices and dynamics of choice-making).

Conclusion

In this paper I have argued that large-scale web-based platforms such as Amazon, Yelp and TripAdvisor not only enable users to experience and enact choice, but presuppose and engender a kind of 'hyper-choice' that goes beyond, overshoots, and fundamentally challenges our normal understanding of what choice is and how it is constituted. In developing this idea, I made four main arguments.

Firstly, the myriad ratings, reviews and ranking devices deployed by platforms combined with large volumes of user-generated Big Data have resulted in a fundamental reconfiguration of knowledge production about choice that reimagines, re-specifies, and perhaps in some cases *nullifies*, pre-existing standards and systems that used to define choice. For example, TripAdvisor's rating system collapses longstanding industry standards for differentiating accommodation options.

Secondly, platform architectures have brought about a breakdown or hybridisation of longstanding dualisms that we use to understand consumer choice and web use, such as producers versus consumers and users versus producers. As a result, consumer choice on platforms such as Yelp requires new conceptual devices to understand how it is enacted, who and what is involved in the production and reproduction of markets, and how to make sense of the increasingly blurred lines between choice and choosers.

Thirdly, I examined productive modes of power whereby platforms actively seek to shape and construct subjectivities so that users come to govern themselves in ways that do not deviate too far from the goals of the platform. Platform architectures are not designed *for* users inasmuch as they are designed *with* and *around* the self-governing and individual agential capacities of individuals. What we understand as choice is not *a priori* to platforms, but instead platforms construct particular forms of choice and experiences of choice-making. In effect, platform architectures actively seek to produce and reproduce particular kinds of consumerist and neoliberal subjectivities that link up with the aims, rationalities and imaginaries of platform operators.

Finally, from a user-centric perspective I point towards the curious, perhaps even paradoxical, notion that these large-scale choice-infused platforms might contribute to reconfiguring, driving, expanding and

speeding up choice at the same time as presenting a structured space in which users navigate and narrow down an overabundance of it. To be sure, this paper has only considered specific aspects of platforms, namely the ratings and rankings devices deployed by them, as well as theories that help us make sense of platform architectures vis-à-vis 'choice'. Space precluded a more comprehensive consideration of other key dimensions of platforms, including recommender systems, the politics of algorithms, and data practices, to name a few. Further, this study focussed on consumer choice (rather than choice more broadly) and practices of choice and consumption in privileged and predominantly Western countries. The over-abundance of choice and accessibility of Internet technologies experienced in these geographies is not universal. I note these as limitations of the study and key areas for future work.

In conclusion, there is something markedly different about choice in an increasingly platform-saturated web. Choice has in a sense become hyper – the technical, social, and political infrastructures of platforms have rapidly reconfigured our experience of choice and our roles in relation to it. Perhaps in some ways large-scale platforms such as Yelp and TripAdvisor have transitioned beyond our conventional understandings of choice and choosers. In various modes and levels of intensity we are confronted with a complex, hybrid, perhaps even paradoxical, picture: is this the emerging condition of hyper-choice in platform environments?

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