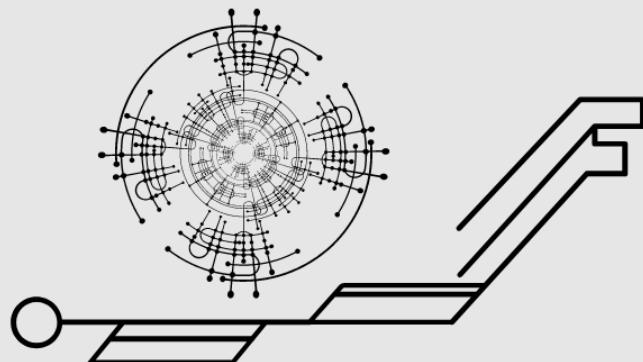


Unskewing the Data Value Chain

Metaphors for Data and the Unshackling
of Digital Power Asymmetries

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Metaphors for Data and the Unshackling of Digital Power Asymmetries

ARINDRAJIT BASU AND AMBER SINHA

1. Introduction

Perhaps there is no clearer indication of the primacy of data in this age than the overworked metaphors that are often used to describe it. In the last few years, data has been likened, aside from the hackneyed comparison to 'oil', to any number of tangible entities such as mineral deposits (Hooper, 2017), dividend deposits (Sumagaysay, 2019), and even the Alaskan Permanent Fund (Hughes, 2018). On the other end of the spectrum, commentators have also likened data to radioactive materials such as uranium, and pollutants such as carbon dioxide (Tisne, 2019). As tired or inventive these metaphors may be, they signify a desperate need for a clear conceptual model through which we can think through the legal, social, and economic ramifications of data. This conceptual clarity is not just a theoretical pursuit but is necessary to identify various rights and interests that multiple stakeholders have in data across various contexts.

In 1978, Susan Sontag published an anthology of essays titled 'Illness as a Metaphor' in which she challenged the punitive or alternately, a romanticized view of diseases such as cancer and tuberculosis (Sontag, 1978). The book demonstrates how clothing illnesses in inappropriate metaphors shamed and silenced patients. Sontag, among others, has played an important role in thwarting the narratives of good and bad patients and victim-blaming. Sontag's essays present an important lesson for how we may look at data.

The use of metaphors to explain data is a continuation of how society and law have sought to understand digital technology by employing analog metaphors, which in limited circumstances the digital technology may mimic. The business of choosing the appropriate metaphor is essentially an exercise in breaking down a concept to its fundamental elements in a given context. The use of metaphors has been instructive in understanding the digital environment from the spatial metaphors in 'cyberspace' to the 'dumb conduit' analogy to explain intermediary liability. However, as we see above, the use of metaphors around data has not only tested the limits of any working cliché, but also led to an absence of conceptual congruity in how we understand data.

We see metaphors as a tool that could re-entrench existing power asymmetries or resist them, depending on how they impact and influence our understanding of data. We embark on this research with two key questions in mind. How does a regulatory

metaphor protect the human rights and dignity of individuals and communities? Second, how does a regulatory metaphor help unshackle existing power asymmetries in the global political economy of data?

For the purposes of this paper, unless specified otherwise, we limit our use of the term 'data' to that which is about people, and at some point in its lifecycle was generated by an individual. This includes the data inferred from the data generated by individuals but excludes public, non-personal data, like data on weather patterns.

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We start this paper with a section explaining why a study of metaphors is so critical to understanding and evaluating regulatory regimes. We then unpack the existing state of the global digital-political economy. From the third section onwards, we start evaluating clusters of metaphors. First, we evaluate metaphors of autonomy, then move onto metaphors of ownership, and finally, end with a section on alternate metaphors of control relevant for private actors and nation-states.

2. Importance of Metaphors in Understanding and Regulating Data

Metaphors can be understood as either describing or understanding one thing in terms of another (Slupksa, 2020). Up until the 1970s, metaphors were seen as a mere instrument of rhetoric – just describing beliefs that existed before the use of the metaphor but not influencing the speaker's thinking on the phenomenon the metaphor is describing (Lakoff & Johnson, 1980). However, later, conceptual metaphor theory (CMT) proponents argued that metaphors for any phenomenon have important cognitive implications, and consequently help shape the domain itself (Lakoff & Johnson 1980).

A history of global regulatory governance shows that the CMT proponents were right – metaphors have been instrumental in shaping several regulatory regimes. Through an in-depth analysis of 63 policy documents on climate change governance between 1992 and 2012, Shaw and Nerlich demonstrate that these documents use metaphors to draw on existing narrative culture to legitimize a reductionist idea of climate change (Shaw & Nerlich, 2015).

Similarly, Garrett Hardin proposed two alternative metaphors for global population growth and resource depletion – earth as a "lifeboat" and earth as a "spaceship", each of which has been evaluated since to come up with different policy implications (Hardin, 1977). In international relations, the 'domino theory' metaphor was used by policymakers to describe the idea that if one country in a region fell to Soviet-style communism, others in the region would follow like a pack of dominoes (Shimko, 1994).

Metaphors are important devices through “which a complex set of elements and relationships can be rendered comprehensible” (Judge, 1987). Together the initiatory and communicative functions shape how policymakers take stock of a concept and act on it. In technology research, there was some initial skepticism to the use of metaphors. Computer scientists and legal scholars argue that the quest for the best or ‘right’ metaphor is a futile one. Johnson and Marks (1993) argued that attempts to “fit” cyberspace into existing legal metaphors during the early years of the internet could “shackle” the new medium – preventing cyberspace from evolving in ways that help both designers and users. This valid critique enables us to lay out the scope and objectives of this paper.

First, we agree that it is both futile and dangerous to come up with the perfect metaphor for technology in general, or ‘data’ in specific. However, unpacking the implications of the conception of data as a ‘resource’ is an important one, that has several important implications. Further, we steer away from evaluating specific items as metaphors and instead, evaluate the larger concept or cluster.

The clusters we choose to evaluate conform to two criteria:

1. Relevance of the metaphor cluster as a frame for regulatory governance of data.
2. Relevance of the policy prescriptions governing the metaphor cluster to the governance of data.

Relevance of the cluster does not speak to the accuracy of the metaphor in describing data but merely indicates that the cluster has relevance in framing regulatory governance.

Blindly applying metaphors could also be dangerous if policymakers move away from mere similarities to assuming that one thing is exactly like something else (Shimko, 1994). In the domino theory example discussed above, the metaphor focused on the notion of strategic interdependence among nations while shifting focus away from differences among nations in the same region. Essentially, the metaphor explained one aspect of the phenomenon while occluding an equally critical one. Therefore, when evaluating the usefulness of a metaphor in describing a scenario and consequently creating frames for policy prescriptions, it is critical to identify the factors that do not fit with the metaphor, and its implications – something we aspire to do.

“It is both futile and dangerous to come up with the perfect metaphor for technology in general, or ‘data’ in specific. However, unpacking the implications of the conception of data as a ‘resource’ is an important one, that has several important implications.”

Our evaluation of metaphors only enables the interrogation of the ‘shackling’ of technological innovation to the extent that such innovation might entrench power asymmetries, and truncate fundamental rights. We explore how each metaphor may be used to either unshackle power asymmetries or compound them.

Rather than resisting the growth of an exploitative data-driven economy, existing metaphors for data have enabled this economy to grow, while restricting regulatory power to constrain it so that power asymmetries continue to be compounded. While Johnson and Marks rightly argued that any legal metaphor would fast be dated, the present narrative around data governance remains dominated by the focus on data as an asset – grounded in metaphors of data as a property or a resource that can be monetized by individuals, groups, corporations, and governments alike. By highlighting the lacunae in these metaphors as a keystone for regulatory governance, we demonstrate the flaws in the overall ecosystem itself, and propose alternate metaphors, or alternate understandings of existing metaphors to plug this gap.

Identifying metaphor clusters

In 2014, Puschmann and Burgess identified two broad categories of metaphors for data in the press: “as a natural force to be controlled”, and as “a resource to be consumed” (Puschmann & Burgess, 2014). For starters, there are liquid metaphors for Big Data as “a fluid, uncontrollable entity possessing great physical power”. Building on this, Awati segregated six clusters of metaphors: liquid metaphors, industrial metaphors, food metaphors, spatial metaphors, and surveillance metaphors (Awati & Shum, 2015). Most of these clusters are not useful comparisons for the purpose of our paper as they do not bring with them an endogenous regulatory regime that we can use to conceptualize a regulatory regime for data. Our analysis of various metaphors reveals two broad paths to resistance to these structures of control one may take. The first path is centered around re-enforcing individual autonomy in decision-making as the path to resistance, while the second hinges on transferring the monetary value in the digital economy from private processors back to users.

For each cluster, we ask the following research questions:

1. What are the key legal, political, and economic contours of the governance regime for the metaphor cluster?
2. What implications do these have for Big Data governance?
3. To what extent can the regulatory regime of the metaphor cluster be used to conceptualize a regulatory regime for Big Data, such that digital asymmetries are shackled, and individual collective rights are upheld?

3. Conceptions of Data

The trouble with narratives around data and ‘Big Data’ stems, first, from the limited nature of their popular definitions. A majority of said definitions and consequent extrapolations limit themselves to a unidimensional understanding of its corporeal facets. As per the Cambridge English Dictionary, data is, “information, especially facts

or numbers, collected to be examined and considered and used to help decision-making, or information in an electronic form that can be stored and used by a computer” (Cambridge Election Dictionary, 2021). Big Data is similarly pigeonholed into a sum of its defining characteristics – the 3Vs of volume, velocity, and variety, and exhaustiveness, granularity, scalability, veracity, value, and variability – to name a few (Sinha, 2018). This myopic understanding occludes the true nature of data and the relational power it wields. Meanwhile, Kitchin (2014) proffers a far more holistic definition: “Material produced by abstracting the world into categories, measures, and other representational forms.” Kitchin’s definition is useful because it speaks to the autonomous nature of data, as an incorporeal phenomenon armed with the unique power to categorize and explain the world. Indeed, data is power – power wielded ultimately by those who “speak for it” (Cheney-Lipold, 2013) – corporations that have the power to frame how individuals understand themselves and their place in the world. The present processes of production around data erode self-formation and autonomy, while also creating unjust social and political relations, which are the backbone of the data value chain (Cheney-Lipold, 2013). Appropriate regulatory metaphors for data need to account for this incorporeal nature of data and the power relations associated with it, rather than being limited by an attempt to circumscribe its corporeal and material facets.

“Rather than resisting the growth of an exploitative data-driven economy, existing metaphors for data have enabled this economy to grow, while restricting regulatory power to constrain it so that power asymmetries continue to be compounded.”

Today, the global digital economy is both structured around, and dependent on entrenched power asymmetries, further augmented by the continued assertion of control by entities wielding power. Couldry and Mejjias’s (2019) characterization of data colonialism as “the external appropriation of data on terms that are partly or wholly beyond the control of the person to whom the data relates”, is a useful assessment of this power asymmetry. The exploitation of data for profit by private processors marks a heinous commodification of human life itself, and usurps the faculties of independent thought and action from individuals. This is datafication – the transformation of our lives into computable data that can be used for the aggrandizement of capital. The rabid monetization of individual data by corporate behemoths is both a consequence of and a catalyst for power asymmetries in the digital economy. The root cause of this pathology, however, is a systematic loss of control. As per Deleuze’s (1992) theorization of “societies of control”, subjects are constrained through their constant contact with power.

The most fundamental asymmetry exists between the user whose data is exploited by private processors, such that the user themselves lose control over it. Another asymmetry exists between companies – larger players exploiting vast swathes of data while new and potential market entrants are left powerless to compete, often surrendering to their control through acquisitions. The final asymmetry exists between states; developed ‘western’ states where a majority of data corporations are based, and consequently much

of the world's data and decision-making power, and the developing world attempting to narrow this gap in power and regain sovereign control. This paper is a study in regaining control for individuals and communities – unpacking the legal, economic, and political contours of the metaphor which allows us to do so in each asymmetric scenario, evaluating whether using that metaphor would enable entrenchment of power structures or resistance to them.

Our analysis of various metaphors reveals two potential paths the resistance to these structures of control may take. The first hinges on transferring the monetary value in the digital economy from private processors back to users, while the second path is centered around re-enforcing individual and collective autonomy around decision-making as the path to resistance.

4. Metaphors of Ownership

4.1 Data as property

A cluster of metaphors looks at data through the lens of ownership in some form, and consequently commodification. Most central to these is the metaphor of property. Legally, property is effectively an interest in an object, whether tangible or intangible, that is enforceable against the rest of the world (Hansmann & Kraakam, 2002).

For something to be appropriately classified as property, it must satisfy the following conditions:

- a. Possession and enjoyment: enjoy your possessions in a way that you choose
- b. Exclusive use: exclude others from their use if you wish
- c. Transferability: dispose of them by gift or sale to someone else who becomes their owner

“The most fundamental asymmetry exists between the user whose data is exploited by private processors, such that the user themselves lose control over it. Another asymmetry exists between companies – larger players exploiting vast swathes of data while new and potential market entrants are left powerless to compete, often surrendering to their control through acquisitions. The final asymmetry exists between states; developed ‘western’ states where a majority of data corporations are based, and consequently much of the world's data and decision-making power, and the developing world attempting to narrow this gap in power and regain sovereign control.”

In terms of their political and economic impact on vulnerable communities, property rights, traditionally, have presented a paradox that should be examined (Lawson-Remer, 2012). While conventional wisdom dating back to Adam Smith suggests that property rights have churned the engines of development, historically, economic development

has involved the expropriation of land and resources owned by marginalized groups (Lawson-Remer, 2012). As eloquently put by Lawson-Remer (2012), “whose property rights are secure” matters fundamentally for the political and economic implications of secure property rights. Property rights are allocated, defined, and implemented across society by legal institutions such that they mirror the distribution of political power in that society (Lawson-Remer, 2012).

Redistributive land reform is certainly important – potentially to improve livelihoods, bolster human capital formation, and create new public goods and services (Lawson-Remer, 2012). However, across the world, vulnerable populations have often been unable to take advantage of redistributive property rights while those in positions of political and economic privilege continue to benefit (Lawson-Remer, 2012). A report by the Rights and Resources Initiative (2016), which examined 289 land conflicts in India found that they affected industrial or development projects amounting to roughly INR 12 trillion in investment and close to 1.2 million hectares of land. Forcible land acquisition happens despite the existence of a robust legal framework through the Land Acquisition Act, 2013, and the Forest Rights Act, 2006 to protect land rights of all citizens, especially those from marginalized communities (Kodiveri, 2013). The Indian state has been accused of playing the role of a “land broker” enabling businesses while suppressing citizen rights (Levien, 2018). Brazil is another country that has strong property rights protections for its citizens. From 1985 to 2012, over 50,000 indigenous and local residents have been displaced due to the construction of dams, leaving the resettled households worse off than they were before, but generating much-needed electricity for the rest of the population (Tata Institute of Social Sciences, 2016). The hijacking of the property rights of the marginalized and the consequent loss of control does not necessarily dent economic growth but certainly has the potential to undermine the social, economic, and political development of a significant segment of the population.

As far as property rights over land are concerned, the solution lies in bolstering enforcement mechanisms through constitutionally guaranteed remedies – a discussion that is beyond the scope of this paper. However, these lessons are of great relevance if we were to think of creating a similar system of property rights for data – a system that would reproduce the power asymmetry in the digital economy today, enabling players in the industry and the government to further entrench their positions of privilege. The identification of communities whose rights should be protected, and the mechanisms that are devised to protect them will end up determining fairness in the data economy.

The concept of ‘data ownership’ seems to have quite a lot of intuitive power as a model for ensuring that individuals and communities are able to reap a fair share of the value created by the data they generate. The economic theory of an endowment effect posits that the owner of an object, (in this case our data), assigns it greater value than the possessor (Kahneman et al., 1990). The value attached to one’s data, however, includes both privacy and financial gains. Unlike other commodities where ownership

is often synonymous with control over the commodity due to its ability to be physically possessed or legal documentation enumerating its rightful owner, data cannot be possessed by just one person. The shared nature of creation of data by the data subject's interaction with an interface created by a data holder, makes the answer to the question 'who is rightfully entitled to control data', nuanced. The exploitative nature of mining data creates an imbalance in the benefits accrued by those whose data is utilized for financial gain and those monetizing on having access to data created by individuals and communities.

The idea that individuals should receive fair compensation for the use of their personal data has received significant support in the last decade from a range of commentators (Scott, 2018). Given that data about individuals has become a commercial asset for data processing organizations, it has been argued that data subjects must be given an instrument that would enable them to negotiate and bargain the use of their data. It is also worth noting that despite academic discourse suggesting that legal frameworks do not favor prophetization of data, business practices, particularly dealing with digitally available personal data, suggest otherwise (Prins, 2016). Data is positioned as a commodity to be traded, reflected in the fact that valuations of early-stage companies are often linked to the scale and nature of the data they control (Pricewaterhouse Cooper, 2017). The existing laws also permit corporations to contractually claim ownership over data, by virtue of their role as data collectors. The same argument has been advanced for communities with data being considered a common property resource. The term "common pool resource", as studied and articulated by Ostrom (1990), refers to a natural or man-made resource system that is sufficiently large to make it costly (but not impossible) to exclude potential beneficiaries from obtaining benefits from its use.

Let us consider the nature of personal (and non-personal data, which once was personal data) as property. As per the above delineated legal understanding, property rights, as universal entitlements are different from rights arising from privity.

This distinction is important. The treatment of data as a commodity and the right of actors to trade in it, so far, seems to draw more from contract rights, where the data collectors, by virtue of unnegotiated broadly drawn terms of use, appropriate rights over the data collected. This, however, does not suggest that the data collectors have an intrinsic right over the data they collect, as it is not drawn from an "interest of beneficial ownership" in the data.

Once data becomes a commodity, however, questions arise regarding the necessity, if any, of the legal limits on data trade. Market failure is also inherent in the commodification of data. This market failure is marked by the systemic incentives towards trading data, which cause negative externalities in the form of privacy harms to individuals.

Information privacy entails that the use, transfer, and processing of personal data must only occur with the informed consent of the individual. Conceptually, one key thing to remember about any kind of property interest in data is that it necessarily means that privacy as a 'value' is owned, and like any other piece of property can be bartered. The clear implication of vesting property rights in data would be that privacy is an alienable right.

There have been several definitions of the right to privacy, but perhaps a useful one for the purposes of our discussion would be based on the idea of privacy as individual control. It is our right to control access to and uses of physical places or locations, as well as personal data about us (Westin, 1967). When this right is exercised to relinquish control, for example, by way of sharing some information, a conceptualization of data as property would be antithetical to data privacy.

Alienation of property implies "transferring the moral authority to engage in the general practice the right protects" (Moore, 2018). Therefore, the implications of data as property and consequently, privacy as an alienable right would be dire. It has also been pointed out by Tisne (2018) that given the current state of the data economy – owning, renting, and selling personal data would lead to extremely exploitative and iniquitous consequences. This extends to paying individuals and communities for their data. In a scenario where corporations could pay individuals and communities for their data, those in lower-income groups would be more willing to trade away their rights than the well-off (Elvy, 2017). As seen with the political economy of traditional property rights, power structures mean that disenfranchised groups will find it difficult to negotiate a fair deal with the powers that be. Opting into this process of commodification would be a gateway towards individuals and communities trading away their rights and legitimizing the inordinate control companies and governments have over the data economy.

Further, when trading one's data, how is the value or the cost to the individual to be determined? A cost to the user and a definite benefit to the private platform is through the aggregation of data. Data is far more valuable when aggregated. It is thus impossible to accurately compute the precise value of an individual's or group's data. To the contrary, it is possible that data provided by an individual can be aggregated and used to conduct predatory practices and discriminate against the group the individual belongs to (Viljoen, 2020). This leads to the related complication of whether individuals can sell their data if the sale leads to harm for a class of people protected by discrimination law.

Opponents of the dictum that privacy is an inherent inalienable right point to cultural relativism of privacy, and that its nature, facets, and scope vary with cultural contexts. Schwartz (1968) and separately Roberts and Gregor (1971) effectively respond to and resolve this question. They acknowledge that privacy, by its very nature, allows for deviations in order to sustain social establishments and group values. While the exact manner in which privacy as a right may manifest itself may be culturally influenced, the

very need for privacy is not. As we will discuss later, the right to control access to and uses of physical places or locations, as well as data about us is essential to human dignity (Moore, 2003). A metaphor that enables the alienation of the right, concentrates power and value into the hands of those that already wield it.

4.2 Data as labor

Another metaphor that could lead to the consequence of monetization is labor. In 'Radical Markets', Weyl and Posner (2018) propose that data should be treated as labor rather than capital owned by data processors, as in status quo. They argue that this status quo was built on the back of path dependence and entrenched interests. Owing to network effects, technology firms started to enjoy monopsony status as buyers of data – an unhealthy market situation where a limited number of buyers possess most of the market power. To alter the status quo, they believe that if data was to be treated as labor, users would get paid for data currently being hoovered up for free by tech giants. It would allow for the channeling of payoffs in order to encourage individuals to increase both the quality and quantity of data. Given that they would be seen as 'productive' members of society, citizens would want to provide better 'quality' data to get better compensation from data processors. As individuals bargaining for fair compensation might not be enough to break the entrenched structures of power, 'data workers' will need some organizational agenda to "vet (data workers), ensure they provide quality data and help them navigate the complexities of digital systems without overburdening their time" (Posner, 2018). Weyl and Posner (2018) see this growing into a global "data labor movement" engaging in collective action through data labor unions and going on 'strike' by not using Facebook or Google if these companies refuse to negotiate. It would allow for the channeling of payoffs in order to encourage individuals to increase both the quality and quantity of data. Given that they would be seen as 'productive' members of society, citizens would want to provide better 'quality' data to get better compensation.

Apart from the problems of coordination and hierarchization bound to arise from a global labor union, understanding data as labor also casts open deeply woven inequalities in society. An individual who consumes luxury products and has more expensive travel preferences is bound to generate data more valuable for data processors than an individual whose only expenditures are food and clothes. Data as labor, therefore, incentivizes an unwinnable rat race for those already existing in deprived socio-economic realities. Further, as with traditional capitalist structures regulating labor, socially embedded work including care work and emotional labor will get obscured and undervalued (Federici, 2012).

This model of data as labor also brings human life dangerously close to "total work" – a term initially coined by German philosopher Josef Pieper. In 'Leisure: The Basis of Culture' (1948), this is described as a scenario by which human beings are transformed into workers looking to generate optimal productivity and nothing else. Taggart (2017)

builds on this to argue that this shifts human existence to one where “humans fully believe that they were born only to work; and when other ways of life, existing before total work won out, disappear completely from cultural memory”. This, Taggart (2017) argues, necessarily causes “*dukkha*” – a Buddhist term for a life filled with suffering. This sense of guilt stems from data workers not feeling as productive as possible and not deriving monetary value from their time as much as they could. Therefore, rather than enjoying leisure, total workers are constantly agitated, attempting to scrounge up the next possible source of productivity. This in turn means that human beings lose interest in aspects of life that cannot be seen as inherently creating value – art, literature, and natural beauty.

Treating data as labor means that every aspect of a data worker’s life – friends, hobbies, food preferences, romantic relationships, travel, etc., is potentially a data point that could generate value. This value is competitive as data workers search for ways of making their data most valuable to the ultimate buyer. This means that the experiences of life itself are commodified and laid on a platter for companies to choose which individuals’ daily existence reaps the most profit for them, and accordingly assign varying values to human beings. The idea of data as labor also undermines human dignity as it furthers the notion that some lives are inherently more valuable than others, and all human beings should live their lives in a manner that is most valuable for the captains of industry and their machines. This is antithetical to autonomy and to the core feature of human dignity.

5. Metaphors of Autonomy

5.1 Why decisional autonomy?

Autonomous decision-making is a prerequisite for respecting individuals as persons – agents free to make their own choices (Benn, 1971). Autonomous choice is a product of individual and collective self-determination and draws favor from several diverse disciplines. The assumption is that individuals are likely to know better than any external agent what is best for themselves, and therefore will likely take the best decision from their point of view. Individuals could be subject to several biases and may not possess the necessary information to make an optimal decision. This is by no means a justification for negating the value of autonomy but instead a reason for altering the architecture of control in the digital world that unduly influences informed and independent autonomous choice.

We also argue that this framing is best positioned to protect human rights and liberty. The justification of a human rights framework needs to meet a very high burden – it must be able to satisfy different characteristics considered integral to human rights, including both their universality and their high priority (Nickel, 2019). Most theories about how we understand human rights and notions of core inalienable rights in the last few centuries take a top-down approach. This approach always begins with the

identification of an overarching principle or authoritative procedure such as the principle of utility (John Stuart Mill) or the categorical imperative (Immanuel Kant) to which rights owe their existence. This approach usually traces the existence of human rights to human agreement, such as a law or a constitution. Jack Donnelly appeals to an “international normative consensus” (Hannam, 2009) and Charles Beitz refers to them as “emergent political practice” (Beitz, 2009). This approach has been criticized for its insistence that the concept of human rights applies only where there is a state system (Tasioulas, 2013).

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On the other hand, the bottom-up approach starts with the idea of human rights as used in our actual social life by politicians, lawyers, social campaigners, as well as theorists of various sorts, following which it evaluates the higher principles one must resort to in order to explain their moral weight. Tasioulas (2013) stands by the concept of human rights in which rights exist by virtue of our humanity. Griffin (2008) defines normative agency as our capacity to choose and to pursue our conception of a worthwhile life. It is important to recognize that by agency, Griffin does not mean merely the ability to perform actions but also active autonomy when performing them.

As protectors of human agency, Griffin’s framework speaks of human rights in three different stages. The first stage comprises our ability to consider our lives as a whole, reflect upon what makes our life worthwhile and make decisions about the sort of life we want to lead. In order for us to exercise this capacity, we require autonomy. The second stage comprises various elements that make possible the pursuit of this conception of the good life: the skills, resources, and support we need to enable us to exercise our autonomy, along with welfare provisions above a minimal level. The third stage comprises the freedom to employ our welfare provision in the exercise of autonomy, unhindered by interference from others, namely, liberty.

This brings us to the most important rationale for decisional autonomy: human dignity. The normative idea of dignity is premised on the inherent value of human life, requiring that all human beings be treated with respect at all times, regardless of status. The nexus between dignity and autonomy is clear in abortion jurisprudence. For example, in the *Planned Parenthood v. Casey* case, Justice O’Connor stated: “Choices central to personal dignity and autonomy are central to the liberty protected by the Constitution. At the heart of liberty is the right to define one’s own concept of existence, of meaning, of the universe and the mystery of human life” (*Planned Parenthood*, 1992). The court’s articulation of dignity as symbiotic with autonomy played a key role in framing the idea of personhood through the ability to make free and autonomous choices, thereby reinforcing in that case, a pregnant woman’s claim to self-determination (Halliday, 2016). Decisional autonomy respects the capacity of each individual to do such that their freedom to choose is respected. The role of the state and society is to ensure that these

choices are made in an atmosphere free from influence, information asymmetry, and coercion due to existing power structures.

5.2 Decisional privacy and decisional autonomy

In that regard, to free autonomous choice from undue influence, decisional privacy becomes an important aspect of decisional autonomy. Scholars have identified dimensions of informational privacy, including privacy of body, thought, and decision-making (Lanzig, 2019). Decisional privacy has broadly been defined as the right against unwanted access or interference in an individual's decisions and actions (Allen, 1988). Decisional privacy includes both narrow choices such as same-sex marriage, reproductive liberties, and child rearing (Lanzig, 2019), as well as a broader conception that encompasses not only these intimate choices but also actions, behavior, and lifestyle choices (Roessler, 2005). In essence, decisional privacy grants the autonomy to carry out an individual's chosen life across social contexts and the constitutional ideal of autonomous decision-making. Roessler (2005) argues that while privacy cannot be reduced to another value like autonomy, individuals value privacy because of the autonomy that it provides.

Indeed, there is a difference between autonomy and decisional privacy. The loss of decisional privacy does not necessarily entail an immediate consequential loss of autonomy. However, in several cases, this may be true. For example, if an individual is subjected to state surveillance, then decisional privacy is automatically violated, although that may not influence the autonomous decisions that the individual makes. The extent to which a loss of decisional privacy impacts autonomy is determined by several other social, political, and economic factors. In that instance, if the individual were a social activist or journalist working against draconian laws implemented by the same government conducting the surveillance, the chilling effect resulting from a loss of decisional privacy would likely impact the autonomy of the decisions made by the said individual. As another example, Chandrashekhar argues, a digital trail of a woman's health records creates "a digital trail of choices exercised about one's body under (the) state vision (and thus) hampers women's autonomy to make decisions related to their bodies and life" (Chandrashekhar, 2018).

Decisional privacy in essence speaks to the moment at which an individual chooses to do or not do something. Decision-making about one's body, lifestyle choices, or intimate relationships is all connected to decisional privacy. Courts across jurisdictions have accepted the protection of privacy as decisional autonomy. In the now overturned *Roe v. Wade* case (1973), the US Supreme Court held that the "right of privacy, whether it be founded in the Fourteenth Amendment's concept of personal liberty and restrictions upon state action...or is broad enough to encompass a woman's decision whether or not to terminate her pregnancy". The same court held that the right to privacy also includes the right to engage in consensual sexual activity in one's home, regardless of sexual

orientation (*Lawrence v. Texas*, 2003). In a different continent and century, the Indian Supreme Court also emphatically recognized decisional autonomy in its 2017 judgment *KS Puttaswamy v. Union of India*. The concept of decisional autonomy spilled across the concurrent opinions of three judges on the bench (Bhatia, 2017). Justice Chelameswar spoke of privacy as “repose, sanctuary, and intimate decision” (para 36), while Justice Bobde and Justice Nariman (para 81) referred to the significance of choice in associated freedoms.

5.3 Data as decisional autonomy

We posit that an individual’s interest in their data legally protected by the right to decisional privacy can only be captured through the conception of data as an exercise of decisional autonomy. Any data generated and parted with by a user is fundamentally an exercise of that individual’s decisional autonomy and should be treated as such by the state, private processors, and other individuals.

Data, whether in the form of personally identifiable information, or arising as a consequence of individual participation in any process or activity, has come to play an integral role in arriving at decisions, either about or on behalf of individuals and communities. Therefore, whether it is decisions made on one’s behalf, say by a recommendations engine, or made about an individual, say by a credit-scoring algorithm, these decisions are manifestations of data undertaken often through a complex data ecosystem, involving an opaque algorithmic system and unintelligible roles played by both humans and machines. While decisions have always been made based on some data or information, accurate or not, the contemporary data ecosystem turns this decision-making process into an impenetrable black box. Zuboff argues that the datafication and extraction which characterize information capitalism stifle human dignity and agency by colonizing and commodifying one’s innermost selves (Zuboff, 2019).

Complex algorithms enabling this extraction and the production of data, such as those used by Google’s search engine are multi-component systems, which lead to opacity even for programmers working on them (Sandvig et al., 2014). Jenna Burrell demonstrates the futility of exercises such as code audits as the number of auditors’ hours that may be needed to be engaged in order to untangle the logic of the algorithms in a complicated software system, would be huge (Burrell, 2013). According to her, the challenge is not merely that of comprehending the code, but that of being able to understand how the algorithm operates on data, in action. She argues that while it may be possible to implement machine learning algorithms in such a way that it is comprehensible, such algorithms may not be of much use. For the models to have “accuracy of classification”, they must be accompanied by a degree of inherent complexity. Ziewitz (2012) writes about Google’s search algorithm that even if you had “Larry (Page) and Sergey (Brin) at this table, they would not be able to give you a recipe

for how a specific search results page comes about.” The route that algorithms can take to arrive at a particular conclusion can be extremely circuitous.

As mentioned above, machine learning algorithms build upon themselves and the internal decision logic of the algorithm evolves as it ‘learns’ on input data. Handling a huge number, especially of heterogeneous properties of data, adds complexity to the code. Machine learning techniques quickly face computational resource limits as they scale and may manage this, using techniques written into the code (such as ‘principal component analysis’), which add to its opacity. While datasets may be extremely large but possible to comprehend and code and may be written with clarity, the interplay between the two in the mechanism of the algorithm is what yields the complexity and thus opacity.

Griffin suggests that information is a prerequisite for an individual to make real choices and be autonomous. In order for this to work in the current data ecosystem, we need to challenge the material conceptions of data, and instead view data itself as an intended extension of an individual’s decisional autonomy. Only by doing so, will we be able to reframe discussions around data from the perspective of the reversing power asymmetries.

Most modern laws and data privacy principles seek to focus on individual control. In this context, the definition by the late Alan Westin (1967), that characterizes privacy as “the claim of individuals, groups, or institutions to determine for themselves when, how, and to what extent information about them is communicated to others”, is most apt. The idea of privacy as control is what finds articulation in data protection policies across jurisdictions beginning from the Fair Information Practice Principles (FIPP) from the US. Fred Cate (2006) effectively summarizes the legal manifestation of the idea of privacy as control over personal information:

“The shared nature of creation of data by the data subject’s interaction with an interface created by a data holder, makes the answer to the question ‘who is rightfully entitled to control data’, nuanced. The exploitative nature of mining data creates an imbalance in the benefits accrued by those whose data is utilized for financial gain and those monetizing on having access to data created by individuals and communities.”

This is intended to empower the individual and allows them to weigh their own interests in exercising their consent. The allure of this paradigm stems from the one elegant stroke by which it seeks to “ensure that consent is informed and free and thereby also to implement an acceptable tradeoff between privacy and competing concerns” (Sloan & Warner, 2014). For the purposes of our discussion, informed consent is critical in both articulating and operationalizing the beneficial interests of individuals in their data. A functioning model of informed consent involving both legal and technological tools allows individuals and groups to determine the ways in which their data will be used by both state and private parties. Dignitarian solutions such as these safeguard data by fostering protections similar to the baseline of civil and political protection afforded to

the subject themselves (Viljoen, 2020).

5.4 Community data and decisional autonomy

The metaphor of decisional autonomy transcends dignitarian critiques and approaches, which are limited by their applications to individuals and the safeguarding of civil and political rights. Autonomy applies to communities as well. Curtailment of individual or collective autonomy can only legitimately occur if the exercise of this autonomy significantly impacts third-party rights (Barboza, 2011). We may look towards the right to economic self-determination for guidance on how autonomy is a vital tool for collective self-determination. In line with the UN General Assembly declarations from the 1960s, two strands of economic self-determination rights hold particular relevance for the current debate. The first relates to autonomy, and the second relates to the use of resources in the interest of the people (G. A. Resolution, 1803). We will demonstrate how metaphors of autonomy by themselves are also a better avenue for ensuring collective self-determination for communities than metaphors of ownership.

While attention has been paid to community interests in data, this has largely been defined by the language of resource extraction as opposed to autonomy or rights. 'Community data' is an Indian policy innovation that has emerged over the past two years from the ostensible desire to ensure that the data of Indian citizens and communities are used for their benefit and not monetized solely by private players (Sinha & Basu, 2020). This conception of data frames an important question: "If individuals are supposed to (control) their data, why should data about groups/communities not, similarly, be (controlled) by the corresponding group/community?" (Singh, 2019).

We posit that community data as a conception that can preserve the beneficial interests of a community only holds true if it relies on decisional autonomy as its guiding metaphor. Literature on a group (for the purposes of this paper, we are using the terms 'community' and 'group' interchangeably with appropriate deference to the phrase used in existing literature) right to privacy argues that it arises from the failings of traditional personal data protection frameworks in protecting group interests (Floridi, 2018). Big Data and algorithms enable analysis that focuses on attributes of personal data including membership of individuals in certain groups. Even in cases where individuals have provided informed consent on the processing of their personal data, this may be used to draw inferences about the group the individual is a part of, and by extension has implications for the individual themselves without the individuals knowing. Community interest in autonomy, therefore, arises from power asymmetries in the data economy, where the private companies acting as data processors exercise beneficial interests – control, monetization, and alienation over individual data – insights from which can be used to subsequently target and discriminate against groups. In India, the Ministry of Electronics and Information Technology (2020) released a non-personal

data framework that marks the first such global attempt at defining, constructing, and charting the contours of community data, although several gaps in its framing remain. The report defines a community as “any group of people that are bound by common interests and purposes and involved in social and/or economic interactions. It could be a geographic community, a community by life, livelihood, economic interactions or other social interests and objectives and/or an entirely virtual community” (MeitY, 2020). This definition casts an ambiguous net on the notion of a community and also fails to underscore the relationship between an individual and a community, and the asymmetries involved therein. We have argued elsewhere that while individual and community rights are usually mutually reinforcing, in a situation where the autonomy of an individual belonging to a community comes into conflict with that of a collective, the individual interest must prevail (Sinha & Basu, 2020). This is because legal and political philosophy on fundamental rights views individuals as the ultimate bearer of rights (Blunden, 2007). Collective structures such as states or communities are formed by individuals coming together to more effectively conceptualize and enforce these rights.

Where, then, does collective autonomy through a community focused metaphor describing data come in? The first question is to identify a community. The key challenge in conceptualizing community data, therefore, lies in identifying a community itself. The traditional understanding of a community stems from a degree of shared perception either by members of the group or by outsiders or by both (Taylor, 2018). In some cases, the members of a community are ‘self-aware’ and thus identify as one, thereby also claiming beneficial interests as a collective. Communities might also not be ‘self-aware’ when external perceptions result in the perception of a group (Taylor, 2018). For example, society or the government might brand a set of activists as a group of ‘dissidents’ or ‘rioters’, and the individuals grouped might not associate either with the tag or with others in the group. The advent of Big Data and its ability to derive insights has brought out a third scenario, where neither the members of the group nor those external to it are aware of the group’s existence. The community is only created through algorithmic processing of data that provides insights on trends in individual behavior that may result in them being classified as groups. For example, algorithmic processing might reveal similarities in the tastes and preferences of individuals within a certain income bracket who reside in a certain area. The existence of this group is not known either to the members themselves or any other individual who is not part of the group. The community comes into existence only due to data processing. From a legal and policy standpoint, all three types of communities should be considered if the metaphor of decisional autonomy is applied appropriately to how community data is governed.

Rather than limiting the scope of community data as a metaphor for resource exploitation by the community in question, the core framework should be driven by a right to self-determination that stems from collective autonomy. Self-determination is a core principle of international law. Shaw (2017) has defined it as “a people’s pursuit

of its political, economic, social, and cultural development within the framework of an existing state” (United Nations General Assembly, 1962). While it was initially limited to situations where “people” overthrow one form of government and opt for another, which is now termed “external self-determination” (Shaw, 2003). However, now, some have posited a notion of internal self-determination that provides groups continuous political and social rights and allows minority groups to enjoy state protections, as well as enjoy a degree of autonomy as a group. This understanding is enmeshed in Article 1 of the ICCPR. While internal self-determination has been contested in international law, we believe that a right to self-determination for groups is the appropriate beneficial interest that a community should have in its data. The manifestation of this interest will differ depending on whether the group is self-aware and consequently, collectively organized around groups or claims, externally determined or algorithmically created. For self-aware groups this includes the following:

1. A right to group privacy which involves informed consent by the community as a whole. This includes processing with informed consent and legitimate interest.
2. Collective self-determination would include a beneficial interest in insights derived from community data that is additional to the general interest individuals and communities would have in data that is shared into the commons. These beneficial interests need to be determined by the community itself and could include the right to use and access insights from the data, an obligation to consult communities regularly when using their data, acknowledgment of the use of the group’s data in the framing of public policy, the right to benefit from insights derived by private players from data about a community, and the right to collective governance. This beneficial interest is more appropriately conceptualized through the lens of autonomy, rather than ownership and monetization. Let us take an instance where data processed about a geographically linked community by a private player throws up insights regarding lack of internet and telephone usage, hinting at unreliable or absent connectivity in that area, compared to other similarly situated areas. The community is unaware of the relatively poor nature of the connectivity they enjoyed and adapted to their existing realities by rationing internet use or relying on alternate forms of communication. By adopting the ownership metaphor, the only obligation we can cast on the private player processing the data is to compensate the community with a fee – an approach fraught with danger as we discussed above. However, if we reframe the question in terms of beneficial interests directly connected with the collective autonomy of the community, the obligation on the private player would be to share these insights with the community so that they may take corrective steps or approach public authorities and compel them to do so. Focusing on the autonomy of

the community, therefore empowers them to use insights from data to take decisions about their existence and livelihoods.

3. Further, self-aware groups also have an interest in ensuring that any data collected from the community or individuals within the community should not be used to illegally disadvantage that community. For instance, insights generated about extremist racial or religious supremacy focused on communities from data generated by individuals belonging to the said community might be used by the government to track, monitor, and intervene to disadvantage the group. However, this disadvantage is not illegal. On the other hand, if data created by individuals belonging to a vulnerable community is being used against them, this constitutes an illegal disadvantage and illegitimate informational harm. This could happen in a scenario where data collected about people of color residing in a certain residential area is used to illegally conduct police surveillance on these communities. Additionally, most jurisdictions have anti-discrimination laws against protected categories so using data to discriminate against them would amount to an illegal disadvantage (Khaitan, 2015).

In the case of groups that are algorithmically created or externally perceived, it is difficult to envisage a way in which the community itself can bargain for collective benefits or rights. Communities that were not self-aware to start with, might start to identify as one upon realizing the connections that exist among them. For example, victims of a data breach or online cybercrime may choose to jointly enforce their rights as legal claimants. Protecting and empowering these communities through the lens of decisional autonomy should continue to be an obligation.

6. Conclusion: Shaping New Paradigms of Societies and Markets

The internet was originally invented to enable the redistribution of computing power from one end to another. The idea of the internet as an inherently redistributive medium is only a half success. While computing power and server space on the cloud can be accessed from remote locations, a small number of corporations control them. Similarly, data processing has worked to optimize supply chains, but it has concentrated profits in the hands of a handful of companies (Viljoen, 2021).

This paper focused on two key clusters of metaphors that would propel regulatory regimes for data governance: autonomy and ownership. We argued for the former, clarifying that this metaphor is a far more appropriate one for conceptualizing regulatory frameworks that can shape resistance against asymmetries in the political economy of data. As we said earlier, we do not believe that any of the metaphors meet an exacting standard that applies to data in all its avatars and conceptions. Rather, we have argued that such an ambitious idea of a regulatory metaphor is neither realistic nor desirable. We looked at the metaphors below to glean what about them is most relevant and useful

in reconceptualizing a redistributive understanding of the data economy.

The objective of a regulatory framework should be to promote individual and collective autonomy. However, there are other institutions (smaller private actors and developing nation-states) that are on the wrong end of power asymmetries in the global digital political economy. In those instances, the metaphors we use need not be directly connected to individual autonomy but should be focused on reducing the degree of control that a limited number of private actors and states hold over the global ecosystem. With this in mind, in future research we endeavor to pursue two further metaphors and consequent approaches that include both data emanating from the person as discussed in this paper, and public non-personal data. Jennifer Shkabatur (2019) has come up with the most well-articulated theoretical framing of data. Through the conceptualization of a “global data commons”, she attempts to frame data in a manner that a wide range of stakeholders can access and therefore derive benefits from user-generated data, benefits that are now limited to the tech behemoths who collect, aggregate, and process it. Again, the focus here should be that of autonomy and control that various actors can exercise.

“Treating data as labor means that every aspect of a data worker’s life – friends, hobbies, food preferences, romantic relationships, travel, etc., is potentially a data point that could generate value. This value is competitive as data workers search for ways of making their data most valuable to the ultimate buyer. This means that the experiences of life itself are commodified and laid on a platter for companies to choose which individuals’ daily existence reaps the most profit for them, and accordingly assign varying values to human beings.”

The second is that of data sovereignty. This principle, firmly enshrined in paper, global political economy often prevented the assertion of control by the developing world. Orthodox regimes such as that on foreign investment and the governance of the high seas undermined the exercise of the state’s sovereign rights, favoring capital-exporting states and corporations (Fidler, 2003). The principle of permanent sovereignty over natural resources marks one of the most hallowed developments in international law in the latter half of the 20th century and is now firmly embedded within the notion of state sovereignty itself (United Nations International Law Commission, 2018). The principle was articulated by the recently decolonized developing countries in the 1950s to re-assert control over natural resources in their territories (Clark, 1976). PSNR was understood as being critical to enabling countries in the Global South to realize their development potential.

The lesson to be learned from PSNR and the metaphor for data as sovereignty is not that data is a resource akin to the deep seabed, which states should exploit. Instead, the true lesson is rooted in resistance –that governance of the global political economy should not be hegemonized by a limited number of states, and the developing world should fight to regain control and enable economic fairness. In essence, sovereignty over data indicates

that a state has the right to govern data generated by its citizens or within its jurisdictions as per its domestic law and policy, in line with the principles of international law.

For the master's tools will never dismantle the master's house. Those holding the reins of power in the modern digital economy want data to be both understood and regulated as a resource, one that can be exploited for economic gain. Metaphors of ownership that seek to use monetization as a means of enabling users to benefit from their data are opting into the existing structures of control, legitimizing the actions of those who run the global political economy today. Metaphors of ownership, envisaging data as labor or property, imagine a world where individuals and communities bargain with the private sector to derive optimal value for data --an aggregation of their lived experiences and decisions negotiated away for the best price. This framing compels individuals to bargain away their rights and dignity in an infinite quest to see how their work and leisure can be exploited by data processors to derive maximum value.

Bearing this in mind, we explored another cluster of metaphors, one centered around decisional autonomy. We need to remember that datafication, at least the way it works currently, is predicated on two phenomena. The first is surveillance, which relies on reducing our personal lives into a stream of data points extracted for profit motives. The second is the inherently feudal nature of data economy's arrangements where our data labor is used for free by data companies. By treating data as decisional autonomy, we bring individual (and group) choices to the fore. The exercise of choice means the assertion of informed and unambiguous consent. Therefore, the material conceptions of data need to be replaced by one centered on decisional autonomy, which appreciates the holistic traits of power, lived experiences and human dignity captured within datasets. Data is much more than the value it brings to corporations or the public information it provides to states – it is human life with its inherent frailties and triumphs. The reduction of humanity's digital existence to terms that can be commodified and manipulated by entities that govern society is the problem. To re-enforce autonomy is to take back control.

Rather than identify one perfect metaphor, we emphasize the experience of how the law has interacted with digital technologies over the past 20 years. Jurisprudence on cyberlaw is built largely around finding the appropriate metaphor. More often than not, the law and jurists seek assistance from regulations that already exist governing activities which can be most likened to the digital activity in question. These parallels are not exact but rather as a regulatory exercise, we need to reduce these technologies to identify the "essential qualities" as well as what features of social life the technology makes newly salient (Calo, 2014). It is from these essential and salient characteristics that we need to look for regulatory parallels to both find similarities and dissimilarities with regulated objects to the past. Similarly, with Big Data, we need to first recognize the need for redistribution of power across different spheres of asymmetry recognized in this paper, and then consider the instrumental value of different metaphors in addressing them.

As we repeatedly emphasize in our paper, the metaphor of decisional autonomy is the most pervasive in addressing the power asymmetries, and could be used to guide to the application of other metaphors we well.

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