DATAFICATION, IDENTITY, AND THE REORGANIZATION OF THE CATEGORY *INDIVIDUAL*

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A combination of political, sociocultural, and technological shifts suggests a change in the way we understand human rights. Undercurrents fueling this process are digitization and datafication. Through this process of change, categories that might have been cornerstones of our past and present might very well become outdated. A key category that is under pressure is that of the individual. Since datafication is typically accompanied by technologies and processes aimed at segmenting and grouping, such groupings become increasingly relevant at the expense of the notion of the individual. This concept might become but another collection of varied characteristics, a unit of analysis that is considered at times too broad—and at other times too narrow—to be considered relevant or useful by the systems driving our key economic, social, and political processes.

This Essay provides a literature review and a set of key definitions linking the processes of digitization, datafication, and the concept of the individual to existing conceptions of individual rights. It then presents a framework to dissect and showcase the ways in which current technological developments are putting pressure on our existing conceptions of the individual and individual rights.

Keywords: *digitization, datafication, individual rights, human rights, identity, individual, personhood*

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INTRODUCTION

As the deployment of information-processing technologies continues gaining space and depth in our lives, tensions unfold. These technologies embody and reproduce a distinct set of values, which can shuffle, reorder, and upend the system of categories upon which the disciplines, cultures, and communities that adopt such technologies had previously settled upon. This Essay explores how such tensions are unfolding around the Western, and dominant, conceptualization of *identity*. There are many forces shaping this process. I will focus on the technological ones.

To clarify the broader contours of the debate, I first provide a definition of identity. I then explain how technological development is reshaping the related but distinct concept of legal personhood by focusing on algorithmic subjectivity. I briefly describe some of the broader forces operating on our understanding of identity and legal subjectivity, including geopolitics and culture. Lastly, I introduce the notions of worldview, paradigm shift, and dialectical processes to explain how I propose to dissect the crisis of identity and the individual subject.

Throughout this Essay, I discuss the concept of identity in a narrow sense—that is, the characteristics by which a person or thing is recognized or perceives itself to be a distinct entity. Manuel Castells, a prominent sociologist, takes a further epistemological step: he underlines that identities are people's "source of meaning and experience," a cultural attribute, like religion or gender, that operates as a lens through which they observe themselves and the world.[1] Castells also underlines that identities are different from *roles*—which might shape people's behaviors and organize their functions—but unless internalized as the lens through which to build meaning, remain as a somewhat external force.[2]

The concept of legal personhood is closely intertwined with *identity* and yet distinct from it. *Personhood* is typically associated with the holding of a set of characteristics that the state considers necessary to acquire responsibilities.[3] Within Castells's framework, personhood would be conceived of as a role that the state assigns to individual persons, but which is not necessarily their identity.[4] Such a role, as defined by a set of rights and obligations, is designed to ensure coordination within groups and across society. Totalitarianism, for example, can thus be defined as the scenario in which the state expects that the roles it assigns to its people acquire such prominence that each individual will internalize such a role as their identity, or the main lens through which they view the world.

The concepts of personhood, role, and identity intertwine, and tensions arise between them because of the state's definition of the characteristics required for personhood. In particular, the state's choice of required characteristics impacts the ability

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1. MANUEL CASTELLS, THE POWER OF IDENTITY 6–7 (2d ed. 2010).

2. *Id.*

3. TOMASZ PIETRZYKOWSKI, PERSONHOOD BEYOND HUMANISM: ANIMALS, CHIMERAS, AUTONOMOUS AGENTS AND THE LAW 7 (Krystyna Warchal trans., Springer Int'l Publ'g 2018).

4. CASTELLS, *supra* note 1.

of individuals to achieve their goals, since those goals are shaped by such definitions. Namely, certain definitions of personhood might limit the ability of whole segments of the population to navigate social life—for example, restrictions on women's ability to control property in the United States in the nineteenth century.

The deployment of technologies can alter the way in which key categories are understood. In *The Death of the Legal Subject*, Katrina Geddes documents the cracks that are becoming visible on the contours of legal subjecthood as the judicial branch incorporates algorithmic decisionmaking tools into the process of adjudicating responsibility.[5] In particular, Geddes places the lens on the relationship between the courts and the people, and claims that whereas "algorithmic subjectivity derives its epistemic authority from population-level insights," "legal subjectivity . . . derive[s] legitimacy from its close approximation of the underlying individual, through careful evaluation of their mental and physical autonomy . . . ."[6] This technologically enabled shift in perspective is what Geddes observes as transformative.

For the legal system, which has been based on the idea of responsibility, the unit of analysis and the delimitation of the individual have traditionally been tied to a definition of minimum autonomous grouping of characteristics. Following the collapse of feudalism and the introduction of steam machines, modern Western thought reorganized society around what most of us would refer to as the individual today.[7] This is in contrast, for example, to what is often referred to as China's "familistic individualism," where the minimum unit is the family, and each member of the family considers himself as an indivisible part of the whole who seek to forward the interests of the whole family.[8] In the Western legal system, institutions, law, and coercion are developed under the assumption that the individual is autonomous and that the legal system will provide guidance to and receive guidance from such individuals. Judges assess the subject's ability to act autonomously before deciding a sentence in a criminal court, and the democratic system seeks to secure autonomous decisionmaking in the voting booth by making such a vote secret.

This autonomy, central to the Western conceptualization of legal personhood, however, was never considered to be absolute. Beyond environmental restrictions and the laws of physics, there is an understanding that an individual's autonomy can be affected by decisions of other individuals or groups. In fact, the law and public institutions themselves are often conceived of as being designed to coordinate the activities of each community member with the goal of securing greater autonomy for each individual as well as the community as a whole.[9] In the twentieth century, the ideological debate regarding how to achieve such a goal was crystallized by Isaiah Berlin's reframing of systems in terms of their ability to promote *positive* or *negative* freedoms.[10] The positive liberties of the Soviet Union (freedom *to* pursue certain goals

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5.   Katrina Geddes, *The Death of the Legal Subject*, 25 VAND. J. ENT. & TECH. L. 1, 1 (2023).

6.   *Id.*

7.   *Id.* at 7–8.

8.   Lucy Jen Huang, *The Family and the Communes in People's Republic of China: Retrospect and Prospect*, 7 J. COMPAR. FAM. STUD. 97, 97, 102–03 (1976), https://doi.org/10.3138/jcfs.7.1.97 [https://perma.cc/VTB5-KQFQ].

9.   JOSEPH RAZ, THE MORALITY OF FREEDOM 35–69 (1986).

10.   ISAIAH BERLIN, FOUR ESSAYS ON LIBERTY 118–27 (1969).

with state support), which is perhaps best formalized in the International Covenant on Economic, Social and Cultural Rights (ICESCR), were contrasted with the negative liberties of normative systems such as the U.S. Constitution (freedom *from* state restrictions), which found its international echo in the International Covenant on Civil and Political Rights (ICCPR).[11]

Since the 1960s, when these documents were drafted, negotiated, and ratified, much has changed in the realm of geopolitics, culture, and technology. For example, in the realm of geopolitics, many of the nations of Africa and Asia have gained their independence. In even more recent years, the balance of power between nations has shifted—German Chancellor Olaf Scholz, for example, has publicly subscribed to the idea of a multipolar world.[12] With this political acknowledgement comes an implicit acknowledgement of the values of Confucianism and Vedic philosophy, among others, as deserving equal consideration in the process of interpreting, organizing, and ordering the resources and peoples of the planet. These cultures and values are thus (at least formally) allowed to become intertwined with Western values. On the borders of what is acceptable to central powers, decolonial thinkers such as Peruvian scholar Anibal Quijano criticize colonialism as the destruction of alternative organizing systems that preceded the dominance of Western rationality.[13] First, Quijano criticizes the way in which Western constructions isolate the *subject* as a category that corresponds to an isolated individual, and second, the way that Western rationality creates an abstract notion of *object* that is independent from the relations that exist around it, obfuscating how these relations are grounded in time and space.[14] In short, Quijano questions where Western thought has placed the boundaries of some of the key categories.[15]

Since the 1950s, there have also been several consequential cultural movements in Western countries. Amongst the more impactful is second-wave feminism, which, with surgical precision, questioned the core categories of gender. In 1949, Simone De Beauvoir stated, "The perpetuation of the species does not necessitate sexual differentiation . . . . [While] both a mind without a body and an immortal man are strictly inconceivable, . . . we can imagine a parthenogenetic or hermaphroditic society."[16] Two decades later, in the sci-fi novel *The Left Hand of Darkness*, Ursula Le Guin would present us with a credibly functional society of ambisexuals.[17] The inhabitants of her fictional planet would experience hormonal shifts every twenty-six to twenty-eight days, a process which would culminate by placing them into categories we would understand as male or female, depending on who they were surrounded by.[18] If placed in isolation

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11.   Aurelian Craiutu, *In Search of the Decent Society: Isaiah Berlin and Raymond Aron on Liberty*, 32 CRITICAL REV. 407, 413 (2021), https://doi.org/10.1080/08913811.2020.1891761 [https://perma.cc/G5BV-7P66].

12.   Olaf Scholz, Opinion, *We Don't Want to Decouple from China, but Can't Be Overreliant*, POLITICO (Nov. 3, 2022, 4:39 AM), https://www.politico.eu/article/olaf-scholz-we-dont-want-to-decouple-from-china-but-cant-be-overreliant/ [https://perma.cc/X9FK-YW4H].

13.   Aníbal Quijano, *Coloniality and Modernity/Rationality*, 21 CULT. STUD. 168, 169–70 (2007).

14.   *Id.* at 172.

15.   *Id.* at 172–74.

16.   SIMONE DE BEAUVOIR, THE SECOND SEX 37 (H.M. Parshley ed. & trans., 1953).

17.   URSULA K. LE GUIN, THE LEFT HAND OF DARKNESS 89–97 (1976).

18.   *Id.* at 90.

these peoples are said to remain androgynous.[19] In this way, Le Guin and De Beauvoir criticized and shaped one of the key organizational pillars of our society: the binary conceptualization of gender.

In its questioning of stable categorizations, this feminist tradition also produced some of the most powerful indictments of broader categorizations. Haraway's *Cyborg Manifesto*, for example, took matters further, calling for a complete deconstruction of the human, relying on the concept of the cyborg to break down the boundaries between the human and the animal, as well as the organic and machine, the physical and nonphysical.[20] Within the legal tradition, among the sharpest calls for us to move in that direction is that of Christopher Stone. In *Should Trees Have Standing?*, Stone traces the way that the notion of personhood has expanded over time, showing how arbitrary and immoral our prior exclusions (based on race, gender, religion) seem today.[21] In an effective provocation, Stone calls on us to reflect on the likelihood that our current exclusions will seem equally immoral in the future, and thus demands that we seriously reflect on whether personhood should be expanded to include trees, animals, and so on.[22]

Although Stone's 1970 provocation might seem far-fetched, over the past decade, we have seen evidence of a continuing expansion of personhood. This includes how nonhuman animals, such as orangutans in Argentina[23] and dolphins in India,[24] were recognized legally as nonhuman persons. One technological development that might trigger a seismic shift in the process of expanding personhood is the study of animal communication. This is taking shape on two fronts: on the one, through large scale citizen science enabled by the internet and people's close relationships with their pets.[25] On the other, through expert research that involves attaching sensors to animals like dolphins, to track patterns in sound and activity over a long period of time in the hopes that it might enable a further untangling of their communication systems.[26] If and when the language barrier between humans and other animals is overcome, it will surely deepen the ongoing crisis of identity among human animals.

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19. *Id.*

20. Donna Jeanne Haraway, A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century (2016).

21. Christopher D. Stone, *Should Trees Have Standing—Toward Legal Rights for Natural Objects*, 45 S. Calif. L. Rev. 450, 450–57 (1972).

22. *Id.* at 455–56.

23. Tom Bawden, *Orangutan Inside Argentina Zoo Granted 'Non-Human Person Rights' in Lankmark Ruling*, Indep. (Dec. 22, 2014, 2:45 PM), https://www.independent.co.uk/news/world/americas/sandra-the-orangutan-inside-argentina-zoo-granted-human-rights-in-landmark-ruling-9940202.html [https://perma.cc/M3PM-APCC].

24. Madhulika Gautama, *Dolphins Get Their Due*, Hindu (June 16, 2014, 8:30 PM), https://www.thehindu.com/features/kids/dolphins-get-their-due/article6119256.ece [https://perma.cc/FV5V-VQGZ].

25. *Studies for Pets: Dog Cognition Project (TheyCanTalk)*, Compar. Cognition Lab, Univ. of Cal. San Diego, https://quote.ucsd.edu/cclab/studies-for-pets/ [https://perma.cc/9NA6-M5NY] (last visited Apr. 1, 2023).

26. Philip Ball, *The Challenges of Animal Translation*, New Yorker (Apr. 27, 2021), https://www.newyorker.com/science/elements/the-challenges-of-animal-translation [https://perma.cc/A6N7-6FNK].

We are also observing some governments take things further. Indian courts, for example, have expanded the conceptualization of personhood to include ecosystems such as rivers[27]. In these past years, we have also seen the enshrinement of Pachamama (Mother Earth) into the Bolivian[28] and Ecuadorian constitutions. That is, the expansion of personhood is not only encompassing other individuated entities like nonhuman animals, but it has been broadened to encompass what Western thought would observe as a set of complex relationships grouped under umbrella terms such as *ecosystem* or *Mother Earth*.

In synthesis, the concepts of personhood, individuality, and identity are neither static nor fully separable, but rather they are subjected to external pressures and in turn put pressure on each other, shaping our understanding of their meaning. Having established that the sources of our current identity crisis are broad and part of a historical process, I will focus on the effects of technological change. In particular, I will focus on the effects of digitization and datafication.

I. DIGITIZATION, DATAFICATION, AND THE IDENTITY CRISIS

Over the past decade, we have seen a massive deployment of sensors and computing power. The creation and processing of digital data is at the center of today's economy and life. According to Castells, these shifts suggest we are now entering a phase of informational capitalism.[29] In 2022, six of the ten people listed in Forbes magazine as having the world's largest fortunes were linked to the information technology sector, while the remaining four became market leaders by deploying information technologies within critical areas of their nontech businesses.[30]

Two key shifts are fueling this process towards informational capitalism: digitization and datafication. I define digitization as the transformation of content into a format that can be rendered by a machine, while I define datafication as the translation of a phenomenon into a structured format so that it can be tabulated, analyzed, or acted upon by machine.[31] Datafication requires some degree of digitization, but digitization does not imply or require datafication. Further, digitization is more focused on the storage and transport of information, whereas datafication is focused more on processing and acting upon insights extracted from information.

At the heart of datafication deployment is a drive to segment and group peoples and objects in order to achieve a certain goal. Thus, there is an assumption that the collection of a large number of datapoints regarding these peoples and objects will enable greater effectiveness, since it may allow the system to uncover and act upon categories that may

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27. Michael Safi, *Ganges and Yamuna Rivers Granted Same Legal Rights as Human Beings*, GUARDIAN (Mar. 21, 2017, 7:44 AM), https://www.theguardian.com/world/2017/mar/21/ganges-and-yamuna-rivers-granted-same-legal-rights-as-human-beings [https://perma.cc/N2M5-6VLZ].

28. John Vidal, *Bolivia Enshrines Natural World's Rights with Equal Status for Mother Earth*, GUARDIAN (Apr. 10, 2011, 1:17 PM), https://www.theguardian.com/environment/2011/apr/10/bolivia-enshrines-natural-worlds-rights [https://perma.cc/83FE-DVLK].

29. CASTELLS, *supra* note 1, at 368–69.

30. Richard Mille, *World's Billionaires List: The Richest in 2022*, FORBES, https://www.forbes.com/billionaires/ [https://perma.cc/8SUH-AF6J] (last visited Apr. 1, 2023).

31. *See* Ulises A. Mejias & Nick Couldry, *Datafication*, 8 INTERNET POL'Y REV., no. 2, Nov. 29, 2019, at 1–2, https://doi.org/10.14763/2019.4.1428 [https://perma.cc/LVN5-RFUE].

otherwise be invisible. As such, this system creates tensions with well-established categorizations, such as our traditional notion of the individual self, which the system might often consider too broad or too narrow to be useful.[32]

The categories developed by such systems of datafication are in turn both narrower and broader than the ones developed through human language and culture. The categories created by datafication systems might be considered broader, for example, because they are built on many more datapoints than any human could ever process. The categories created by datafication systems might also be considered narrower, because these datafied systems rely on data that was typically collected or created over the past decades, which contrasts with than the slow process of knowledge developed by accumulation and distilled into culture over centuries of human experience. Thus, as the power these datafied systems exercise over people's lives increases and people begin to preempt and react to the categorizations deployed by these systems, the crisis of identity becomes a palpable crisis of categories.

II. Crisis As Contradiction

Given the scale and pace at which these shifts are taking place, it is worth examining how humanity has dealt with such changes in the past. In this sense, the reflections of Polanyi and Kuhn, who studied the historical processes underlying shifts in scientific consensus, are good starting points.

In 1958, Michael Polanyi published *Personal Knowledge*, in which he describes how scientific consensus is built and challenges the notion that hypothesis testing is as central to this process as it is commonly understood to be.[33] He sheds light on "the hollowness of the assertion that science is simply based on experiments which anybody can repeat at will."[34] He also underlines the role of theory and convention as he states that "[t]he term 'simplicity' functions then merely as a disguise for another meaning than its own. It is used for smuggling an essential quality into our appreciation of a scientific theory, which a mistaken conception of objectivity forbids us openly to acknowledge."[35]

Several years later, Kuhn provided a systematic analysis of these changes in scientific consensus and developed the concept of paradigm shifts.[36] Through the concept of paradigm shift, Kuhn argued against the common conception that scientific progress was linear and achieved through the aggregation of new knowledge.[37] Rather, he argued that progress took place in phases: at first the community relies on the existing matrix to solve daily problems, then the scientific community starts to observe shortcomings in the paradigm through specific discrepancies between what the theory would have predicted and what the experimental results show.[38] This phase is followed by minor adjustments

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32. This section/essay builds upon an idea first expressed in Juan Ortiz Freuler, JustLabs, Datafication and the Future of Human Rights (2021), https://www.openglobalrights.org/userfiles/file/Datafication_Report_ JustLabs_2022.pdf [https://perma.cc/VRW7-TAB3].

33. Michael Polanyi, Personal Knowledge: Towards a Post-Critical Philosophy (1962).

34. *Id.* at 14.

35. *Id.* at 17.

36. Thomas S. Kuhn, The Structure of Scientific Revolutions (3d ed. 1996).

37. *Id.* at 15–17.

38. *Id.* at 43–47.

to the consensus, followed by a new cycle of challenges and corrections, until the repeatedly amended system becomes so visibly inconsistent with experimental data that the core underpinnings of the theory itself are opened to criticism. Kuhn argues in line with Polanyi, that a qualitative leap takes place through a debate that is more philosophical than empirical. This qualitative leap is what Kuhn calls a *paradigm* shift—a shift that implies a change in the lens through which the external world of phenomena is to be observed and assessed.[39]

In the case of science, this process is driven by a community that gathers around a pursuit of truth. Culture, which shapes identity, operates above and beyond such pursuit of truth. Thus, we should not expect changes in culture to operate according to the frameworks put forward by Polanyi and Kuhn. A more general model is more appropriate for this analysis. The dialectics model, developed by Friedrich Hegel in the early 1800s, addresses such crises.[40] Hegel relied on the dialectical approach as a tool to interpret changes in both the natural and social world.[41] In *Philosophy of Nature*, he argued that

> [a]ll cultural change reduces itself to a difference of categories. All revolutions, whether in the sciences or world history, occur merely because spirit [*Geist* - also translated as Mind] has changed its categories in order to understand and examine what belongs to it, in order to possess and grasp itself in a truer, deeper, more intimate and unified manner.[42]

That is, Hegel argues that the human mind observes contradictions that eventually trigger a shift in the ways in which it organizes categories, allowing it to better accommodate to the complexity of the world.

Some decades later, Karl Marx and Friedrich Engels would espouse the dialectical model and turn it upside down through a materialist shift. According to the Marxist canon, the change in categories was not triggered in the minds of people, but rather by material changes in the modes of production.[43] These changes in the modes of production can be understood as fueled by technological change. For example, in the *Communist Manifesto*, Marx and Engels would analyze the emergence of the modern factory and state: "Differences of age and sex have no longer any distinctive social validity for the working class. All are instruments of labour, more or less expensive to use, according to their age and sex."[44] In this sense, Marx and Engels argued that industrial capitalism transformed sex and age from nominal categories into ordinal ones. Sex and age became more granularly legible to the capitalist system.

Engels would define the dialectical procedure used to identify and analyze these changes by opposing it to the metaphysical approaches that were popular at the time:

> To the metaphysician, things and their mental reflexes, ideas, are isolated, are to be considered one after the other and apart from each other, are objects of investigation fixed, rigid, given once for all. He thinks in absolutely

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39. *Id.* at 56, 62–65.

40. G.W.F. HEGEL, 1 PHILOSOPHY OF NATURE (M.J. Petry, trans., Humanities Press, 1970).

41. *Id.*

42. *Id.* at 202.

43. *See* Fredrick Engels, *Socialism: Utopian and Scientific, in* THE TWO NARRATIVES OF POLITICAL ECONOMY 447, 454–55 (Nicholas Capaldi & Gordon Lloyd eds., 2011).

44. KARL MARX & FRIEDRICH ENGELS, MANIFESTO OF THE COMMUNIST PARTY 13 (Frederick Engels, ed., 5th ed. 1883).

irreconcilable antitheses. . . . Dialectics, on the other hand, comprehends things and their representations, ideas, in their essential connection, concatenation, motion, origin, and ending.[45]

The dialectical approach sees the tension between opposites as integral to each of the parts and as enabling movement towards a synthesis where such tensions are resolved. Building upon such a framework, throughout this Essay, I examine how communication technologies are shaping our culture and the conceptualization of the individual and identity.

Having provided key definitions and a conceptual framework through which to understand and assess a crisis, I turn to describe the crisis of identity by observing how technology is triggering a shift in categories in three specific areas: how others see us, how we see the world, and how we use language.

III. LOCATING THE CRISIS IN IDENTITY: EARLY SIGNS

A. A Shift in How Others See Us: Context Collapse and Context Fragmentation

Given that we are social animals, the way in which others see and react to our actions shapes who we are and how we see the world. Erving Goffman[46] and Joshua Meyrowitz[47] are often credited with having formalized the way roles and contexts interact in social encounters.

Goffman focused on the ways in which individuals perform different roles for different audiences. He stated, "[t]o be a given kind of person, then, is not merely to possess the required attributes, but also to sustain the standards of conduct and appearance that one's social grouping attaches thereto."[48] As such, context plays an important role in modulating behavior and information.

Meyrowitz would note that "[w]hen a patient goes to speak to a psychiatrist, . . . [o]nly one of the two participants, for example, is 'allowed' to cry."[49] He also underscores that "[w]hen we find ourselves in a given setting we often unconsciously ask, 'Who can see me, who can hear me?' 'Who can I see, who can I hear?' The answers to these questions help us decide how to behave."[50]

Synthesizing the analysis, he would argue: "(1) behavior patterns divide into as many single definitions as there are distinct settings, and (2) when two or more settings merge, their distinct definitions merge into one new definition."[51] With the advent of new media, Meyrowitz noted that "'[c]redibility' involves consistency among all visible behaviors. Yet since all people display inconsistent behaviors in different spheres, and since television merges previously distinct situations, the generation that grew up with television kept catching its elders in what seemed to be acts of deception and

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45.   Engels, *supra* note 43.

46.   ERVING GOFFMAN, THE PRESENTATION OF SELF IN EVERYDAY LIFE (Anchor Books, 1973).

47.   JOSHUA MEYROWITZ, NO SENSE OF PLACE: THE IMPACT OF ELECTRONIC MEDIA ON SOCIAL BEHAVIOR (1985).

48.   GOFFMAN, *supra* note 46, at 75.

49.   MEYROWITZ, *supra* note 47, at 24.

50*.   Id.* at 39 (footnote omitted).

51*.   Id.* at 46 (emphasis omitted).

immorality."[52] The power of actors managing the media is therefore also rooted in their ability to reshape context, and through the reshaping of context, to manage and modulate behavior.

Focusing on social media, particularly on how Twitter users navigate the fact that varied and multiple audiences follow their activity, Marwick and boyd argue that users experience a *context collapse*, which they define as the "collapse of multiple audiences into [a] single context[]."[53] Furthermore, they underline that in this new medium the audience can *speak back* to the content creators, which creates a sharper mechanism for shaping their behavior.[54] In such a medium,

> [m]anaging the networked audience requires monitoring and responding to feedback, watching what others are doing on the network, and interpreting followers' interests. The network is therefore a collaborator in the identity and content presented by the speaker, and the imagined audience becomes visible when it influences the information Twitter users choose to broadcast.[55]

As such, social media timelines that are personalized by curation algorithms become particularly difficult to navigate for users while providing a more refined tool through which platforms can exercise their power.

The reaction to such a malleable context and the individual's inability to comply with the multiple expected roles might add pressure on the individual's self-perceived identity. Goffman states that "[w]hen a disruption occurs, then, we may find that the self-conceptions around which his personality has been built may become discredited. These are consequences that disruptions may have from the point of view of individual personality."[56]

Although Marwick and boyd focused primarily on the collapse of multiple contexts into one,[57] Meyrowitz also raises the possibility of what is closer to the fragmentation of a single context into multiple distinct contexts.[58] He argues that "[t]he number of possible stages of socialization into groups depends on the number of possible isolated information-systems. One way to predict the impact of a new medium on socialization roles is to examine its potential for dividing people of different ages and backgrounds into different informational worlds."[59] In Meyrowitz' view, the key characteristics of TV, the technology, and the context in which he was studying media (1980s), however, homogenized the audience:

> Today's minority consciousness is something of a paradox. Many people take renewed pride in their special identity, yet the heightened consciousness of the special group is the result of being able to view one's group from the outside; that is, it is the result of no longer being fully in the group.[60]

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52. *Id.* at 138 (emphasis omitted).

53. Alice E. Marwick & danah boyd, *I Tweet Honestly, I Tweet Passionately: Twitter Users, Context Collapse, and the Imagined Audience*, 13 NEW MEDIA & SOC'Y 114, 114 (2011).

54. *See id.* at 126.

55. *Id.* at 130.

56. GOFFMAN, *supra* note 46, at 214.

57. *See Marwick & boyd*, *supra* note 53, at 122.

58. *See* MEYROWITZ, *supra* note 47, at 59.

59. *Id.*

60. *Id.* at 132 (emphasis omitted).

This technologically enabled new vantage point, and the consciousness that came with it are what is reshaping the categories that make up identity. This new vantage point is very much present throughout the current social media environment, where audience segmentation is often discussed in the context of microtargeted advertising and the risk of filter bubbles. In this case, as I shall discuss in greater detail in Part III.C, technology is *reconfiguring* the audience, not necessarily broadening it.

Digitization of social interactions and the ability of the average person in most countries to interact with the masses therefore shapes the way in which others perceive the individual. What is often referred to as context collapse undermines the individual's ability to perform distinct roles for distinct audiences in a way that impacts the preestablished equilibrium of forces that define the individual's identity.

The way in which others see us and their expectations shape the ways in which we act and see the world. In Part III.B, I explore how new technologies are shaping the ways in which the individual sees the world.

B. A Shift in How We Perceive the World

People across the world are increasingly spending more time online. In 2022, data aggregated by the International Telecommunication Union (ITU) suggests that over 65% of the world population is using the internet,[61] and data published by Statista indicates that internet users are spending an average of 192 minutes on a screen daily, a number that has been growing somewhat steadily over time.[62] Given that there is a strong correlation between income and access to the internet,[63] it is likely that the groups with greatest access and use of the internet are also those with the strongest ability to shape culture. This means that those groups whose conceptions of individuality and identity are being transformed by internet-based technologies can further amplify and cement their own worldview (and shifts in their worldview) by replicating it onto other channels, such as television, cinema, or radio. As such, the impacts of this transformation can be expected to reverberate beyond those populations that interact with and through internet-based information technologies.

This digital space, where a growing number of people spend a growing number of hours, is increasingly shaped by algorithmically curated content. A complex interplay between social systems and technologies is taking place. What changes, in the words of Alberto Romele, is the *worldview,* "the ensemble of those certainties that are never directly interrogated or doubted, and represent the background of all our practical and epistemic attitudes towards the world. A world picture is culturally and socially transmitted."[64]

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61. *Internet Statistics*, INT'L TELECOMM. UNION, https://www.itu.int:443/en/ITU-D/Statistics/Pages/stat/default.aspx [https://perma.cc/G8H9-GW2T] (last visited Apr. 1, 2023).

62. *Daily Time Spent with the Internet per Capita Worldwide from 2011 to 2021, by Device (in Minutes)*, STATISTA, https://www.statista.com/statistics/319732/daily-time-spent-online-device/ [https://perma.cc/G8H9-GW2T] (last visited Apr. 1, 2023) (combining desktop and mobile use for average internet time).

63. *See* Jeremy Ney, *Internet Access and Inequality*, MALCOLM WIENER CTR. FOR SOC. POL'Y (Jan. 24, 2022), https://www.socialpolicylab.org/post/internet-access-and-inequality [https://perma.cc/JU6H-73D6].

64. Alberto Romele, *The Datafication of the Worldview*, AI & SOC'Y, June 9, 2020, at 1, 3, https://doi.org/10.1007/s00146-020-00989-x [https://perma.cc/JU6H-73D6].

If, in 1937, Picasso's *Dora Maar* (see Fig. 1) shocked the Western art scene by calling into question the perspective from which we were observing the world and introducing a second point of view, perhaps our current media ecosystems introduce a web containing a myriad of simultaneous perspectives—not two pairs of eyes gazing at a single point from different positions, as in Picasso's painting, but hundreds or even thousands of eyes at times. Perhaps the equivalent to Picasso's *Dora Maar* painting today is the concept of the "everything bagel," where the multiverse overlaps and collapses in the movie *Everything Everywhere All at Once*.[65] This concept surely resonates with the younger generations that are scrolling on social media apps where content depicting love, death, intimacy, and vanity are all mixed and overlapped according to a recipe that is not disclosed to the user.

This multi-perspective ethos is the driving concept behind the (now defunct) mobile app Rhinobird TV, which was founded in 2012. This app described itself as an interactive layer for a video player.[66] It rearticulated physical space by using algorithms to collect, classify and synchronize user-created videos of events in a way that would allow the viewer to seamlessly navigate dozens or hundreds of points of user-generated views of a single event in real time.[67]

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65. *See* George Lawley, *Everything Everywhere All at Once: Bagels & Googly Eyes Meaning Explained*, SCREENRANT (June 22, 2022), https://screenrant.com/everything-everywhere-all-once-bagels-googly-eyes-meaning/ [https://perma.cc/F94B-L9PL].

66. Rhinobird on Youtube, *Rhinobird Tech for Music Festivals*, YOUTUBE (Feb. 21, 2018), https://www.youtube.com/watch?v=q6dnHkDYMT0 [https://perma.cc/S6AY-HDJL] (last visited Apr. 1, 2023).

67. *Id.* at 0:37.

Fig. 1. Picasso, *Portrait of Dora Maar*, 1937[68]

In this sense, the metaphor deployed to materialize the situation of constantly being observed from a multiplicity of angles, the panopticon, must also be turned on itself.[69] Perhaps this ability to observe the world from such a variety of vantage points is what being placed at the center of the panopticon looks like. That is, the panopticon also operates in reverse.

In *Platform Seeing*, Adrian Mackenzie and Anna Munster suggest that we take a step further.[70] They claim that

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68. Pablo Picasso, *Portrait of Dora Maar* 1937, oil on canvas, 92 x 65 cm, Musée Picasso Paris, https://www.museepicassoparis.fr/en/node/215 [https://perma.cc/VFS4-VXEL].

69. JEREMY BENTHAM, SELECTED WRITINGS 283–90 (Stephen G. Engelmann, ed., 2011) (describing the "panopticon," a penitentiary where all inmates could be viewed from a single, central location).

70. *See* Adrian MacKenzie & Anna Munster, *Platform Seeing: Image Ensembles and Their Invisualities*, 36 THEORY, CULTURE & SOC'Y 3 (2019).

these contemporary image ensembles are not simply quantitatively beyond our imagining but qualitatively not of the order of representation. Their operativity cannot be seen by an observing 'subject' but rather is enacted via observation events distributed throughout and across devices, hardware, human agents and artificial networked architectures such as deep learning networks.[71]

In other words, Mackenzie and Munster argue that we are increasingly seeing the world through *a myriad of kaleidoscope lenses* rather than through *the human eye*. This displacement of the vantage point and its fragmentation across systems is a qualitative shift that is likely already shattering many of our core categories, and it is also a displacement of the subject that sees. As such, it creates another front for the crisis of the category *individual* around which the concept of identity itself has been operationalized.

In the realm of the law, this displacement of the subject is what fuels the replacement of the intimate analysis of the inner subjectivity of the accused with population level statistical predictions.[72] As noted by Geddes, "When the basic unit of a liberal society is no longer an autonomous, unknowable individual, but an algorithmic subject, anticipating its own datafication, society is significantly altered. Individual behaviors become traceable and predictable components of surveillant disciplinary outcomes, and actuarial predictions foreclose opportunities for meaningful autonomy."[73]

If the individual as an autonomous unit of analysis is being displaced, and with it the unit within which liberal societies expect identities to take shape and categories to shift over time, then it is imperative that we observe what is taking place with language. After all, language is the key medium through which individuals can be expected to coordinate their actions into a collective will. Understanding how information and communication technologies reshape language can give us a hint regarding the direction in which this process might be headed and the possible outcomes.

C. A Shift in How We Speak: On the Technological Management of Language

To distill the process through which a language might undergo change, I will stand upon the shoulders of Ferdinand de Saussure. In particular, I will build upon his sketch regarding the evolution of language.[74] For Saussure, language is a system of symbols that evolves within a community of speakers over time:

If we considered language in time, without the community of speakers—imagine an isolated individual living for several centuries—we probably would notice no change; time would not influence language. Conversely, if we considered the community of speakers without considering time, we would not see the effect of the social forces that influence language.[75]
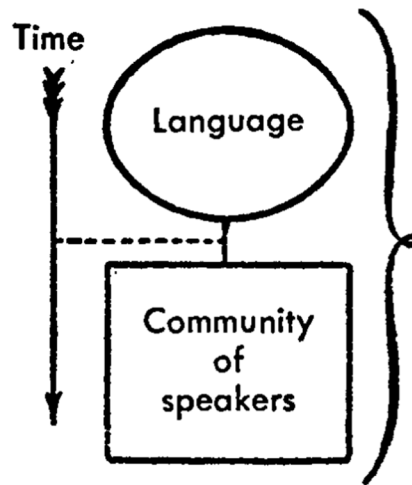
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71. *Id.* at 5.

72. Geddes, *supra* note 5, at 15.

73. *Id.* at 47 (footnotes omitted).

74. *See infra* Part III.C.

75. FERDINAND DE SAUSSURE, COURSE IN GENERAL LINGUISTICS 78 (Wade Baskins trans., Perry Meisel & Haun Saussy eds., 2011).

Fig. 2. Sketch of the association between time, language and the community of speakers included in the *Course on General Linguistics*[76]

Saussure, and several generations of structuralists that followed him, proposed that the ways in which we think, speak, and engage with the world are associated with, and to some extent defined by, the constraints of the system of signals we have available to represent and abstract the world.

Structuralism is a useful lens through which to observe the effects of this new wave of technological shifts in that the ethos of datafication that underlies and powers it is based on similar ideas according to which an underlying truth can be revealed through the aggregation and processing of relevant data. Both structuralists and the engineers tasked with building the machines that enable the datafication of our world understand that reality is something that becomes approachable and understandable only after we dissect what is apparent according to a process that is presented as scientific.

In Part III.C, I explore how new technological developments impact the three elements present within Saussure's schema: time, language, and community of speakers.[77] I will explain how technological developments create tensions within each of these elements, thus adding a dialectic or dynamic element to an otherwise more rigid structuralist framework.

1. On the Technological Management of Time

A key element of digital environments is that their architects have some control over something that was, for the most part of our history, beyond human control: time. Human time is associated with physical and astronomical cycles, such as day and night, winter and summer. Cycles that are beyond human control. These cycles provided a natural focal point for coordination among humans, operating as a key organizing principle for work and other social activities.

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76. *Id.*

77. *Id.* at 74–78.

Within these boundaries provided by physics, humans created a mathematical construct of time, which allowed them to more precisely manage agricultural cycles and coordinate between groups separated by distance.[78] As such, all civilizations developed some mechanism for measuring and keeping records of the passage of time, with varying degrees of precision. Keeping time was a task often associated with the highest echelons of power.[79] Those managing time eventually also discovered that it put them in a position that could shape not only agricultural cycles but political cycles. Dan Falk notes that in early Roman times the priests in charge of the calendar would sometimes manipulate the length of the year in order to keep consuls and senators they favored in their positions of power for a longer period.[80] Together with changes taking place in the world over time, Saussure acknowledges that language itself changes. Saussure would state that once we acknowledge time, "Language is no longer free, for time will allow the social forces at work on it to carry out their effects."[81] The pace at which events take place, thus, is a key element determining the rate at which a language might evolve. And, as acknowledged by Judy Wajcman, "Technologies play a central role in the constitution of time regimes, as our very experience of human action and the material world is mediated by technology."[82]

In digital environments, what our brain might have taken to be cues of the passage of time, such as movement, sound, or changes in lighting, are all subject to the control of the designers of such digital environments.

In social media, we first saw the introduction of a "timeline" through which users were expected to scroll—such as Facebook News Feed, introduced in 2006. The speed of the scroll was in the hands of the user. Ten years later, designers introduced auto scrolling features into the major social media platforms, where the default became constant movement at a default pace defined by the platform.[83]

The bending of time has become a feature of all major content platforms—Whatsapp enabling the acceleration of audio messages and YouTube enabling the acceleration of videos are two major examples.[84] Netflix explored the

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78. Dan Falk, In Search of Time: The History, Physics, and Philosophy of Time 38–61, 98, 100, 108 (2010).

79. *Id*. at 42–46, 54; *see also* David H. Kelley & E. F. Milone, Exploring Ancient Skies: An Encyclopedic Survey of Archaeoastronomy 99–101 (2005).

80. Falk, *supra* note 78, at 43.

81. Saussure, *supra* note 75, at 78.

82. Judy Wajcman, Pressed for Time: The Acceleration of Life in Digital Capitalism 3 (2014).

83. It is interesting that the nonprofit messaging app Signal also allows users to decelerate the speed of audio messages, a feature that its corporate equivalent Whatsapp has not incorporated. Manuel Vonau, *Signal Is Catching Up to WhatsApp in the Voice Messaging Department*, Android Police (July 8, 2021), https://www.androidpolice.com/2021/07/08/signal-is-catching-up-to-whatsapp-in-the-voice-messaging-depart ment/ [https://perma.cc/TES2-P7CR].

84. It is important to note that whereas YouTube allows both acceleration and deceleration of the speed of the content, Whatsapp only allows acceleration. *See id.*; *Speed Up or Slow Down YouTube Videos*, Google, https://support.google.com/youtube/answer/7509567 [https://perma.cc/QJ6V-NWKF] (last visited Apr. 1, 2023).

possibility of adding such a feature and was heavily criticized by major movie directors,[85] which led to a decision not to incorporate it. With this acceleration, users are exposed to more content, which typically also means more ads, making acceleration directly in the interest of the platforms, whose business model is predominantly ad driven. Furthermore, being exposed to more content also means users get to react to content more often, thus expressing or giving away more personal preferences in the same amount of time, and generally contributing to fine-tuning of both ad-targeting machines, as well as the interface of platforms that are not ad-driven.

However, it is not only the amateur content producers and consumers of social media who are being accelerated. People are spending more time in an environment that has quickened its pace, and one could argue that as a result, the whole economy has quickened its pace. This even includes professionals. For example, the CEO of Spotify asserted that artists can no longer release music once every three to four years but rather need to be in continuous dialogue with fans.[86] It is not just artists whose product is digital and consumed through an online platform that are subject to the pace of these new conveyor belts. An Amazon warehouse worker claimed, in an interview with PBS: "We are not treated as human beings, we're not even treated as robots. We are treated as part of the data stream."[87]

In this sense, the control social media, streaming, and marketplace platforms exercise over the pace at which things change is perhaps equivalent to the control factory owners had over the pace at which industrial machines operated. As discussed by Marx, the incorporation of machines led to a shift in power relations that favored capital over labor: "Rather, it is the machine which possesses skill and strength in place of the worker, [and] is itself the virtuoso . . . . The worker's activity, reduced to a mere abstraction of activity, is determined and regulated on all sides by the movement of the machinery, and not the opposite."[88] And as described by the Amazon warehouse worker, it would seem that the process of datafication is now redefining not only digital environments, but restructuring physical environments to ensure work adapts to the demands of the new networked economy.[89] Thus, whereas the industrial era factory owner controlled the pace of work at a specific factory, our current capitalist hegemons have extended such control over the pace of work (and time more broadly) to the billions of people that engage with these platforms—a massive expansion of their control.

The pace of social media also determines the speed at which certain words—and the ideas they represent—will circulate through the network, who they will eventually

85.   Devindra Hardawar, *Netflix Defends Its Controversial Variable Playback Test*, ENGADGET (Oct. 29, 2019, 1:55 PM), https://www.engadget.com/2019-10-29-netflix-responds-variable-playback.html [https://perma.cc/H3GS-6AUF].

86.   Jordan Darville, *Spotify CEO Daniel Ek Says Working Musicians May No Longer Be Able To Release Music Only "Once Every Three to Four Years*, FADER (July 30, 2020), https://www.thefader.com/2020/07/30/spotify-ceo-daniel-ek-says-working-musicians-can-no-longer-release-music-only-once-every-three-to-four-years [https://perma.cc/VDN7-C7E9].

87.   Frontline PBS, *Amazon Empire: The Rise and Reign of Jeff Bezos*, YOUTUBE (Feb. 18, 2020), https://www.youtube.com/watch?v=RVVfJVj5z8s&t=2153s [https://perma.cc/WHS7-L8EY].

88.   KARL MARX, GRUNDRISSE: FOUNDATIONS OF THE CRITIQUE OF POLITICAL ECONOMY 693 (Martin Nicolaus, trans., Penguin Books 1993) (1973).

89.   *See* Frontline PBS, *supra* note 87.

reach, and the context within which they will arrive to their target audiences. The management of these broader curation processes is what I will discuss in Part III.C.2.

2. On the Technological Management of Language

Humans evolved to process and interpret a given set of environmental stimuli for the purposes of securing their survival.[90] Humans eventually evolved to count abstract representations within that universe of stimuli.[91] Humans developed systems of organizing signs in order to convey *meaning*: a language. As stated by Saussure, "the bond between the signifier and signified is arbitrary"[92] The procedure by which the signifier and signified become bound to each other is my focus throughout this Part. In particular, this Part examines the role of curation algorithms in cementing specific sets of connections and associations.

With the creation of a system of abstract symbols also came a sense of overabundance of stimuli. Organizing information to ensure it was both possible and amenable to humans became a key task. From librarians to archivists to data scientists and design engineers, for thousands of years humanity has been finding ways to organize information to facilitate its subsequent retrieval.

The development of social media created a new surge in the availability of structured information. It allows what is now over half the planet's human population to create and share symbols and abstractions somewhat seamlessly.[93] At this point, corporations managing social media systems pushed for a major shift in curation systems by complementing the work of manual human review with complex automated algorithms.[94] Algorithms operating within a black box,[95] executing rules that are often presented as following some superior alien knowledge.[96] Algorithms that can identify certain keywords or sentences and render a message less visible, invisible, or flagged for takedown.[97]

As noted by Gillespie, the platforms have reasons to present themselves as honest brokers—neutral intermediaries with no value system or agenda.[98] However, the

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90.   ALDOUS HUXLEY, THE DOORS OF PERCEPTION 12, 50 (Penguin, 1990).

91.   *Id.*

92.   SAUSSURE, *supra* note 75, at 67; *see also*, Perry Meisel, *Introduction* to SAUSSURE, *supra* note 75, at xxvii.

93.   *Number of Worldwide Social Network Users 2017-2027*, STATISTA (June 2022). https://www.statista.com/statistics/278414/number-of-worldwide-social-network-users/ [https://perma.cc/3QRJ-7HRY].

94.   For example, Facebook introduced the News Feed algorithm in 2009. *See* Will Oremus, Chris Alcantara, Jeremy B. Merrill, & Artur Galocha, *How Facebook Shapes Your Feed*, WASH. POST (Oct. 26, 2021), https://www.washingtonpost.com/technology/interactive/2021/how-facebook-algorithm-works/ [https://perma.cc/ZY8M-L6A2].

95.   FRANK PASQUALE, THE BLACK BOX SOCIETY: THE SECRET ALGORITHMS THAT CONTROL MONEY AND INFORMATION (2015).

96.   *See* David Weinberger, *Our Machines Now Have Knowledge We'll Never Understand*, WIRED (Apr. 18, 2017, 8:22 PM), https://www.wired.com/story/our-machines-now-have-knowledge-well-never-understand/ [https://perma.cc/7GBH-UWKN].

97.   *See* Mark Zuckerberg, *A Blueprint for Content Governance and Enforcement*, FACEBOOK (Nov. 15, 2018), [https://perma.cc/2ASC-A9HP].

98.   *See* Tarleton Gillespie, *The Politics of 'Platforms'*, 12 NEW MEDIA & SOC'Y 347, 357–58 (2010).

platforms ordering our content are, at the least, driven by business imperatives. As the founders of Google stated in the paper that gave birth to their search engine, in 1998, "[t]he goals of the advertising business model do not always correspond to providing quality search to users . . . . [W]e expect that advertising funded search engines will be inherently biased towards the advertisers and away from the needs of the consumers."[99] That is, Google founders acknowledged that there *is* a value system that informs the ordering of information, and that profit rather than the pursuit of knowledge is likely shaping most of our digital ecosystem these days.

That an advertising model is likely to shape the priorities of a search engine's ordering criteria is a consequential statement by Google founders, especially if we consider that Google, which relies primarily on advertising,[100] has become the most visited website in the world and is considered the key gateway to major content publishing outlets.[101] Together with Facebook, Google drives approximately 75% of traffic to major publishers.[102]

In her book, *Algorithms of Oppression*, Safiya Noble outlines the ways in which the ordering of content by search engines shapes people's lives: "Search results can reframe our thinking and deny us the ability to engage deeply with essential information and knowledge we need . . . ."[103] It is unsurprising, therefore, that governments from powerful countries are starting to demand that companies report how their curation algorithms are upholding the values that these countries consider to be cornerstones of their national identity or political system. In the case of China, this means "uphold[ing] mainstream value orientations" and "disseminat[ing] positive energy."[104] In the case of the EU, early reports of the Digital Services Act suggested there would be equivalent references to the defense of democracy and human rights.[105] However, these have remained merely as general goals of the Act, whilst the specific references to algorithms in the final text merely call for user education regarding algorithmic curation systems.[106]

99.   Sergey Brin & Lawrence Page, *The Anatomy of a Large-Scale Hypertextual Web Search Engine*, 30 COMPUT. NETWORKS & ISDN SYS. 107, 117 (1998).

100.   Jeff Desjardins, *How the Tech Giants Make Their Billions*, VISUAL CAPITALIST (Mar. 29, 2019), https://www.visualcapitalist.com/how-tech-giants-make-billions/ [https://perma.cc/695H-FTR4].

101.   Kathy Haan, *Top Website Statistics for 2023*, FORBES (Feb. 14, 2023, 12:31 PM), https://www.forbes.com/advisor/business/software/website-statistics/ [https://perma.cc/99PM-NNSW].

102.   André Stalz, *The Web Began Dying in 2014, Here's How*, STALTZ.COM (Oct. 30, 2017), https://staltz.com/the-web-began-dying-in-2014-heres-how.html [https://perma.cc/286B-7CH4].

103.   SAFIYA UMOJA NOBLE, ALGORITHMS OF OPPRESSION: HOW SEARCH ENGINES REINFORCE RACISM 116 (2018).

104.   Hulianwang Xinxi Fuwu Suanfa Tuijian Guanli Guiding (互联网信息服务算法推荐管理规定) [Provisions on the Administration of Algorithm-Generated Recommendations for Internet Information Services] (promulgated by the Cyberspace Admin. of China, the Ministry of Indus. and Info. Tech., the Ministry of Pub. Sec. & the Gen. Admin. for Market Regul., Dec. 31, 2021, effective Mar. 1, 2022), St. Council Gaz., Mar. 20, 2022, art. 6 (China), https://digichina.stanford.edu/work/translation-internet-information-service-algorithmic-recommendation-management-provisions-effective-march-1-2022/ [https://perma.cc/6YZ5-ME86].

105.   Julia Angwin, *Understanding the Digital Services Act*, MARKUP (Apr. 30, 2022, 8:00 AM), https://themarkup.org/newsletter/hello-world/understanding-the-digital-services-act [https://perma.cc/CJ69-MJQ2].

106.   *See, e.g.*, Council Regulation 2022/2065 of Oct. 19, 2022, Digital Services Act, 2022 O.J. (L 277/1) art. 27, https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32022R2065&from=EN [https://perma.cc/M7YP-YPX5].

Defining whether a curation algorithm that sieves through billions of tweets upholds something as abstract as *mainstream values* will be a difficult task. However, there are very concrete examples of how algorithms can shape our everyday experience of the world. For example, we have daily interactions in which the autocorrect and autocomplete functions of our email providers, text editors, and mobile devices push us towards the use of certain terms and make it extremely difficult to use other terms. As Rashmi Dyal-Chand puts it,

> [A]utocorrect incorporates a set of defaults—including dictionaries—that help some of its users to communicate seamlessly at the expense of others who cannot . . . It is a medium for governing social relations that depends on the devaluation of non-Anglo names. It is a form of smart technology that maintains structural racism today.[107]

In short, our communications are now being modulated by a machine that can shape not just the pace of communication and the audience of communication, but also the contents of communication. It not only shapes them by blocking the circulation of certain messages but promotes the use of certain signifiers. It is not just a set of negative constraints, but the active shaping of information spheres.

These are just a few examples that underline the many ways in which our engagement with language has become mediated by algorithmic systems that promote and demote the uses of certain signs and linguistic constructions in favor of others. The way in which this mediation and curation defines the reach of content is also something to be discussed in terms of the component Saussure refers to as a "community of speakers."[108] Given the arbitrary relationship between signifier and signified within Saussure's proposed framework for language, positionality and community become key, thus, "[t]o be a speaker of a language means, first of all, adopting a point of view."[109]

3. On the Technological Management of the Community of Speakers

Understanding that there is nothing in the essence of a signifier that links it to what it signifies, but that the connection is part of a human process that is situated in time, implies that there also must be a *place* where such associations take place. According to Saussure, language is "a treasure deposited, by the act of speaking, in each subject belonging to a given community."[110] The place is therefore wherever the community gathers.

Throughout Part III.C.3, I discuss the ways in which social media platforms distort previous notions of community by redefining the *act of speaking*, the notion and contours of the *subject*, and the *audience* that is implicit in the term community.

I start with the concept of audience. As discussed in Part III.C.2, understanding that the association between the signifiers and signified is constructed, and thus situated, defining the audience helps the subject tailor the most appropriate set of signifiers to

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107. Rashmi Dyal-Chand, *Autocorrecting for Whiteness*, 101 B.U. L. REV. 191, 191 (2021).

108. SAUSSURE, *supra* note 75, at 77.

109. Meisel, *supra* note 92, at xxix (internal quotation marks omitted).

110. Baskin translates Saussure as a "storehouse filled by members of a given community through their active use of speaking." Saussure, *supra* note 75, at 13. However, recent editors suggested the above quote as an alternate translation. *See id.* at 233 ("Errata").

communicate a given message. However, on open social media platforms, the audience is not static. Algorithms are constantly assessing the content and the available eyeballs at every given second, and comparing the content with other available content to maximize audience engagement.[111]

Thus, the audience has also been inserted into the algorithmic black box. Among the set of challenges this creates are what Parisier termed "filter bubbles"—a fear that the curation process could filter certain members of the audience out and create an audience that pervasively consists of people who agree, increasing the likelihood of people adopting perspectives that are increasingly extreme or detached from reality.[112] This is a mechanism that might reshape values and identity.

Furthermore, the act of shaping who is part of a group is a relevant way in which power is exercised. As noted by Meyrowitz,

> Group identity and socialization rest on *explicit* control over information and knowledge. Many of us realize that a member of a group or a person being socialized into it has access to knowledge and experience kept secret from an 'outsider.' . . . The information possessed by very high status people must appear to be not only 'unknown,' but 'unknowable.' In this sense, roles of hierarchy involve both mystery and 'mystification.'[113]

In our times, the black box algorithms that redefine the audience and community of speakers dynamically are granted the highest possible role.

Taking a step further, I argue that the curation algorithm itself can be construed to be the audience. The most obvious case is when we search for online content, but it is also operating when we consider what keywords might help trigger an algorithmic boost in circulation for our social media content. In this sense, platforms are redefining the contours of the *subject*. As discussed in the previous Section, curation algorithms are often developed by formalizing and reproducing patterns identified within a large corpus text, images or some other pool of data. When compounded with a racist or otherwise oppressive context which leads to a corpus of text that reflects this oppression, this can further cement oppression by normalizing it and creating feedback loops.[114] In the case of groups that are oppressed or deprioritized, the system can also be expected to more often fail to interpret the signals appropriately, such as delivering pictures of overly sexualized Black women to a young woman searching for "Black girls" on Google.[115] The algorithm is thus presenting itself before the searching user as the community of speakers (or a synthesis of the community of speakers) and stating that Black girls are an object of sexual desire.

The existence of synthetic subjects, technologies that mimic human understanding and behavior, such as artificial intelligence (AI) assistants (e.g., Siri, Alexa) and other computer interfaces (e.g., search engines) with which we interact almost constantly, also

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111. *See* PASQUALE, *supra* note 95, at 19–22, 66.

112. *See* ELI PARISER, THE FILTER BUBBLE: WHAT THE INTERNET IS HIDING FROM YOU 41–43 (2011).

113. MEYROWITZ, *supra* note 47, at 65.

114. *See* Emily M. Bender, Angelina McMillan-Major, Timnit Gebru & Shmargaret Shmitchell, On the Dangers of Stochastic Parrots: Can Language Models Be Too Big? 610, 613 (ACM CONF. ON FAIRNESS, ACCOUNTABILITY, AND TRANSPARENCY 2021), https://dl.acm.org/doi/10.1145/3442188.3445922 [https://perma.cc/42RW-HUAB].

115. NOBLE, *supra* note 103, at 17–18, 66.

shape the way in which we choose signifiers. This explains the existence of whole fields of research, such as Search Engine Optimization (SEO), which is aimed at constructing content in a way that will be prioritized by the parameters set by curation systems. It also explains the growing research on how exposure to smart assistants (e.g., Siri, Alexa) might modify the socialization of minors. Today, such research underlines that minors become aware they are speaking to a machine and would not mimic the way they demand things from Alexa to a human, at least in part because the machine requires specific prompts and often fails to understand requests that a human would.[116] However, it remains to be seen what will happen once these systems become more indistinguishable from humans—for example, through more conversational approaches like those being developed by Open AI under the Generative Pre-Trained Transformer (GPT) umbrella.[117]

A variation on this theme is created through the use of botnets, whereby a person can introduce fake accounts that will be perceived as members of the community of speakers. As such, they can influence and manipulate a process that is perceived to be organic by the speaker and the curation system, shaping the circulation of information. The platform has the choice of defining the sensitivity it assigns to its automated inauthentic behavior detection and take-down systems and determining its level of investment in human reviewers. According to Facebook whistleblower Sophie Zhang, the interest of platforms like Facebook in addressing the problem seems to be lower at the periphery, especially if the interests of powerful actors, such as a ruling party, are involved.[118]

As noted by Meyrowitz, the individuals and groups that conform our audience shape our identities and aspirations.[119] For example, "[i]nformation integration makes social integration seem more possible and desirable. Distinctions in status generally require distinctions in access to situations. The more people share similar information-systems, the greater the demand for consistency of treatment."[120] The ability of online platforms to create global communities as well as niche filter bubbles is likely reshaping identities.

Finally, observing what is seen as a frontier of research and development, we can reflect on the changing boundaries of the act of speaking. I have briefly presented the

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116. *See* Erin Beneteau, Ashley Boone, Yuxing Wu, Julie A. Kientz, Jason Yip & Alexis Hiniker, Parenting with Alexa: Exploring the Introduction of Smart Speakers on Family Dynamics 1–5 (CHI CONF. ON HUM. FACTORS IN COMPUTING SYS. 2020), https://doi.org/10.1145/3313831.3376344 [https://perma.cc/4JLZ-ACFF].

117. See, for example, this recording of Google Assistant booking a table at a restaurant. Google, *Google Assistant Calling a Restaurant for a Reservation*, YOUTUBE (May 9, 2018) (clip from Google I/O 2018 keynote address), https://www.youtube.com/watch?v=-RHG5DFAjp8 [https://perma.cc/4P2T-X2D6].

118. Julia Carrie Wong & Hannah Ellis-Petersen, *Facebook Planned To Remove Fake Accounts in India –Until It Realized a BJP Politician Was Involved*, GUARDIAN (Apr. 15, 2021, 6:00 AM), https://www.theguardian.com/technology/2021/apr/15/facebook-india-bjp-fake-accounts [https://perma.cc/9NB2-WHKF]; Julia Carrie Wong & Jeff Ernst, *Facebook Knew of Honduran President's Manipulation Campaign – and Let It Continue for 11 Months*, GUARDIAN (Apr. 13, 2021, 7:00 AM), https://www.theguardian.com/technology/2021/apr/13/facebook-honduras-juan-orlando-hernandez-fake-engagement [https://perma.cc/L8UB-G4S7].

119. MEYROWITZ, *supra* note 47, at 31.

120. *Id.* at 133.

automated and predictive features already in place for the autocorrect and auto suggest systems in chat, email, search, and beyond.[121] Given that these systems are built to consider the syntactical structure of the sentence that has indeed been written by the subject, as well as the subject's historical use of language, it seems natural for an ethos driven on data to seek to extend the definition of *acts* towards the inclusion of these pieces of content which are mere *predictions*. The industry of online advertising is built upon a similar assumption that these predictions are good markers of reality.[122] And the overarching financial system has considered the prediction system powering online ads accurate enough to have placed big tech founders among the richest people in the world.[123] Furthermore, this trust in algorithmic predictions is also fueling an industry of predictive policing, where police units themselves are being deployed to areas where there is the expectation that a crime will occur.[124] That is, predictions are becoming normalized and accepted even when this results in the deployment of the tools for state violence.

Further, on the outside margins of what is possible today, we are seeing massive investments being directed into the development of brain-computer interfaces, in the hope that computers might be able to decode our intent to express an idea and transcribe it into a specific set of signifiers.[125] When Marx referred to the "annihilation of space by time," he focused on how the imperatives of capital accumulation were driving the development of transport technologies that sought to "reduce to a minimum the time spent in motion from one place to another."[126] Over the subsequent decades, much has been said of how new communication technologies allowed for messages to be transported in near-real time, and without a physical body (neither the messenger nor the physical letter).[127] Perhaps the interest in developing brain-computer interfaces should be conceived of as an attempt to take a further step towards the annihilation of space by annihilating the language-based message altogether and focusing on the underlying electrical impulses as they occur in people's brains. This does not only impact the emission of messages and information more broadly, but its reception. Brain-computer interfaces imply tending a bridge across the air gap that currently exists between people and their devices. In other words, brain-computers are being designed to bridge our five senses. Eliminating this air gap between our computers and our brains might limit the

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121. *See supra* notes 107–109 and accompanying text.

122. TIM HWANG, SUBPRIME ATTENTION CRISIS: ADVERTISING AND THE TIME BOMB AT THE HEART OF THE INTERNET 25–29 (2020).

123. Mille, *supra* note 30.

124. JUAN ORTIZ FREULER & CARLOS IGLESIAS, ALGORITHMS AND ARTIFICIAL INTELLIGENCE IN LATIN AMERICA: A STUDY OF IMPLEMENTATION BY GOVERNMENTS IN ARGENTINA AND URUGUAY 27–30 (2018), https://webfoundation.org/docs/2018/09/WF_AI-in-LA_Report_Screen_AW.pdf [https://perma.cc/GV9J-TR4T].

125. *See* Mary Beth Griggs, *Elon Musk Claims Neuralink Is About 'Six Months' Away from First Human Trial*, VERGE (Nov. 30, 2022, 11:35 PM), https://www.theverge.com/2022/11/30/23487307/ neuralink-elon-musk-show-and-tell-2022 [https://perma.cc/AB7R-3WQL; Antonio Regalado, *Facebook Is Funding Brain Experiments to Create a Device That Reads Your Mind*, MIT TECH. REV. (July 30, 2019), https://www.technologyreview.com/2019/07/30/133986/facebook-is-funding-brain-experiments-to-create-a-de vice-that-reads-your-mind/ [https://perma.cc/84RQ-WJ88]; Meisel, *supra* note 92, at xv.

126. MARX, *supra* note 88, at 539.

127. *Id.* at 524, 539; WAJCMAN, *supra* note 82, at 17–18.

receiver's capacity to diverge in the way she processes a signifier. That is, the computer would arguably take over the role of the senses in detecting signifiers and therefore get a handle over the processing of symbols into their corresponding meanings.[128] Among the reverberations triggered by this shift, we can imagine that the computer would be taking over the subject's ability to decode and reconstruct—intentionally or by mistake—signifiers into novel and potentially transformative meanings. The evolution of language itself could thus become increasingly subject to the whims of whoever controls the technology. Whereas our natural language is an open and somewhat decentralized system which depends on the evolution of individual members of a community, code is more rigid. Huge power thus lies in the hands of those capable of writing the libraries which will define how these systems operate and are *allowed* to evolve. Therefore, every step towards the roll out of these technologies strengthens the incentive for companies to consolidate around the narrative that these technologies *work*. Although Facebook discontinued this research in July of 2021,[129] Elon Musk's Neuralink gets a massive amount of public attention every time he announces advancements in a similar project.[130] Regardless of its actual merits, if this technology achieves mass adoption, it will reshape sociability and power dynamics.

Having outlined the ways in which big tech companies are increasingly controlling the three key components of the development of language according to Saussure—time, language and the community of speakers—I want to briefly underline how, because of the growing role of these mediating machines within our community of speakers, this same process is redefining the boundaries of what we consider an individual.[131] That is, we are not only talking to machines, but also with them. We are reshaping our worldview in this process.[132]

The tensions at this fault line are becoming increasingly apparent, be it when the Indian Executive Branch defends its extensive data collection scheme by claiming that privacy is a Western construct,[133] or when a leaked United States Supreme Court draft arguing against the right to a legal abortion states that the right to privacy is not "deeply rooted in history."[134] Categories that might have been cornerstones of our past and present, such as "individual," might very well become outdated. Since datafication is typically leveraged to segment and group, it is likely that such groupings will become increasingly relevant, perhaps at the expense of the notion of the individual, which might

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128. This paragraph builds upon ideas previously explored in Juan Ortiz Freuler, The Neutrality Pyramid: A Policy Framework to Distribute Power Over the Net (2021), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3802263 [https://perma.cc/887B-EGDK].

129. Adi Robertson, *Facebook Is Giving Up on Brain-Typing as an AR Glasses Interface*, VERGE (July 14, 2021, 5:05 PM), https://www.theverge.com/2021/7/14/22577095/facebook-bci-ucsf-chang-lab-brain-typing-research-update-project-steno-ar-vr [https://perma.cc/QZK6-MF9F].

130. In November 2022 he claimed that the company would be ready to test the chips on human brains "within the next six months." Griggs, *supra* note 125.

131. *See supra* Part III.C.

132. N. KATHERINE HAYLES, HOW WE BECAME POSTHUMAN: VIRTUAL BODIES IN CYBERNETICS, LITERATURE, AND INFORMATICS 67–68 (1999); MacKenzie & Munster, *supra* note 70, at 6, 16.

133. Chinmayi Arun, *A Judgment for the Ages*, HINDU (Aug. 3, 2017, 12:02 AM), https://www.thehindu.com/opinion/lead/a-judgment-for-the-ages/article19409905.ece [https://perma.cc/S2K6-YUAN].

134. Dobbs v. Jackson Women's Health Org., 142 S. Ct. 2228, 2257–58 (2022).

become just another collection of varied characteristics. A unit of analysis that is considered at times too broad, and at other times too narrow to be considered relevant or useful.

Some of the early expressions of such pressure points were perhaps first visible through the coining of phrases including "context collapse," to describe the way that formerly separate practical identities (in my case, for example, communication scholar, son, amateur photographer, and football aficionado) were merged into one by centralized social media where the scaffoldings would be collapsed and people suddenly had to face their varied audiences all at once.[135] This exemplified the power social media platforms can exercise by forcing a rearticulation of personal identity by determining which individuals and groups will be included as an audience. The way in which computers dissect and process the faces of people to define what their relevant and unique characteristics are involves, yet again, a process of redefinition and rearticulation of identity in a way that is consequential.[136]

Lastly, because we share so many characteristics with others, some datafication systems can construct synthetic variables about us to represent characteristics we have not disclosed but which can be extrapolated onto us based on information that people who are considered to be similar to us in relevant ways have disclosed. This suggests that we may no longer be in control over who we are under the gaze of these systems, which operate as the community of speakers. This further suggests that datafied systems do not understand human identity as something cohesive, but rather as a collection of characteristics that are shared with others and which are often revealed to the datafication system by these people who are similar and not us. This process might require us reevaluate the boundaries between individual autonomy and group rights on matters such as privacy.[137]

In synthesis, the ways in which tech platforms define and redefine our community of speakers is inextricably linked to the boundaries of personal identity. The value systems promoted by such technologies can become normalized, adopted, and thereafter difficult to observe as such, and even more difficult to push back against.

CONCLUSION

Throughout this Essay, I articulate how the conceptualization of identity is being transformed by communication technologies. I argue that this process is perceptible by applying a dialectical lens that observes how technological change reshapes human relations and our conceptualization of the individual. In particular, I argue that this shift should be observed by examining how technology is reshaping the way others see us, how we perceive ourselves, and the language we rely upon to communicate with each other. To analyze this last element, I build upon a sketch developed by Saussure to explain the relationship between time, language and a community of speakers. I describe the ways in which social media platforms have managed to control all three components of this system. I suggest that there are reasons to be wary of this shift in our conception

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135.	Marwick & boyd, *supra* note 53, at 122.

136.	Vox, *What Facial Recognition Steals from Us*, YOUTUBE (Dec. 10, 2019), https://www.youtube.com/watch?v=cc0dqW2HCRc [https://perma.cc/3EG6-X3HC].

137.	Salomé Viljoen, *A Relational Theory of Data Governance*, 131 YALE L.J. 573, 579 (2021).

of the individual, because such a shift is triggered by technologies being managed by tech corporations that have a profit goal and not a higher set of goals such as the pursuit of knowledge or human development.

Further research could examine the language being deployed by platforms to explain how they shape discourses around identity and the individuated subject, while deploying systems that are shifting our worldview. Research might also explore the relationship between internet use and the drafting of legislation that broadens personhood or surveys indicating the growing number of people sharing the intuition that such broadening of legal personhood is necessary or expected.