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Introduction.
Political arithmetic: old and new

Sophie Day, Celia Lury, Helen Ward

Abstract
The articles in this Special Issue arose from a workshop in June 2021 (https://peoplelikeyou.ac.uk/activities/people-like-you-a-new-political-arithmetic/) which considered whether we might understand the enormous variety of calculations we encounter today as a political arithmetic. Our proposal was that the term provides a powerful way to understand the political nature of calculations of economic and social value. In this introduction we showcase how contributors address the proposal in studies of personalisation, competitive test formats, algorithmic profiling, YouTube personalities and the significance of information as an increasingly important medium of 'the social. We suggest that, together, these developments are transforming relations between the individual and society today in ways that both intensify inequalities and provide the basis for new forms of individual and collective identity.

Keywords: political arithmetic, personalization, transmutation, the 'social'.

This Special Issue originated in a June 2021 workshop organised as part of a collaborative project, *People Like You: Contemporary Figures of Personalisation* (https://peoplelikeyou.ac.uk/activities/people-like-you-a-new-political-arithmetic/), supported by the Wellcome Trust. At that workshop, Sophie Day, Celia Lury and Helen Ward put forward the claim that personalisation can be described as a new political arithmetic. The papers that follow develop this claim, showing some of the ways in which political arithmetic operates today, both by expanding on what is meant by personalisation and extending beyond to include a consideration of competitive test formats, algorithmic profiling, YouTube personalities and the significance of information as an increasingly important medium of 'the social'.

The term 'political arithmetic' — "an entity variously interpreted as an early form of economic analysis, a proto-statistical demography, or a more generalised, quantitative, bureaucratic rationality – the scientific revolution in the social sphere" (McCormick 2008: 124) — is associated with the name of William Petty, a 17th century doctor, alchemist, government official, landholder, and social engineer. As Ted McCormick writes,

> From the point of view of disciplinary history, Petty's thought matters to the extent that it anticipated or perhaps contributed to later developments in the classical political economy of Smith and Ricardo and/or the Marxian critique of that tradition. From another perspective, Petty's political arithmetic is important

> because its quantification of economics and demography facilitated the emergence of the modern British state and the expansion of its empire, or even the elaboration of the much broader set of ideas and practices that Foucault called 'governmental rationality'. (2008: 126)

By returning to the origins of the term for this Special Issue, we hope to gain insight into the political, social, and economic implications of the enormous variety of calculations encountered today – from econometrics, psychometrics and modelling to algorithmic reasoning across the digital platforms used by government and commerce. In particular we focus on the ways in which such calculations rely upon an understanding of the relations between individuals and society, whether and how 'one' may be added up to 'a many'; how 'ones' may be rendered interchangeable so as to be sorted into social categories with which we may identify, belong to, or be excluded from; and what the implications of the media in which such categories are created may have for how they are occupied.

Unsurprisingly, given his significance for economics, government and demography, there is considerable scholarship on Petty. The historian Mary Poovey (1998), for example, focuses on his role in 'the making of the modern fact,' and argues, "Petty helped forge the relationship between numbers and impartiality that has made the modern fact such a crucial instrument for policy making" (1998: 123).[1] The recognition of this impartiality depended however on the power of the King for, as Poovey also noted, "His claim to combine certainty and accuracy … rested on the dual authority of mathematics (which could generate epistemological certainty) and royal power (which had the political power to declare what would count as true, or at least legal)" (ibid: 133). Poovey also considers Petty to have contributed to the reconceptualization of government, especially to the emerging concepts of a domestic or national economy.

In the mid-17th century, the British economy was oriented towards overseas trade. Petty's emphasis on accurate records of domestic production and consumption was novel and contributed to the adoption of abstract conceptions such the "value of people" and "national wealth" (Poovey, 1998:126), terms which came to be taken for granted in 20th-century national and international indices such as Gross Domestic Product (GDP), Consumer Price Index (CPI), and the Purchasing Managers Index (PMI). Crucially however Petty's innovations in measuring land and agricultural production developed in response to the colonisation of Ireland.[2] After overseeing the expropriation of Irish lands for Oliver

[1] She continues, "In the complex amalgam he created from experimental philosophy and Hobbesian deduction, expertise linked particulars that seemed to be (but were not) observed to theories that seemed not to be (but were) interested, for his representation of expertise made interpretation (and interest) seem incidental to method and instruments" (Poovey, 1998:123).

[2] After the Irish rebellion, Cromwell succeeded in reconquering Ireland in 1652 and claimed nearly eight million acres of Catholic-owned, so-called "rebel" land, in his Act of Settlement. Later, Petty was commissioned to map the confiscated lands and, between December 1654 and April 1656, directed the massive cadastral and

Cromwell and the Protectorate (and his own personal gain), he developed and promoted (never-implemented) schemes for 'transmutation' to ensure the peacefulness (or as some might see it, subordination) of the colonised population:

> The old conundrum of plantation – how to live with the barbarians one couldn't live without – prompted a novel solution from Petty: 'the transmuting of one People into the other, and the thorough and lasting union of Interests upon natural and lasting Principles'. (McCormick, 2008: 126-7)

The aim of the scheme, as stated in the preface of *Political Anatomy of Ireland* (written in 1672, published in 1690 in London) was to increase the strength of the political body by converting two into one:

> Add hereunto, That if both Kingdoms, now two, were put into one, and under one Legislative Power and Parliament, the Members whereof should be in the same proportion that the Power and Wealth of each Nation are, there would be no danger such a Parliament should do anything to the prejudice of the *English* Interest in *Ireland*; nor could the *Irish* ever complain of *Partiality*, when they shall be freely and proportionably represented in all Legislatures. (Petty, 1899: 157-159)

Transmutation involved a variety of transplantations – the 'exchange' or forced migration between England and Ireland of Irish and English men, of Irish and English women, of Irish and English priests – in which the centrality of the composition of the family or domestic household to the reproduction of the national domestic economy and polity is clear.[3] When Petty bought land in Pennsylvania, he proposed another transmutation scheme, also never implemented: the purchase of Native American girls under the age of seven so they could be raised in colonial communities before marriage to English settlers.[4] His understanding of individuals as interchangeable 'ones' enabled him to present such exchanges in instrumental ways. When a Catholic monarch (James II) came into power following the end of the Commonwealth, Petty proposed reversing the direction of his previous scheme: "whereas in 1673 the aim had been to make Ireland's religious demography look more like England's, the goal in 1686 was the opposite" (McCormick, 2007: 264-265).[5] The perceived

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topographical survey known as the "Down Survey". He delimited and drew up maps of twenty-nine counties with the help of more than 1,000 workers over more than a year. He sought to differentiate productive lands from wastelands, using quantitative measures. Poovey writes, 'Quantities, Petty's surveyors complained, could easily be justified by reference to instruments and rules, but quality knew no instrumental measure. "As for the quality of land," moaned the surveyors Smith and Humphreys, "wee had noe rule to walke by, only as aforesaid, but did according to the best of our judgements, and the best information wee could get." This early lesson - that quantification was different from qualitative descriptions in being less subject to controversy or dispute - was to remain with him throughout the rest of his varied career" (Poovey, 1998:122).

[3] According to McCormick, Petty was the only proponent of mass intermarriage as an answer to the political instability of the mid-17th century, presenting it as an alternative to war.

[4] This provides an early example of 'The Girl' as 'a figure of transnational rescue and investment' (Murphy 2017).

[5] As in today's personalising practices, homophily – or sameness/similarity – is (re)produced through heterophily – involving dissimilarities of gender, religion and nationality in Petty's schemes. Similarities and differences are mutually implicated in the constitution of social categories (see Kurgan et al. 2019).

threat to stability came then from Protestants and not from Catholics, and from populations in three kingdoms (England, Ireland and Scotland), not just Ireland.

In returning to political arithmetic, this Special Issue thus intends to draw attention to not only the political nature of calculations of economic value but also their relation to the fungibility of national, religious, and domestic identities. McCormick suggests that, following his death, Petty's 'political medicine' as applied to the anatomical body of Ireland was absorbed into the "'Art of Reasoning by Figures, upon Things relating to Government' – a 'Computing Faculty' custom-built for the burgeoning imperial, fiscal-military state" (2008: 139, citing Davenant 1698). But now, as in Petty's time, numbering continues to be an 'inventive frontier' (Guyer et al. 2010). Today's political arithmetic, we propose, sustains economic and political values both by enabling specific forms of (human) population management and by developing more abstract forms of 'distributed reproduction' (Murphy 2017) in which an individual is both more and less than one. This arithmetic enables assetization, rentier arrangements, and other forms of financialization, reproducing and (re)distributing value, and stratifying the population in new ways, both intensifying inequalities and also providing the basis for new forms of individual and collective identity.

In our article – 'Personalization: A new political arithmetic?', we (Day, Lury and Ward) suggest that transformations in the making of the categories of 'People Like You' associated with personalisation are fundamental to this new political arithmetic. More specifically we propose that today's political arithmetic "no longer approaches subjects as autonomous individuals with separate interests in an abstract system called society as was the case in the accounting that underpinned classical liberalism". We argue that political arithmetic is transforming relations between the individual and society, and in doing so, enabling new kinds of collectives of 'People Like You' (and 'People Not Like You'). This transformation is enabled by the expansion of techniques of comparison, the continual tracking of activities and objects, and the application of algorithmic reasoning to the analysis of ubiquitous data collections.

Presenting findings from an interdisciplinary study of personalisation across the domains of health care, data science and digital culture, we demonstrate ways in which the relations between individuals and society that were always the concern of political arithmetic are being recalibrated. Personalisation, we suggest, is a powerful and widespread instance of political arithmetic as a moving ratio, a mathematically open form of sociality (Clough 2018) underpinning a distributive logic sorting people and things, informing processes and allocating resources along a variety of scales. Describing this moving ratio, our suggestion is that the political arithmetic at work in contemporary practices of personalisation both intensifies and transforms the classical liberal emphasis on the individual as the unit of government by combining forms of individuation and dividuation in changed practices of categorisation of both people and things (Lury and Day 2019). We conclude by identifying a

'fractal person' as the focus of new forms of government by both state and business, that is, an entity with relationships integrally implied through the organisation of relations of liking and likeness, that is, preference and similarity. Such relations, we argue, offer new opportunities and constraints for inclusion, exclusion and belonging in a simultaneously reconfigured 'social', sometimes reinforcing and sometimes transforming the terms of discrimination and inequality, as (personal) characteristics are merged with interests, and distributed across platforms.

In the article that follows, William Viney connects biography and recent political history to explore the emergence of personalisation in the United Kingdom. He takes as his starting point the publication in 1988 of an article by Charles Leadbeater, 'Power to the Person' in the magazine *Marxism Today*. Reflecting on the strength of the Conservative Party's promotion of a vocabulary of choice, individual autonomy and freedom from the state, Leadbeater proposed that the Left needed to develop a 'progressive individualism', by which he meant a collectivist form of individual citizenship. What was to distinguish this understanding of individualism from that of consumer choice was the relation between individual and society, with Leadbeater arguing that power to a person (singular) depended on empowering people (plural). Viney follows the take-up of this idea in governmental New Public Management and subsequent 'changing settlements between public and private partners' in which relations between individual and society came to be very variously configured. He supplements this formal political history with discussion of interviews he conducted with individuals whose professional biographies attest to the varied meanings that personalisation has since acquired. As he says,

> The word 'personalisation' was accepted by interview participants on specific terms, according to specific practices, some more or less cognate with others, and in ways that depended on the experiences of those we interviewed and their professional backgrounds. Such was the diversity in opinion that, even within the health and social care sector, it has been difficult to attribute a single meaning or set of practices to 'personalisation'. (ref this issue)

The interviewees moved between government and business and their professional biographies show how data-intensive technologies helped them to provide what they hoped would be more tailored, appropriate, accountable and responsive public-private services. Across all the interviews, however, there is a concern with how relations between the individual and the collective, the person and the people, the singular and the plural can be acknowledged. There is a recognition that the criss-crossing of public and private priorities, techniques of valuation and digital governance have contributed to both 'more state' and 'more market' (Hayden 2023; Davies 2020), through the continuous observation and operationalisation of increasingly diverse forms of association.

This account of the history of personalisation recognizes the importance of the rise of 'big data' for the ways in which progressive individualism became embedded in government, but

Viney argues that an exclusive emphasis on technological transformations in data collection and analysis obscures the political dimension of the history of personalisation in the UK. This point is also made by Dominique Cardon and Jean-Marie John Mathews (ref this issue) who address changes in the categorical representation of society. In their analysis of a shift in the format of selection tests, for example in choosing candidates, and its consequences, they not only acknowledge the role of the methodological innovation associated with big data and artificial intelligence but also emphasize the significance of politics. In particular, they identify the importance of political challenges to established socio-demographic forms of classification. Statistical arguments were used from the end of the 19th century to observe and criticize the social order (Porter 1995), showing how certain categories of individuals were systematically excluded. But descriptive categories have since become so numerous they no longer create adequate or durable descriptors of society, and Cardon and John Mathews suggest that "individuals are expressing, more strongly than before, the desire for self-representation based on their chosen identities rather than being represented by the statistical categories assigned to them" (ref this issue). They argue that, while a transformation in the format of selection tests is made possible by the implementation of machine-learning techniques and a spectacular enlargement of the space for comparisons between candidates, this development has only acquired legitimacy because the new test format is seen as a way to address social and political criticisms of the previous generations of tests.

Drawing on a document-based survey of the various selection devices employed by the French government and companies, they show that the current generation of tests not only expands the comparison space by increasing the number of variables and diversifying them, but also 're-agenc[es] the temporal structure of the calculation around the optimization of a future objective' (ref this issue). This means that it becomes possible to optimise the selection of individuals positioned in categories created in relation to the anticipation of more and more variable future objectives rather than in relation to the assumption of *a priori* characteristics. This entrapment of the future is one of the key ways, Cardon and John-Mathews suggest, that today's political arithmetic is transforming relations between individuals and society.

Many other authors in this Special Issue also identify the significance of specific forms of temporality for the multiplicity of group forms associated with the 'new political arithmetic': the continuous present outlined by Day, Lury and Ward, the promise and threat of the teleological fulfilment of types that Muniesa depicts, and the recursion and open-endedness that Mackenzie and Rosamond as well as ~~that~~ Cardon and John-Mathews identify. The ease with which transmutation is imagined involves many different forms of inclusion and exclusion, the drawing of boundaries in multi-sided, multi-edged ways, and a plurality of attachments, movements, frictions and modes of participation across a great variety of group forms. One conclusion that we might draw then is that it is not individuals that are

singularized today but the conditions in which they are (constantly) made up (Hacking 1986) in the pursuit of an ever-changing optimal. What continues to be important is fungibility, that is, interchangeability of both individuals and things. What has changed is how that interchangeability is secured (and securitized) and the proliferation of purposes to which it is put.

Adrian Mackenzie and Emily Rosamond explore this transformation as it happens in other settings. They describe both specific techniques and the opportunities transformed relations between individuals and society provide for new forms of identification, surveillance, discrimination and the creation of wealth. Mackenzie focuses on some of the numbering methods of the new political arithmetic – the estimation of probabilities and the hash function,[6] two practices of approximation within what he calls the ensemble of (im)personalisation. In a formulation related to that provided by Cardon and John-Mathews, he shows that these methods, as they are deployed by the social media platform Instagram, allow for the optimization of the relation between 'any' (individual) and 'some' (a group, collective or society of some kind). In the operation of these methods on the 'Instagram Explore Page' the user becomes a number, a vector, that can be approximated within some standard by a set of other numbers. These standards need no longer be the variables of socio-demographic categorization. Mackenzie writes, 'These numberings point to the flickering potentials of technical ensembles and their capacity to singularise conditions of existence and group formations … through the approximation of one person by many others' (ref this issue).

Mackenzie argues both that this mode of numbering '*any* thing through *some* other things' is not specific to Instagram, and that the trajectories of personalisation developed by social media overflow the cultural-economic logics of platforms. While 'People (or Things) Like You' are assembled according to proximities, they are also differentiated more or less uniquely by fixed-size hashes, as Mackenzie describes in his account of GitHub. His argument is that (im)personalisation is "simultaneously activated by platforms and overflow[s] them". In other words, the moving ratio of the new political arithmetic that we describe is not confined to closed systems but traverses a proliferating variety of ambient arrangements— 'ensembles in their shifting phases' (see also Guyer's understanding of open platforms, 2016).

An understanding of these different numberings of the relation between 'some' and 'any', Mackenzie argues, may help meet the challenge of tracing "impersonalising trajectories in

[6] Mackenzie explains, 'A hash function – the term is said to date from the 1950s – is a calculation that maps any particular state of affairs, some data or content, a configuration, a transaction, a version or elements in a set to a number, a hash (or hashcode). Unlike probabilities or other measuring, counting and ranking numbers, hashes only have an indirect connection to quantity. In many settings, hashes work indexically. That is, they are numbers that index something else' (ref this issue).

the context of platforms [which] derives from the persistence of the predicates of individualisation in platform discourse" (ref this issue). His approach provides the possibility of suspending some of the logic at work in personalising practices to enable better understanding of "distributed groupings, constitutively open fields of experience and indeed accounts of experience and sociality in which personhood diversifies, sometimes to the point of disintegration" (ref this issue). Such groupings are rather different to those created by Leadbeater's progressive individualism. As Mackenzie concludes, "The ensemble or collection of microstates mapped by a probability distribution could spawn versions of ensembles configured around quite different co-ordinations of elements and experiences" (ref this issue).

Rosamond's focus of analysis is the "YouTube personality", a construct she describes as suspended between character, person, and platform. She largely uses the term to refer to vloggers with their own channels, that is, "those who seek to develop their own audience, by delivering videos on distinctive interests (such as politics, stunts, DIY projects, yoga classes, or makeup tutorials) in a unique and singular fashion" (ref this issue), but also includes the many other ways that personality is performed on YouTube: "for instance, by those who perform personality minimally as preference, by 'liking,' viewing or commenting on others' work; and by brands, who project unique brand 'personalities' via advertisements or product placements" (ref this issue). In an abstract sense, she says, the category 'YouTube personality' refers to a platform-dispersed sense of the singularity of a person, construed as bundles of likes, interests, and styles of self-presentation.

Her argument is that the platform YouTube places the operation and ownership of personality into question. Even by watching, she suggests, viewers "express their identity as a derivative form – their singular selves, performed as a bundling of interests and 'likes'; a collection of watched videos and channel subscriptions, which construe that viewer's identity as the uniqueness of the set of reflected interests" (ref this issue). In this process, she says, the platform creates a zone of indistinction between *interest* and *trait*, creating situations in which personalities come to act as an 'assetization infrastructure', in that they continually compensate for the poor terms offered by the platform's advertising revenue, producing links within ecosystems of opportunities that extend beyond the platform, channelling the overflow that Mackenzie also observes. Rosamond's account thus supports Mackenzie's understanding of the simultaneous existence of multiple, overflowing copies of a system on a platform, but does so from a different entry point. She describes the 'YouTube personality' as "an open-ended, continuous construct that, in its flexibility, adaptability, and ability to 'pull' attention and consent, enables YouTube itself to be flexible, adaptable, and changeable as an attention-grabbing, attention-choreographing business proposition" (ref, this issue).

On the one hand, Rosamond argues, the Youtuber personality transforms the platform's surveillance-marketing logic of cohortification – the continuous placement of users into cohorts of similar users – into a participatory process. Central to this process is what she calls an '"*I'm like you*" addressivity: an address that inaugurates the audience as a collectivized cohort: a dispersed community of viewers, which shares a niche interest, and identifies with (or, at least, appreciates) the personality's style of delivery.' On the other hand, given that cohortification is central to surveillance-based advertising, the Youtuber personality also enables advertisers to purchase attention, 'not as an undifferentiated mass, but in streamlined bundles of similar users, who share interests and concerns'. In that way, they help create an assetization infrastructure that is itself flexible, enabling both the platform and the vlogger to generate rent from personalities that attract attention, albeit asymmetrically and highly unequally. [7] The platform can succeed, whether or not any particular channel succeeds, because it controls a hedged portfolio of personalities. As she puts it, the platform '*securitizes* personality – assembling and controlling access to a hedged portfolio of personalities, as a means to diminish risk'. The process of cohortification ensures there is no way for users to know with whom they might have been grouped; as Rosamond says, 'the 'we' of the cohort is disguised within the 'you' of the user, who receives 'personalized' recommendations'.

Fabian Muniesa provides further reflections on the changing relations between individual and society in an analysis which suggests that the cultures of information technology are "particularly propitious to the construction and propagation of stereotypes" (ref this issue). Certainly the articles in this Special Issue recognise this proliferation, with contributors deploying a variety of terms to describe group forms – cohort, community, set, and genre. Other commentators too have remarked on the multiplicity of the groupings involved in the mapping of publics onto populations (and vice versa) (Cohen 2017; Berlant 2011; Hayden 2023), and the kinds of politics they (dis)enable with terms such as recursive publics, suspect populations, serial crowds and possessive collectivism (Kelty 2005; Roy 2017; Kear 2022). This proliferation of terms speaks to the many different ways in which inclusion, exclusion and belonging happen in the new political arithmetic, and the different opportunities they offer for surveillance and control on the one hand and recognition, solidarity and collective action on the other. As Muniesa says, in such analyses it appears as if,

> The social becomes … entirely about information and behaviour, and about the valuation thereof … . It is there within the medium of information technology where the social acquires indeed its most distinctively behavioural, computational, informational tone: the social considered as a vast space for the emission of

[7] Rosamond directs our attention to the specificity of the medium in which the new political arithmetic operates. Drawing on Rosalind Krauss' proposal that we understand the medium of video to be narcissism (1976), she poses the Youtube personality as medium and performance genre as well as platform infrastructure.

> preferences (e.g. liking, disliking), typically subject to emotion, connection, imitation, aggregation and replication (trending), then conducive to decision (purchasing, forwarding, accessing, voting, swiping, valuing), translating quite fittingly into the validation of the medium's business model. (ref this issue)

What Muniesa offers in addition however is the proposal that we should approach this understanding of the social as a phantasm,[8] and that to do so we might usefully turn to the science of stereotypes.

Muniesa proposes that we understand the proliferation of social categories as obsessional, and he draws on the science of stereotypes developed by Pierre Klossowski and the critical-paranoic method practised by Salvador Dali and taken up by surrealist social science. These methods offer a way to develop unease not only about but also *within* the medium. For Muniesa, as for Klossowski, it is possible that this method – 'stressing or accentuating beyond excess … the stereotype's character of an obsessional replica of the occulted phantasm' — might end up 'fulfilling itself the critique of its occulting interpretation' (Klossowski 1970: 19). In this regard, Muniesa offers an analysis that allows us to see the contemporary preoccupation with 'the (default) social' as akin to the implementation of the abstractions of the "value of people" and "national wealth" proposed by Petty as part of his political arithmetic.

As Poovey remarks, it is only possible "to use the social as a noun phrase that designates an objectified abstraction because of a historical process that has made such abstractions seem as real as material entities". But rather than relying on the view from nowhere, "organized from the viewpoint of a nonparticipating, objectifying observer" (2002: 125), the social of the new political arithmetic, emerges from everywhere, anyway, in multiple feedback loops (see Day, Lury and Ward, this Issue; Day and Lury 2017). And while it continues to rely on the 'one or more classificatory categories (class, race and gender)' (ibid: 126) that Poovey identifies as characteristic of modern theories of the social, it superimposes a multiplicity of others. These new categories are not subject to the same kind of interpretation, and nor do they afford the same possibilities for habitation as class, race and gender. The feedback loops by which the calculations of the new political arithmetic circulate in everyday life are more variously recursive, scaling across multiple fields. Nevertheless, they have the same capacity to produce "conditions in which some understandings count more than others" (ibid: 132).

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[8] In this regard, his analysis is similar to Murphy's (2017) understanding of the phantasmagram of the economy, and the role of the construct 'population' in making it real via the operations of macroeconomics.

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