Contents lists available at ScienceDirect

Technological Forecasting & Social Change

Digital technology, digital culture and the metric/nonmetric distinction

Jean-Sébastien Guy

Department of Sociology and Social Anthropology, Marion McCain Arts and Social Sciences Building, Dalhousie University, Room 1128, 6135 University Avenue, PO Box 15000, Halifax, Nova Scotia B3H 4R2, Canada

ARTICLE INFO

ABSTRACT

Digital culture is identified as both a component of the current digital transformation of society and an epistemological obstacle toward the sociological analysis of the same phenomenon. Two theoretical distinctions are bought in to remove this obstacle: medium/form and metric/nonmetric. Digital culture is then analysed as a nonmetric form specifically and criticized for leaving aside other social forms, most notably metric forms such as the flows of information connected with the operations of algorithms for instance.

1. Introduction

Karl Marx was keen on criticizing the political economy of his day as part of his project to understand capitalism, or the new material and social conditions that were emerging at that time. In this article, I replicate Marx's strategy when looking at the digital transformation of society currently taking place. The goal is not so much to deny that society is undergoing a transformation following the rise and diffusion of digital technologies, but to reframe the way this transformation is being presented and interpreted. To reframe: literally, to frame *again*, to frame *one more time*, because it turns out that the way this transformation is already presented and interpreted (already framed) is very much intertwined in the same transformation – just like the political economy of Marx's times was part of the economic system that he wanted to analyse, so that it stood as an epistemological obstacle on his path.

The text is divided in three sections. I begin by distinguishing between digital technologies and digital culture to avoid technological determinism. Digital technologies are prevalent today thanks to the diffusion of a digital culture integrating them into a meaningful way of life. I define this culture by referring to Manuel Castells' works. Above all, it celebrates networks for (purportedly) allowing individuals to escape from bureaucratic structures and achieve freedom for themselves. Yet digital culture makes for an impoverished sociological imagination since everything is re-envisioned exclusively on a human scale and in a human format.

In the next section, I develop a twofold critique of digital culture. On one side, I use Mary Douglas's grid-group cultural theory to portray digital culture in terms of markets (as social form) and individualism (as cultural mindset). I then oppose digital culture with the other forms

and mindsets identified by Douglas, hence bringing back what digital culture left aside. On the other side, I list five phenomena or possible occurrences that digital culture makes difficult, if not impossible, to conceive at all.

In the last section, I re-examine digital culture in light of two distinctions: medium/form and metric/nonmetric. This allows me to improve on Douglas' theory by stressing how different forms coexist side-by-side at any moment in time. Social forms correspond to recognizable patterns emerging in a crowd of individuals functioning as a medium of communication. Markets and individualism (associated with digital culture) are described as nonmetric forms inasmuch as they divide the whole crowd into distinct groups like as many topological zones. All along, the medium simultaneously harbors metric forms or flows fed by a turnover of individuals. While groups project an identity on individuals as insiders or outsiders, flows remain anonymous for the individuals feeding them need not to return to feed them again. Finally, this new model allows me to reinstate the phenomena or possible occurrences neglected by digital culture.

Overall, this article promotes zooming-out approach in place of a zooming-in one. The zooming-in approach aims at isolating the research object for analytical purposes. Yet, if the object is not so isolated in practice, it seems more reasonable to reaffirm or sustain these interdependencies in the analysis. Accordingly, a zooming-out approach consists in examining a research object by stepping away from it. The objective is to reconstitute a conceptual space where the object reappears as one element within a wider set of possibilities. We can then formulate an explanation (a tentative one, at least) for that one element by underscoring the rules prevailing throughout the entire set.

E-mail address: jsguy@dal.ca.

2. Defining digital culture

To talk about the digital transformation of society, I invoke the notion of a digital culture. The latter is modeled after the idea of car culture. After we have invented cars, we have reorganized the rest of society around them. Buying and owning a car has become a normal expectation for most of us, as well as driving one's car to go to work and to run errands. Commercial lots must include parking spaces and it is taken as granted that political authorities will keep on investing in road systems and other infrastructures. The car itself has taken on a symbolic value as sign of individual success or as display of social status. Certainly, the car as a means of transportation provides affordances, yet this may be not the reason why it has achieved dominance in our society. Car culture cannot be reduced to car technology. It is more than that: it is really a culture in that it involves a social dimension and therefore gets weaved into the functioning of social systems at all levels.

Likewise, the digital transformation of society does not follow directly from digital technology alone. The latter is a necessary condition, but not a sufficient one. For the digital transformation to take root, digital technologies must be imbued with social meaning. Indeed, we can speak of a car culture inasmuch as a whole way of life is built around car technology. Likewise, what precipitates the digital transformation of society today is the diffusion of a new way of life.

One must be careful not to prematurely exaggerate the unity of digital technologies and the homogeneity of the digital culture behind them. The point is to problematize both. Since we have invented digital technologies, we have progressively discovered the many different things that they can do. Simultaneously, we had to teach ourselves how to use these technologies considering that we can use them in many different ways. Out of this dual experimentation emerged our current digital culture not as the natural expression or extension of these technologies, but as a social selection with consequences for the same technologies.

Right away, the notion of digital culture allows me to underscore certain changes within digital technologies. As everybody knows, the Internet made its apparition in the 1990s as a network of remote computers. Since then, access to the Internet has gone wireless while the devices used to surf the web turned mobile. Today, the Internet is still envisioned as a network enabling interactions between distant users, but "going online" is less and less a personal and private affair now that it is more and more mediated by a handful of hugely influential websites or platforms like Google, Facebook, Amazon, iTunes or YouTube (Rushkoff, 2018).

How to describe today's digital culture then? We can identify important clues by referring to the works Manuel Castells. For Castells, digital technologies are key in the restructuration of the capitalist world economy since the 1970s (Castells, 2010a). The secret behind this success is the ability to develop networks made up of ties and nodes scattered over large distances and potentially across state barriers. For the same reason, digital technologies also played a role in the rise of new social movements during the same period (Castells, 2010b), including the more recent political uprisings throughout the Arab world and the Occupy Wall Street movement following the global financial meltdown in 2008 (Castells, 2015). Castells' analytical ambition is certainly extensive. I do not wish to review every explanation he offers. Suffice for me to underscore the image, or aura, that he projects on networks. The latter are portrayed as horizontal, decentralized and highly flexible. They are seen in contrast with bureaucracies build around chains of commands which are often slow to adapt and provide fertile ground for corruption. Networks are thought to be more conducive to grassroots democracy since they supply all individuals with the capacity to connect with any other individual, whereas bureaucracies (like state apparatuses) involve a division of labor which gives power to some but not to others.

I argue that Castells expresses an idea quite popular today, namely the idea that digital technologies translate into more connections between individuals, i.e. more networks, and that these networks are perceived as a more efficient alternative to the other organizational options at hands. In sum, we tend to look at digital technologies as a way to "give power (back) to individuals." Digital culture as shaped around this core assumption (Rainie and Wellman, 2012; Turner, 2010).

Consider the following new practices:

1. The practice of taking and sharing selfies with the use of one's mobile phone.
2. The practice of liking posts on Facebook and re-tweeting tweets on Twitter.
3. The huge success of television shows like *America's Got Talent* (after *American Idol*) where viewers at home use their phone to vote for their favorite participant and help in determining the winners of the competition.
4. The success of online dating services like Tinder through which individuals make contact with physically nearby potential lovers, again with the use of their mobile phones.
5. The tracking option for services like the ones offered by Amazon so that a costumer can know where his or her order is exactly and when it will reach destination.
6. GoPro cameras used to film from a personal of view.
7. The diffusion of video recordings from personal mobile phones shown on television news (as evidence in cases of "police brutality" for instance).

These elements illustrate how current digital technologies are tailored to a human (individual) scale. While mobile phones and online platforms are meant to connect individuals with other individuals, everything fits in a human hand so much so that both phones and subsequent interactions on the Internet are experienced as a quasi-extension of the human body. Insofar as digital technologies are effectively overrun by the digital culture sketched out here – to the point that this digital culture becomes the "truth" about these technologies in the sense that we continue to develop them for the purpose of realizing this culture specifically – these technologies have become the material infrastructure of our anthropocentrism.

The problem that I want to stress in the context of social theory specifically rests in the formatting – and ultimately in the flattening – of our social imagination. Digital culture is a matter of performance in that it does not reflect a reality that would exist prior to it and outside of it; rather it enacts its own reality. This performance is hidden by the compatibility that has been created between digital technologies and social practices. Thanks to the pervasive diffusion mobile phone and online platforms, it is all the easier to convince ourselves that the whole world is at its core nothing but a mass of individuals networking with each other at their own level.

There is a scene in the movie *The Bourne Ultimatum* (directed by Paul Greengrass, released in 2007) that demonstrates this idea. The hero Jason Bourne (played by Matt Damon) is a former assassin who has lost his memory and who is on the run from the American secret services that once trained him. When Bourne meets in London with a journalist who may have important information about that program, his presence is immediately detected and agents are sent to intercept him. This operation is supervised from a room where multiple screens relay the images from street cameras. Everything is happening in real time: Bourne is identified by the agents, he loses their trail, he meets with the journalist, the agents catch up with them, etc. For the viewer, watching the movie means watching this team of specialists watching Jason Bourne on their own screens – as if all things in the world were made completely visible and thereby reachable and available for manipulation by the same individuals (Carney, 2018).

The scene shows how "technology" (cameras, satellite connections, etc.) could be used to track down any single individual at any moment. I do not seek to fault digital culture on moral grounds though. My

position is that digital culture may be a danger for social theory insofar as it has a smoothening effect on the way we conceive the social events and the social processes around us. Embracing digital culture leads us to believe that anything happening in social reality must fit on a human scale or take on a human format, just like the real-life action in *The Bourne Ultimatum* must be adapted to the screens where images relayed by cameras are watched dutifully by those who are spying on our lonesome hero, including the movie viewers themselves!

3. Disrupting digital culture

Producing a sketch of digital culture (however tentative, however partial) is not enough for my project to move forward. The objective is to induce an epistemological break-up with digital culture by recalling what the latter actively leaves out. To take this next step, we must criticise Manuel Castells' interpretation for being too dichotomizing. Castells is not wrong in presenting networks in opposition with bureaucracies – their respective structural properties are simply not the same – but we have to correct the bias or one-sidedness in favor of networks. To relativize digital culture and distance ourselves from it, we can begin by introducing a larger variety of social forms. For this, it is convenient to turn to Mary Douglas's grid-group cultural theory (Douglas, 1986, 1996, Douglas and Wildavsky, 1983).

Douglas developed a typology of social forms using two axes: group and grid. The value on each axis is either high of low. We can thus distinguish between four types of social forms: market, hierarchy, isolate and enclave. Each of these forms correspond with a special cultural mindset: individualism, collectivism, fatalism and egalitarianism.

What Castells describes as networks is equivalent markets in Douglas' typology. Under the circumstances, a market does not necessarily involve the exchanges of goods and services but marks a low group value (so that individuals do not think of themselves as sharing one collective identity, but rather meet with each other as independent actors or free-floating particles) along with a low grid value (so that all individuals enjoy the same privileges and suffer the same obligations). In Douglas' typology, the exact opposite of markets are hierarchies. The latter implies a high group value (individuals see themselves as part one tightly knitted collectivity) with a high grid value (members of the same group are given different tasks and different responsibilities). The bureaucracies that networks are averse to in Castells' interpretation are cases of hierarchies as Douglas defines them.

Yet Douglas' typology does not merely duplicate Castell's observations: it outflanks them on all sides. On Douglas' account, markets are distinct not only from to hierarchies, but from isolates as well. The latter are social forms with low group value and high grid value. In clear, we have a set of institutions that give different positions to individuals (centripetal forces) without a strong collective identity (centrifugal force) to counterbalance these differences. Think of a caste system where privileged individuals feel no solidarity toward underprivileged individuals and vice-versa. When Castells asserts that bureaucracies are objectionable, he depicts them as isolates. This is misleading however, or in any case it hides the distinction between isolates and hierarchies made by Douglas.

The point is that hierarchies are not necessarily dysfunctional, unfair or inhumane by definition. After all, hierarchies foster collectivism as cultural mindset, so that individuals are more likely to care for each other since they envision themselves as part of the same team. Markets on the other hand foster individualism. Without getting too much into a philosophical debate, we can minimally admit that individualism can potentially lead to certain pathologies like social isolation and excessive selfishness. The conclusion here is that markets (or networks) are not unambiguously superior to hierarchies (or bureaucracies).

Douglas' fourth type of social form reveals more elements to consider. Enclaves display a high group value and a low grid value. They stimulate egalitarianism as standard attitude: individuals think of themselves as members of one community and expect all their fellow members or peers to be treated equally. However, this equality does not extend to outsiders. In effect, it is worth remembering that while the Internet is conceived in the image of a market in Douglas' typology, Internet users often act as egalitarians in that they join a community and thereby close themselves to others. This is to say that while we still celebrate the Internet as a tool for democracy, the same individuals who are supposed to benefit from democracy often fail to behave in accordance with the implied model by antagonizing communities other than theirs (Nagle, 2017).

Inasmuch as digital culture is specifically tied to markets and individualism – in other words, to a type of social organization or social setting where interpersonal interactions are "deregulated" so that individuals are not acting out of compulsion but on their own accord as private parties – Douglas' ideas are useful to bring into relief the particularities of digital culture and accordingly the limitations of it. But we can push our critique even further.

Below is a list of *possibilities* that digital culture leaves sociologists unprepared to perceive and appreciate. The list has been assembled in reference to the ideas previously sketched out by the second-order cybernetics movement, including Niklas Luhmann's systems theory (Guy, 2018b, 2018c).

1. To the extent that the world enacted by digital culture functions as a market, we are faced with nothing but individuals. These individuals may be different from each other, but inasmuch as they are all individuals in the same way, it makes for a thoroughly even world. There may be inequalities between individuals in terms of wealth or fame, but as far as culture is concerned these discrepancies remain accidental or secondary to the fundamental equality of all individuals. Without rejecting this principle, it must be noticed that this evenness projected on the world erases the possibility of *conditioning*. It is just not true that everything that can happen in principle could happen at any time in practice. Certain things become feasible only after certain conditions have been set up. For instance, one does not simply choose to become a surgeon: one must train for it. Technical training requires professional schools, which means bureaucratic organizations. The latter is made possible by practices like file recording and, even more basically, writing. Today, even with national education systems, teachers' devotion and parents' support, it still takes many years for one child to manage to do just that at a satisfactory level (as it turns out, thousands of individuals in developed societies live in hiding as "functionally illiterates"). Digital culture fails to open up a stage wide enough to capture these chains of interdependencies. By keeping too close to the individual and his personal vantage point, it narrows down our sociological field of vision.

2. Put differently, digital culture treats time as reversible and leaves out the possibility of *irreversible time*. Reversible time is the idea that differences in time make no difference on a fundamental level, so that what happens at time x has no deep impact on what happens at time $x + 1$. Where should I go for holiday? Should I travel to France or Italy? I cannot go to both places simultaneously, but if I travel to France first, this will not affect my traveling to Italy afterwards (and vice-versa, provided I can pay for everything). In a case like this, A before B is the same as B before A. On the other hand, if I have a cake and I eat it, I no longer have a cake. Likewise, if I declare to the person next to me that I love her, this changes the situation between us. This may seem trivial, but this is precisely what digital culture tends to ignore, neglect or deny when insisting that any part of the world can be made visible and accessible to any individual via a screen held in the hand (as in the Bourne movie). It is as if digital culture had no memory. It never stores the selections it has to offer. Having made of one selection, it simply moves on with the next one, and then the next one, and the next one, etc. This is the Pinterest syndrome: selections as operations do not add to each other so as to become something more that an arbitrary sequence of events. Being

without memory, digital culture holds us prisoners in an eternal present. We are to live without history, without change. We are getting more news every day, but none of them ever transforms the system that produces them. There are still talks about "changing the world," yet this is presented a simple choice: change is to follow automatically from a decision made immediately by one individual. This is "change on the go" as if change implies no processes and no mechanisms to occur and to unfold. By opposition, irreversible time is the key for creating order in place of disorder, indeed for creating anything new at all. Once we enforce the difference between before and after as asymmetrical (so that past and present are no longer interchangeable), we can return to observe the difference again and again with each new operation. We can then attempt at progressively maximizing certain effects while minimizing others, thereby producing an evermore complex organization unlike anything else around it.

3. Digital culture cannot account for its own perspective. That reality consists in free individuals interacting together is taken as given. Yet it must possible to *observe the observer* (von Foerster, 2003). Under the circumstances, the role of the observer is not filled by one person alone, but by an entire culture inasmuch as the latter is attached to a network of actors working together and sharing the same codes for producing and processing information (Fuchs, 2001). Observing is therefore an activity tied to certain conditions. It does not simply take place anywhere or anytime. It is a function of the capacities that must be assembled physically or organizationally in networks. Put differently, there can be no observation until an observer has emerged. On the other hand, the constitution of the observer puts restrictions on what can be observed heretofore. Minimally, the observer cannot observe the world and observe himself or herself (or itself, since we are talking about networks) as an observer at the same time (Luhmann, 2002). Accordingly, observing comes with blind spots. This is not a flaw on the part of any observer, but nothing less than the secret of his/her/its success. Hence digital culture is happy to erase itself as a culture so as to appear as reality for the ones integrated in it: no longer a construction, but the unmediated experience of the world. This is fine for digital culture, but not so for social theory.

4. To use an elaborate metaphor, we can say that, under the influence of digital culture, we are reverting back from Einstein to Newton when it comes to time and space. Newton thought that space and time were absolute, that they were not subject to change. Einstein showed that this is inaccurate. By taking advantage of the analytical tools developed by Bernhard Riemann (among other things), Einstein imbued space and time with properties that could vary (like the curvature of space). The universe was transformed into a sort of patchwork where space and time could take on different values at the local level, so that homogeneity was lost at the global level. The present metaphor is meant to suggest just the opposite: digital culture reinstates space and time on an absolute level by suppressing the heterogeneity between local conditions. This is reminiscent of Andrew Abbott's critique of the general linear reality (Abbott, 1988). Notions of evenness, smoothness or flatness in the way we perceive the world under the influence of digital culture follow from this. For the same reason, digital culture reinforces the idea that the same cause always leads to the same effect. Other possibilities, starting with the idea that *the same cause can lead to different effects*, are pushed aside (see von Foerster, 1984 for the demonstration that a machine, in the abstract sense of the word, can be all at once analytically deterministic and synthetically indeterminable).

5. Extending on the previous point, we can add that digital culture is generally averse to *complexity*. Granted, this may be common trait to all cultures, but the point is that we cannot trust digital culture to teach us what there is to know about digital culture - because any section of social reality will include its fair share of ambiguities, uncertainties, paradoxes, contradictions, entanglements and weirdness.

In summary, the goal is not to attack digital culture directly or to discredit it for what it is, but to reaffirm the requirements of social theory in front of a public increasingly fascinated by digital culture and sold to it. Social theory is not advocated here as an empty tradition – instructing us to read a list of classical authors for their own sake – but as a means for deciphering the same digital culture. In sum, if we are seeking to escape from digital culture, it is only to better understand it from the outside.

4. Reframing digital culture, reclaiming social theory

Dismissing digital culture altogether would be a mistake: after all, it is a culture in its own right and as such, it awaits an explanation from social scientists. Instead we have to pursue a double strategy: uncovering the processes behind digital culture that account for its emergence on one side as well as for the emergence of alternative structures on the other side. While we have to conceive digital culture as a legitimate social phenomenon, we must seek to explain it in a way that establishes at the same time the parallel existence of other social phenomena.

So far, I have used Castells' works as a ladder to raise myself up (Section 2) only to throw that ladder away later on by criticizing Castells' ideas with the help of Douglas' (Section 3). In this fourth section, I will leave Douglas' ideas behind just as well now that they have served their purpose for me. I will keep the concepts of markets and individualism as attributes of digital culture, but I will deploy my own theoretical model to achieve the double strategy above. Moreover, this model will reactivate the five possibilities erased by digital culture: (1) the phenomenon of conditioning, (2) the becoming-irreversible of time, (3) the inner structures of observers as organized entities, (4), the unevenness of the universe, expressed by the idea that the same cause may not always produce the same effect, and (5) complexity as a positive or irreducible feature of life.

My model articulated around two distinctions: medium/form and metric/nonmetric (Guy, 2017, 2018a). With this model, I plan on capturing the status of individuals interacting with each other in the markets, or networks, created by digital culture on two separate levels simultaneously. This will disrupt the naturalization power of digital culture while illuminating more options in the realm of social organization.

I therefore bring in multiple conceptions of individual. On a first level, we have the particular conception that digital culture disseminates: the individual as painted by individualism. Free of traditions and social ties, this individual indulges in social media out of sheer pleasure or simple curiosity. He is also susceptible to boredom and perhaps as a result of all this, prone to develop certain habits (Andrew-Gee, 2018). By now, digital technologies are perfectly adapted to this individual through the use of handheld mobile devices and the creation of personal accounts (with personal addresses, personal passwords, etc.) (Wissinger, 2016). This individual is real, yet he may be not natural. In any case, he may not always have been real. Rather he has become real after his historical creation as a cultural ideal.

This first conception of the individual amounts to a social form in itself. By assembling a complete image of what a normal individual might be like, individualism provides the instructions for organizing multiple individuals together. I call this type of social forms "nonmetric." Later on, we will oppose nonmetric forms with metric forms. For the moment, we begin by opposing nonmetric forms with the absence of forms, which must not be confused with the absence of matter. This is why the concept of medium is introduced alongside that of form.

The concept of medium defines the second level where we observe individuals and the second conception of what an individual is. Medium is shapeless: it offers no forms by itself. Individualism translates into a specific social form since it establishes what individuals can expect

from each other and how to behave in each other's presence (be it in a normative sense or in an instrumental sense). The medium is still made up of many individuals, except that the latter are submitted to no order. In the medium, individuals take on no identity and are given no role: they are mere bodies.

This is not the only medium one can imagine (Heider, 2017). The light around us is also a medium in a similar sense, and so it the air. The air transmits sound waves which the human ear can then perceive. While sonic perception is made possible by the air, we do not hear the air itself. Once we start hearing the medium, it can no longer function as a medium for us: "just as strong whoosh and whistle of the air inside a car traveling at high speed disrupts words of communication" (Luhmann, 2002: 175). Hence, I am talking about one particular medium: I shall call it a crowd since it consists in a very large number of bodies (Guy, 2017). That number needs not to be specified. What matters is that there is enough bodies for the whole crowd to become an immersive umwelt for any single body inside of it.

While the individuals are exposed to the crowd they are in, the crowd is composed of the same individuals. The crowd is nothing but a mass of individuals, yet it is neither smooth nor homogeneous. At any moment, the many individuals in the crowd assume certain positions relatively to each other, thus evoking a certain distribution or gestalt. All along, each individual continues to act by herself as an autonomous organism. At the same time though, each individual has to find a way to coordinate herself with the other individuals around her (this is what Luhmann calls communication as the autopoiesis of social systems: Luhmann, 1995, 2002, 2012, 2013a, 2013b). In this process, individuals do not engage in a one-on-one interaction with every single other individual in the crowd. Instead they can guide themselves by focusing on the patterns that emerge across the entire crowd. This is how the crowd functions as a medium. The many different elements in the medium can enter in various relations with each other. These loose couplings are turned into strict couplings by the individuals faced with the challenge of achieving interpersonal coordination. This operation is carried on by way of self-monitoring since the individuals, or their respective behaviors, are already integrated in the patterns that they seek to manipulate. Harrison White suggests something similar when he offers the metaphor of polymer goo to explain that social structures are suspended between order and disorder (White, 2008, Fontdevila et al., 2011, Fontdevila, 2018). The material that social structures are made of is not substantially different from the milieu around them. Social structures merely exist in a different state. In principle, they can dissolve at any time and the material in them would then return in a state that would make it indistinguishable from the external milieu. In effect, the transformation of loose couplings into strict couplings leave the medium itself untouched, so that strict couplings can turn back into loose couplings again and the selective process can start anew.

The two conceptions of individual or individuality must be clearly distinguished. The individual in the crowd is not the same as the individual defined by individualism. Individualism is a social form that not only can be seen in the medium as a recognizable pattern, but that is imprinted on the crowd in an effort to regulate the chaos inside of it, i.e. the overload of social relations that individuals are faced with. If we remove this social form – if we cancel individualism – individuals do not disappear entirely, but remain as bodies absorbed in the crowd. Accordingly, what is at stake when comparing the two conceptions is not so much the reality of individuals, but the relations between them. We speak of individualism when these relations are understood as unconstraining, if only from a legal vantage point. But this vision is thoroughly cultural. There other ways to define the same relations without ever denying the fact that individuals live as singular organisms (so that my body is not your body, nor is my mind your mind, and conversely).

As we have seen, Douglas theory already makes room for multiple types of culture. Yet constructing a typology on an abstract level is not enough: ultimately, we must account for the immediate, physical intersection or coexistence of different social forms in the actual world. We are now capable of doing just that by stressing the fact that social forms are always forms-in-a-medium and that the medium can harbor the social forms we happen to observe *and more*. Even though digital culture promotes individualism and markets, other social forms may still lurk in the medium unbeknownst to us. Digital culture is creating a new reality as we speak and it wants to believe that this reality is the only one there is, yet this might not be the case at all.

To move further along this reasoning, we must turn to the metric/nonmetric distinction. Earlier, the type of social form created and sustained by individualism and markets was described as nonmetric. This means that the many individuals in the crowd are divided in two categories following a principle of identity. As a result, the whole crowd is given a topological architecture in that it reappears as segmented in zones or regions, if only symbolically. A first zone is constituted by all the individuals who embraced the said identity or who satisfied the criteria defined by it. By gathering together, these individuals created a group. That group and the first zone in the medium are analogical to each other. While some individuals are turn into group members (precisely by sharing the same identity with one another), the other individuals in the crowd are left out and can be classified as nonmembers by default, thus creating a second zone in the medium. Whatever is located inside the first zone is for this reason simultaneously excluded from the second zone and conversely. This is the topological logics of nonmetric forms.

Even though individualism and markets are defined in contrast with collectivism and hierarchies, they nonetheless lead to the creation of nonmetric forms in the medium – which is to say, the creation of organized groups (as strict couplings) out of the disorganized crowd (as pool of loose couplings) – because they offer the means to evaluate the behavior of each individual and to deal with him accordingly. Digital culture instructs us on "the best way" or else "the correct way" to make use of digital technologies and judges us correspondingly. Digital culture turns digital technologies into social markers determining what is cool, convenient and therefore desirable and what is not. In other words, for digital culture to become the new normal, conditions for labelling deviants must be provided by the same stroke, so that sooner or later someone is bound to be seen as a misfit and to pay the price for that. This too is the topological logics of nonmetric forms.

Not all social forms are necessarily like that however and this is why the concept of metric is introduced as complement. Like nonmetric, the concept of metric (not metrics) is offered to describe the properties of certain social forms. We have explained that nonmetric forms correspond to social groups constructed around cultural identities and dividing the crowd in mutually exclusive zones by categorizing each individual in the crowd as either an insider or an outsider. Metric forms are just the opposite: they are not groups, they are not identity-based, and they do not arrange the crowd topologically. Still they are forms, i.e. strict couplings of elements. Examples include the functional systems or subsystems of modern society described by Niklas Luhmann, (2013b and Guy, 2017). Also included are the global brain waves that can be measured with Google Ngram (Roth et al., 2017, Heylighen and Lenartowicz, 2017).

To give a first impression, we can speak of metric forms as flows (Guy, 2017, 2018a). Recall that the crowd is not composed of inert bodies, but of bodies in motion. Hence the forms in the medium are not limited to finite sets of interpersonal relations between individuals (a household, a congregation, a clan, a nation, etc.). Forms also refer to movements arising in the medium and to the variations that these movements allow for, like the flow of moving vehicles on the highway that increases or decreases in volume, accelerates or decelerates, etc. In the context of the entire medium, these flows are recognizable patterns. They are not everywhere the same: they each mark a certain distribution or coupling of elements. These couplings may be transitory only, but what matters is their instantaneous state rather than their long-term stability or duration (this is said against the standard understanding of

social structures in sociological theory).

Individuals in the crowd are given a chance to mobilize these patterns when trying to achieve coordination with each other. The difference with nonmetric forms is that individuals do not gain an identity by associating themselves with these patterns. Flows are unlike groups in that they do no tie individuals to one another so as to produce a group as a zone within the crowd that is effectively distinguishable from the rest of it. Metric forms do not hold individuals in place. Rather they are sustained by the continuous movement of individuals. The focus is on the movement or flow itself as measured at one point in space. That flow can vary in certain ways – it can be more or less intense or even die out entirely; it can merge with other flows; etc. – but its most important feature may be this: while the flow is fed by all the individuals that are coming and going, it can continue to maintain itself even though the individuals change constantly.

Metric forms owe their temporary consistency as forms to a turnover mechanism: the individuals who are leaving the flow are to be replaced by the other individuals who are entering the flow at the same time. Thus, the flow remains recognizable as coupling, (although it will vary from moment to moment, to repeat again) even if the individuals who are leaving the flow *never come back* to re-enter in it since other individuals will relay them. In the end, individuals do not identify with metric forms and the reverse is true as well: metric forms do not identify with individuals (with their values, interests, beliefs, etc.). Albeit anonymous, metric forms nonetheless constitute something real: a distortion or a topographical accident in the medium that is there for the individuals in the crowd to see and to mobilize for their own purpose.

Fig. 1 is a visual representation of the concepts discussed so far using set theory.

At last, we can unlock the possibilities that the metric/nonmetric distinction allows for. Of particular interested are the relations between social forms or the way their respective development impacts other forms in the medium. I will limit myself to two cases. First, there is the relation between two nonmetric forms. This is familiar territory for sociologists since we are talking about interaction between groups. Groups can be in conflict with each other or they can ally themselves so as to wage war against with a third party. Alternatively, they can move out of the competition game by specializing themselves, i.e. by relocating themselves in different niches so as to cancel the risk of confrontation for the same resources (Durkheim, 1984). In any case, interaction between groups draws attention to their respective identity and therefore boundary. Group members are not necessarily hostile to outsiders. Yet, for a group to continue to exist, there comes a need to address and handle certain issues: as they enter in relation with each other and/or with outsiders, members find themselves having to focus on their ways of doing, saying and thinking since the basis of their social relations is precisely bound to them. Thus, a situation may arise where members seek to reaffirm the rules or ideals they live by. The structure of the entire group – the nonmetric form – is then activated so as to push against what seems to threaten it – like the structure of another group for instance.

Second – and this is very different from the previous case – there is the relation between two metric forms. Metric forms enforce no identity or trigger no identification in individuals that would require then to take sides (literally and figuratively). The interaction between metric forms is therefore unrelated with the mini "clashes of civilisations" that erupt whenever one has to manage multiple identities at the same time (or multiple versions of the same identity). Accordingly, there is neither conflict nor cooperation between metric forms. Instead they either stimulate or inhibit each other. Metric forms do not displace each other, like solid blocks would do. As flows, they progressively shape and reshape the conditions prevailing in the crowd. As these conditions start to change, other flows are affected as well. Hence there is the possibility for many flows to ride on each other like as many succeeding waves.

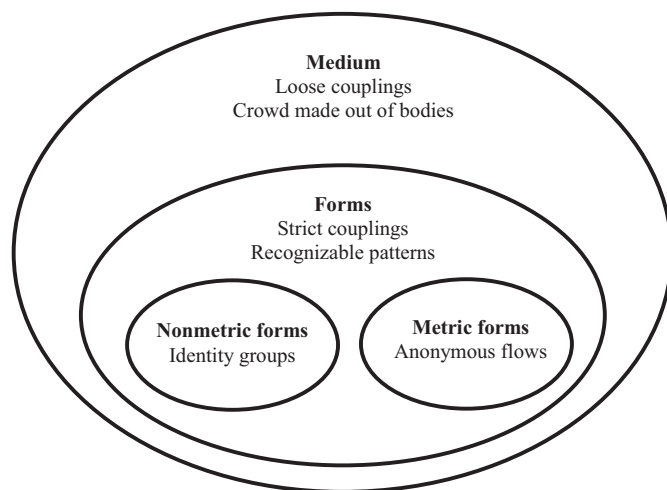For illustration, consider the case of algorithms – an example most

Fig. 1. Medium/form and metric/nonmetric.

appropriate in the context of the digital transformation of society. It is tempting to envision algorithms as agents, i.e. as capable of acting on their own much like invisible spirits in pre-modern cultures (Ziewitz, 2016). Yet they are really simple machines that execute instructions in a recursive fashion – except that there is more. Algorithms do not function in isolation: they are part of wider assemblages that includes flows of information as well as the numerous users involved in the production of these flows. By comparing flows of information, algorithms can make recommendations to users who can then make decisions in light of these recommendations. The overall effect results in a change in the flows of information. Afterwards the cycle can start anew. Algorithms and users are not end-points in this schema. None of them strictly control the others. Rather they work in tandem as a single circuit to impact the ongoing flows. Algorithms are not inscrutable by definition (Ziewitz, 2016), but inasmuch as they become proxy for the entire assemblages that they are part of, they may turn out to be unpredictable in the long term. The flows themselves are not exactly passive in that each of them takes on an instantaneous value at any moment in time. Comparisons between flows are determined on the basis of these values, so certain flows effectively become more and more influential within these assemblages. The concept of metric form is meant to underline the main properties of these flows, such as the fact they depend on individuals (since they are flows of information *about* individuals) without being reducible to them as well as the fact that they have a reality of their own (an inertia of sorts) so that, even though algorithms intervene to manipulate them, they cannot be manipulated at will.

The theoretical model sketched out so far therefore enables us to assimilate digital culture as one nonmetric form in a medium one on hand while detailing other forms in the same medium on the other hand. The latter include forms of the same type as well as metric forms. By reconstituting the range of all these possibilities, we finally overcome the cognitive limits of digital culture. That is, we give ourselves the means to observe what digital culture prevents us from observing, namely (1) active conditioning, (2) temporal irreversibility, (3) the observer, (4) non-linear causality and (5) complexity. To lose the agents chasing after him, Jason Bourne only had to rise in abstraction.[1]

5. Conclusion

The digital transformation of society is certainly an important trend

---

[1] Provided Bourne really wants to escape from the agents on his tail! Nowadays people seek online connections to achieve recognition for personal gratification or professional purposes.

today, but I claim that understanding this phenomenon in its own term would only mislead us. We can gain more critical distance by distinguishing digital technologies and digital culture and by deconstructing the latter. Digital culture is real albeit merely as one possibility among many others. Making this point gave me the opportunity to deploy two new conceptual distinction: medium/form and metric/nonmetric. In the end, what started with the study of the digital transformation of society culminates with the digital transformation of social theory.

The medium/form distinction and the metric/nonmetric distinction not only relativize digital culture, but all social theories centered on the individual as rational actor or socialized agent just as well. What is revealed is that "the individual" cannot be adopted as the starting point of sociological analysis, for "the individual" turns out to be the outcome of specific social processes. Those who prefer to suppress this truth pay a high price for that: they find themselves sacrificing their own sociological imagination. As a new starting point, I offer the concept of crowd, which of course encompasses multiple individuals as living bodies, except that the individuals-in-the-crowd may not think of themselves as individuals before anything else (as in free-individuals-operating-on-a-market-without-restrictions specifically, as Mary Douglas puts it).

Digital culture is reframed as a matter of nonmetric forms in the crowd. These forms rest on a framing of their own to project and sustain themselves in the course of communication taking place in the medium. The role of social *theory* is not to confirm this framing as the "correct one" but to reveal it for what it is: as a frame that we can choose to work with – or not. If our current social *theories* cannot fulfill this function, they must be transformed. The medium/form distinction and the metric/nonmetric distinction are designed as tools to make this happen.

References

Abbott, A., 1988. Transcending general linear reality. Sociol Theory 6 (2), 169–186.

Castells, M., 2010a. The Power of Identity, second edition. Blackwell, Malden.

Andrew-Gee, E., 2018. Your smartphone is making you stupid, antisocial and unhealthy. So why can't you put it down? In: Globe and Mail, . https://www.theglobeandmail.com/technology/your-smartphone-is-making-you-stupid/article37511900/.

Carney, M., 2018. Leave no dark corner, Australian broad casting. http://www.abc.net.au/news/2018-09-18/china-social-credit-a-model-citizen-in-a-digital-dictatorship/10200278.

Castells, M., 2010b. The Rise of Network Society, second edition. Blackwell, Malden.

Castells, M., 2015. Networks of Outrage and Hope, second edition. Polity, Cambridge.

Douglas, M., 1986. How Institutions Think. Syracuse University Press, New York.

Douglas, M., 1996. Natural Symbols. Routledge, New York.

Douglas, M., Wildavsky, A., 1983. Risk and Culture. University of California Press, Berkeley.

Durkheim, E., 1984. The Divison of Labor in Society. Free Press, New York.

von Foerster, H., 2003. Understanding Understanding. Springer-Verlag, New York.

Fontdevila, J., 2018. Switching among Netdoms: the relational sociology of Harrison C. White. In: Dépelteau, F. (Ed.), The Palgrave Handbook of Relational Sociology. Palgrave Macmillan, Cham.

Fontdevila, J., Opazo, M.P., Pilar, M., White, H.C., 2011. Order at the edge of Chaos: meanings from Netdom switching across functional systems. Sociol Theory 29 (3), 178–198.

Fuchs, S., 2001. Against Essentialism. Harvard University Press, Cambridge.

Guy, J.-S., 2017. Functional systems as metric forms and institutions as nonmetric forms: a neo-Luhmannian approach. J. Interdiscip. Econ. 55 (2), 32–47.

Guy, J.-S., 2018a. Bourdieu in hyperspace: from social topology to the space of flows. Int. Rev. Sociol. 28 (3), 510–523.

Guy, J.-S., 2018b. Is Niklas Luhmann a relational sociologist? In: Dépelteau, F. (Ed.), The Palgrave Handbook of Relational Sociology. Palgrave Macmillan, Cham.

Guy, J.-S., 2018c. Niklas Luhmann before relational sociology: the cybernetics roots of systems theory. Syst. Res. Behav. Sci. 35 (6), 856–868.

Heider, F., 2017. Chose et medium. Vrin, Paris.

Heylighen, F., Lenartowicz, M., 2017. The global brain as a model of the future information society: an introduction to the special issue. Technol. Forecast. Soc. Chang. 114, 1–6.

Luhmann, N., 1995. Social Systems. Stanford University Press, Stanford.

Luhmann, N., 2002. Theories of Distinction. Stanford University Press, Stanford.

Luhmann, N., 2012. Theory of Society. vol. volume 1 Stanford University Press, Stanford.

Luhmann, N., 2013a. Introduction to Systems Theory. Polity, Cambridge.

Luhmann, N., 2013b. Theory of Society. volume 2 Stanford University Press, Stanford.

Nagle, A., 2017. Kill all Normies. Zero Books, Washington.

Rainie, L., Wellman, B., 2012. Networked: The New Social Operating System. MIT Press, Cambridge.

Roth, S., Clark, C., Trofimov, N., Mkrtichyan, A., Heidingsfelder, M., Appignanesi, L., Perez-Valls, M., Berkel, J., Kaivo-oja, J., 2017. Futures of a distributed memory. A *global brain* wave measurement (1800–2000). Technol. Forecast. Soc. Chang. 118, 307–323.

Rushkoff, D., 2018. I ditched Facebook in 2013, and it's been fine. CNN https://www.cnn.com/2018/03/21/opinions/ditching-facebook-rushkoff/index.html.

Turner, F., 2010. From Counterculture to Cyberculture. University of Chicago Press, Chicago.

Von Foerster, H., 1984. Principles of self-organization-in a socio-managerial context. In: Ulrich, H., Probst, G.J.B. (Eds.), Self-Organization and Management in Sosical Systems-Insights, Promises, Doubts, and Questions. Springer-Verlag, New York.

White, H., 2008. Identity and Control, second edition. Princeton University Press, Princeton.

Wissinger, E., 2016. Inspired by Kim Kardashian, a feverish legion of followers struggle to achieve online fame. The Conversation https://theconversation.com/inspired-by-kim-kardashian-a-feverish-legion-of-followers-struggle-to-achieve-online-fame-51534.

Ziewitz, M., 2016. Governing algorithms: myth, mess, and methods, science. Sci. Technol. Hum. Values 41 (1), 3–16.

Jean-Sébastien Guy is assistant professor in the department of sociology and social anthropology at Dalhousie University, Halifax, Canada. He has previously published in *Current Sociology*, *Current Perspectives in Social Theory*, *European Journal of Social Theory* and *International Review of Sociology*. He is currently writing a book on the distinction between metric and nonmetric in sociology.