# Towards a Conception of Sociotechnical Pathology

Long paper

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**Abstract.** The concept of social pathology has long belonged to the toolkit of social scientists, and several critical social philosophers have found it indispensable for linking social ontology to social criticism. While different conceptions of social pathology, as well as their applicability as diagnostic tools for social wrongs, have been debated, a common area of neglect becomes apparent when we consider pathological states of social wholes, such as societies, as not only socially but technically constituted. As a first step towards filling this gap, this paper introduces the concept of sociotechnical pathology. Drawing on existing work on social pathology, it discusses four different general conceptions of sociotechnical pathology as a diagnostic tool for analyzing socially and technically constituted social wrongs. The paper contributes to philosophical inquiry at the cross-section of critical social philosophy and philosophy of technology by paving way for substantive conceptions of sociotechnical pathology.

**Keywords**: sociotechnical pathology, social pathology, sociotechnical systems, critical social philosophy, social wrongs, social ontology

## 1    Introduction

Comparisons between the health of organisms and that of societies, be it in the form of poetic metaphors or scientific concepts, have long persisted in vocabularies for analyzing social issues, for better or worse. The concept of *social pathology* – although debated in many respects – has been seen as indispensable for the project of social philosophy in that it seems particularly apt for analyzing phenomena, processes, and practices such as reification, ideology, alienation, invisibilization, social inequality, exploitation, domination, and oppression (see Zurn, 2011; Honneth, 2014; Laitinen & Särkelä, 2019). The indispensability of the concept lies in the notion that, in analyzing and criticizing specific wrongs of social life and of social entities (e.g., societies), lenses of interpersonal morality and political legitimacy can fail to give us a grasp of wrongs distinctively of a social kind (Laitinen & Särkelä, 2019; 2020).

Debates in social philosophy concern the proper conception of social pathology, and a specific issue pertains to the biological and medical connotations of the term (see

Honneth, 2014; Laitinen & Särkelä, 2019). In this paper, a common area of neglect across specific substantive conceptions is highlighted: the *technical* constitution of pathological conditions of social reality, which provides the backdrop for, and intertwines with, their social constitution. From databases and automated decision-making systems to networked digital infrastructures, technologies (increasingly) enable and mediate practices which can be understood as pathological in the sense described above. This highlights the need to consider the intertwining social and technical causes of pathological conditions *qua* social wrongs. To this end, this paper initiates a discussion on pathological conditions of social reality grounded in sociotechnical arrangements and argues for the concept of *sociotechnical pathology*. The general claim, that the concept of social pathology fails to account for the technological, is stated in Section 2, although it is supported throughout the paper. The paper proceeds to consider four ways of conceptualizing sociotechnical pathologies, drawing on work in critical social philosophy and other fields such as critical algorithm studies and AI ethics. Two normativist conceptions are discussed in Section 3, and two naturalist conceptions in Section 4. I will not defend a specific substantive conception of sociotechnical pathology, although for the sake of transparency I disclose that my sympathies lie with the fourth conception. The final section provides a summary of the paper.

## 2 Philosophy, pathology, and the sociotechnical fabric

The concept of social pathology is motivated by the seeming narrowness of moral and political philosophy as lenses for analyzing what can be characterized as 'social wrongs' – wrongful states, diseases, or disorders of social life, of social entities, or of social reality as a whole (Laitinen & Särkelä, 2019; 2020). Common examples of social wrongs would include alienation, invisibilization, anomie, misrecognition, and reification (see ibid.; Zurn, 2011). Given the distinct nature of these social wrongs, "the concept of pathology seems a handy way of distinguishing the project of 'critical social philosophy' from the projects of 'political philosophy' or 'moral philosophy'" in that "questions of moral rightness and political legitimacy appear one-sided and do not grasp the specific disorder[s] addressed" (Laitinen & Särkelä, 2019, 87; Neuhouser, 2012). To describe a social pathology as a failure to adhere to moral principles, as injustice, as a failure of democracy, or as political illegitimacy, is to *under-describe* it, even if such failures capture certain salient aspects of that pathology (see Neuhouser, 2012; Harris, 2019; Laitinen & Särkelä, 2019). Put simply, moral and political firstorder standards may fail to specify what is distinctively wrong in the case of social wrongs.

Notably, the biological and medical terminology of social pathology has raised concern in discussions in the social sciences and social philosophy. Some take the term 'pathology' to naturalize social phenomena and to constitute a counterproductive way of describing and criticizing social issues. Others find the notion of pathology as indispensable for diagnosing social wrongs (see discussions in Honneth, 2014; Laitinen & Särkelä, 2019). This issue is discussed in this paper only to the extent that is necessary for highlighting ontological commitments of specific conceptions of social pathology.

The concept of social pathology is generally meant to aid in the analysis of social wrongs as distinct from other wrongs, and thereby implies a deviation from common use of the concept of 'wrongness' as interchangeable with 'wrongness' in the sense of interpersonal violations of morality or as injustice. Indeed, it is here taken that injustice, for example, is a wrong-making feature alongside others, including other political wrongs, and (non-)interpersonal violations of moral principles[1]. Hence, actions and states-of-affairs can be, in this account, understood as *wrong* in different senses – wrong *qua* morally wrong, wrong *qua* unjust, and so on. This demarcates the area of inquiry and critique understood as critical social philosophy, distinguishing it from political and moral philosophy: whereas, say, political ethics is concerned with political rights and wrongs, critical social philosophy concerns itself with social rights and wrongs (see Laitinen & Särkelä, 2019; 2020).

Given the general consensus regarding ethical and political issues related to technology, it seems clear that sociotechnical analysis is necessary for understanding the interrelated social and technical factors underlying many of the relevant wrongs. However, to motivate the concept of sociotechnical pathology, I need to argue that this is the case with social wrongs as well.

### 2.1 Motivating the concept of sociotechnical pathology

What motivates the concept of sociotechnical pathology as a diagnostic tool of specific subset of wrongs? The reasoning here goes as follows: If social reality can suffer from pathological conditions (i.e., if there can be social wrongs) and if technical objects are at least minimally constitutive of social reality, then it seems social wrongs can be at least minimally technically caused and/or constituted. In other words, if social pathology refers to there being something wrong with the social fabric (Laitinen & Särkelä, 2020, section 3), sociotechnical pathology could be understood as something being wrong with the 'sociotechnical fabric' – or what I refer to as a 'sociotechnical arrangements' in the plural form. Accordingly, it seems a diagnostic tool for pathologies of the social must, regardless of the substantive conception of sociotechnical pathology, cover its technical causes (e.g., the functions and outputs of technical systems, or 'performance' by technical artefacts) and conditions of possibility (e.g., technological resources, conditions, affordances, infrastructures, and networks, which constitute the backdrop for the construction of social reality).

This reasoning incorporates two core theses commonly maintained by sociotechnical systems theorists: (1) both social and technical factors are constitutive of systems' functioning and success, and that (2) interactions between these factors can involve linear and non-linear causal relationships. This leaves open the possibility that pathological conditions of social reality are undesigned and unexpected: social and technical factors can malfunction, perhaps simultaneously, leading a sociotechnical

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[1] Roughly, interpersonal violations of moral principles occur when a person wrongs another, while what I call non-interpersonal violations comprise wrongs against non-persons, such as animals.

system (or "organism") to a pathological state. Conversely, interventions on one or the other, or both, can work to "cure" pathological states (or not). In this sense, with the term 'minimal constitution' used above I simply refer to the myriad of ways (networked) technical objects can causally contribute to the existence of pathological conditions, directly and indirectly. For example, technical objects and material and digital infrastructure can (and do) constitute the backdrop of social reality and activity. In this sense, there is always a sociotechnical arrangement underlying social reality. Technical objects – e.g., algorithmic decision-making systems – also increasingly perform functions that actively maintain and transform social reality, for better or worse. Hence, technology can be at least one cause in the causal chain leading to social wrongs. For example, alienation, invisibilization, and ideologies such as colonialism and capitalism, among other ills of the social typically diagnosed as pathologies (see Zurn, 2011), take novel forms as they are increasingly mediated by such systems in the hands of amalgams of public and private power (see Eubanks, 2018; Noble, 2018; Zuboff, 2019; Mohamed, Png & Isaac, 2020). Sociotechnical analysis, then, is not only necessary for understanding the backdrop of social reality; it is necessary for in-depth analysis and critique of sociotechnical arrangements and causes underlying pathologies. As automated decision-making systems also exhibit what may be called 'functional autonomy' in that they can causally act on the world without being directly manually operated, social wrongs can be exacerbated or amplified due to the continuous and ubiquituous nature of their operation, as well as a lack of both technical and organizational transparency. In these senses, understanding of pathological conditions can be left too 'thin' if not complemented by sociotechnical analysis.

Technology is primarily understood here as a backdrop of social activity or as performing functions relevant to social reality and its state. There is, however, room in this view for stronger arguments to the end that technical objects would themselves be (quasi-)social (quasi-)agents in some relevant sense[2], and thereby function as subjects of pathological experience capable of being wronged. This would effectively strengthen their ontological status as part of agential, social relations constitutive of what have been traditionally understood as social entities in (critical) social ontology. As my aim is to only pave way for detailed substantive conceptions of sociotechnical pathology, I commit here only to a minimal view where technical objects can function as (partial) metaphysical grounds of a social ontology.

Now, a social pathologist – even if convinced by the relevance of technological mediation for discussions of social pathology in some extra-theoretical sense, or with respect to moral and political considerations – might regard the sociotechnical framing as redundant or irrelevant to the diagnosis of pathologies. Indeed, could we not merely ascribe instrumental status to technology? To do so, I maintain, would be to neglect that the concept of the 'sociotechnical' is precisely meant to describe the interdependence, intertwined-ness, and reciprocal construction of practices and contexts irreducible to the social or the technical alone: social reality is (and has been) a *sociotechnical reality* in the strict sense.

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[2] For relevant discussions see Coeckelbergh (2012) and Gunkel (2012).

This section has provided general motivation for the concept of sociotechnical pathology. For present purposes, I shall hope the reader is convinced of the necessity of sociotechnical analysis for understanding pathological conditions of social reality. To pave way for substantive accounts in this respect, I will next sketch four different conceptions of sociotechnical pathology following a four-fold classification for conceptions of social pathology proposed in Laitinen and Särkelä (2019)[3]. The first two conceptions are called *normativist* conceptions as they ascribe the status 'pathological' to a subset of social wrongs or failures (Section 3). The other two conceptions are dubbed *naturalist*; here, social pathology is the diagnosis of something as distinctively a social wrong (Section 4). In other words, the first two conceptions maintain that social failures are diagnosable as pathologies if they are wrong, while the second two use the concept of pathology to identify social wrongs (Ibid., 87). I shall briefly review these conceptions of social pathology, considering the implications of the notion of sociotechnicality with respect to each conception. I also point to some possible pitfalls and shortcomings along the way. I will not defend any specific conception, although for the sake of transparency I note that my sympathies lie with the fourth conception.

## 3        Normativist conceptions of sociotechnical pathology

Normativist conceptions of social and sociotechnical pathology ascribe the status 'pathological' to a subset of social wrongs. The first conception discussed here is *antitheoretical* as it maintains no common conceptual structure underlying social wrongs can be found; it only uses 'pathology' as a label for socially criticizable issues. Proponents of the second conception will disagree, holding that there is a unified structure to be found in sociotechnical pathologies.

### 3.1     An anti-theoretical conception of sociotechnical pathology

According to the first (anti-theoretical and anti-naturalist) normativist view of social pathology, normativist view of social pathology, the term 'social pathology' simply refers to things that are in some sense social and wrong (Laitinen & Särkelä, 2019, 83–84). Social pathology, in this view, is an umbrella term that captures family resemblant practices, ideologies, and (pluralities of) dynamics, for instance, which inhibit human flourishing, or violate conditions necessary for leading a good life (Laitinen & Särkelä, 2019; see also Harris, 2019). As the aforementioned need not share in an inner logic or structure, this conception can be understood as anti-theoretical (Laitinen & Särkelä, 2019). As a diagnostic and a tool for social critique, the conception of social pathology is nonetheless here "thicker" than traditional liberal critique and, as such, cannot avoid from committing to at least a minimally normative ethical view (Honneth, 2007; Harris, 2019). Proponents of this conception might, however, see no reason beyond smooth communication for using the concept of 'pathology' because the concept may carry

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[3] For categorizations of conceptions of social pathology along different lines, see Harris (2019).

"naturalizing, biologizing, universalizing, medicalizing, organistic, vitalistic, and uncritical overtones" (Laitinen & Särkelä, 2019, 84).

As this first conception provides no theoretical account of social pathology, not much can be said about translating the concept into the language of sociotechnical systems aside the general comments in Section 2 concerning the sociotechnical constitutions and causes of social wrongs. Sociotechnical pathologies, according to this anti-theoretical account, do not share in features or structure amenable to analysis aside their wrongness, however. In this sense, sociotechnical analysis can only offer negative characterizations of social wrongs, and retrospectively inform their sociotechnical "etiology" once they are identified. For proponents of non-essentialist views of social wrongs, the conception can yet be of use, perhaps.

### 3.2    Dynamic and disorder: Structural conceptions of sociotechnical pathology

A second set of normativist conceptions of social pathology is unified by the thesis that social pathologies share a structure amenable to theoretical analysis. This theoretical structure can be analyzed in anti-naturalist terms, however, without the need for naturalistic biological, or medical terminology some consider problematic (see discussion in Laitinen & Särkelä, 2019). The shared structure underlying social pathologies can be that of a 'second-order disorder' (Zurn, 2011), or a negative self-perpetuating dynamic (Neuhouser, 2012; see also Harris, 2019), for example.

In Christopher Zurn's view, pathologies, including "ideological recognition, maldistribution, invisibilisation, rationality distortions, reification and institutionalised self-realisation", share a conceptual structure in that they "all operate by means of second-order disorders" (Zurn, 2011, 345). With second-order disorders Zurn refers to "constitutive disconnects between first-order contents and second-order reflexive comprehension of those contents, where those disconnects are pervasive and socially caused" (2011, 345–346). Such a disconnect may hold between the deliberate invisibilization of certain groups, and the group's members' experiences and comprehension of this wronging, for example. An alternative view is that social pathologies take the form of an almost unstoppable, self-perpetuating dynamic which exacerbates initial bad circumstances, possibly even without social agents acknowledging this dynamic (Neuhouser, 2012). Issues such as colonialism, capitalism, and global warming would seem to lend themselves to social pathology diagnoses as either disorders or (pluralities of) vicious dynamics, depending on the view.

Could the presently discussed normativist conceptions of social pathology provide a theoretical basis for conceptualizing sociotechnical pathologies? To start, a diverse literature on data- and algorithmically driven forms of capitalism and colonialism, exploitation, oppression, and dispossession (Noble, 2018; Mohamed, Png & Isaac, 2020; Zuboff, 2019) suggests various forms of technologically mediated social wronging are irreducible to violations of principles of interpersonal morality or lack of political legitimacy alone. Not only do they operate also at distinctively social areas of life – at the level of the social fabric itself – but they feed on structural inequalities, asymmetric relations of power, resource- and data-hungry computation, and thus have

effects that traverse and transform spheres of (social) life. These patterns of social wronging often involve layered opacity of which the technology is partially constitutive: "black box" algorithms are used by "black box" companies and public organizations (or amalgams thereof), and this layered lack of transparency effectively denies subjects informational resources necessary for reflexive comprehension. Individuals may not know why, how, and when their data is collected or, whether and how an algorithm configures decisions regarding their fate, and whether the aforementioned are justified (see, e.g., Eubanks, 2018). The conception of sociotechnical pathology as a second-order disorder seems to capture something important, accordingly: technology is not a mere instrument constitutive of the first-order conditions of sociotechnical reality – sociotechnical arrangements can also prevent subjects' comprehension of them, and effectively obstruct social critique.

Likewise, the self-perpetuating negative dynamic discussed by Neuhouser (2012) seems apt for describing systemic failures of sociotechnical arrangements and practices. Consider, say, feedback loops in algorithmic decision-making (see, e.g., Lum & Isaac, 2016): Algorithmic systems are first fed structurally biased data, after which they enact on that data, further disadvantaging the disadvantaged. The resulting data is captured and fed back into the systems as 'ground truth' for future decisions. The loop continues in virtue of the self-reinforcing nature of the sociotechnical arrangement, including the data pipeline. To the extent that this is a common pattern – and, indeed, it seems to be – the notion that sociotechnical pathologies share such a self-perpetuating structure more generally has some initial credibility.

I should here emphasize that the technological aspect of the discussed social wrongs is indispensable as an object of analysis in both cases, be it as second-order disorders – i.e., disconnections between sociotechnical reality and subjects' comprehension of it – or 'negative spiral' dynamics. By acknowledging the fact that the technology is partly constitutive of the pathological disconnect or dynamic, and by incorporating the technical layer into our conception of pathology, we fill the gap that is unbridgeable within the framing of *social* pathology alone.

Now, there are certain problems with the conception of sociotechnical pathology *qua* second-order disorder or dynamic. Regarding pathologies as second-order disorders, Laitinen and Särkelä aptly note that "the fault need not lie in the disconnect between reality and reflection, but in the social reality itself" (2019, 85). Indeed, both invisibilization and brute force can be reflexively recognized by individuals experiencing such wronging, for example, although the contrary may also be the case in cases of "learnt self-invisibilization" (ibid.). Hence, this conception seems to neglect pathological first-order wrongs where no disconnect occurs. This critique arguably applies to the analogous conception of sociotechnical pathology: while social wrongs in the first-order – e.g., algorithmic oppression (Noble, 2018) – can function opaquely due to the "black box" nature of both modern machine learning algorithms and companies using them, and thereby create disconnections between reality and reflection, this is not *necessarily* the case. We need only look at contemporary forms of technological resistance to verify this claim. For example, "protective optimization technologies", which fool machine learning systems and meddle with their predictions,

are used to counter the pervasive optimization logics built into decision-making systems, and to disarm technological surveillance (Kulynych et al., 2020). There seems to be little reason to suppose that pathologies, such as oppressive sociotechnical practices and arrangements, could not be reflexively experienced as wronging. As Laitinen and Särkelä note (2019, 96), the conception of pathology as a second-order disorder seems to identify "reflexive" as opposed to "social" pathologies.

Regarding the dynamic conception of sociotechnical pathology, it would seem that first-order wrongs as sociotechnical phenomena can exhibit structural features other than unstoppable self-perpetuating dynamics. Conceptually speaking, structural similarities can likely be found underlying cases where algorithmic systems reproduce social inequality, but it is not clear that this applies to sociotechnically enabled or induced alienation and invisibilization, for example. It is also possible that there are diverse structures for wrongs under a single category, such as those mentioned previously, which means that a normativist conception might benefit from a more complex and nuanced account of pathological structures underlying sociotechnical phenomena (cf. Laitinen & Särkelä, 2019, 86–87). Alternatively, one might adopt a naturalist approach, where the question regarding unified theoretical structure does not similarly arise. These will be considered next.

## 4  Naturalist conceptions of sociotechnical pathology

Proponents of naturalist views use the concept of social pathology in a contentful manner in order to identify what is wrong with social reality (Laitinen & Särkelä, 2019, 87). In the *organistic* view, social pathology is conceptualized as a disease in a social entity, which, in this view, shares a structure similar to that of a biological organism. Another conception, the so-called *processual* conception, conceives of pathologies as stagnation and degeneration in natural social lifeprocesses. I will argue that, as technology can be understood as an inorganic complement or 'prosthetic' harnessed for the reproductive aims of social wholes, both conceptions provide a suitable conceptual scheme for substantive conceptions of sociotechnical pathology, although the latter conception may be preferable.

### 4.1  The organistic conception of sociotechnical pathology

The first conception embraces the naturalistic terminology of pathology: a social pathology is an 'illness' in a social organism – specifically, a deviation from the "reproductive values and ends of society" (Laitinen & Särkelä, 2019, 88). This 'organicist' view is attributable, most notably, to Durkeim and his analysis of *anomie* ([1895] 2013) but it has gained new life in the hands of Honneth (2014) who rehabilitated the idea of society as an organism and social pathology as a 'disease of society'. Importantly, social pathology as illness or disease is not a phenomenon diagnosed at the level of individuals, or even the "organs" of the society-as-organism, but the organism as a whole. In virtue of this framing, the organicist view allows for diagnosing pathologies not as family resemblant wrongs (with the cost of an

antitheoretical approach to social pathology) or as wrongs sharing a second-order property (with the cost of misdiagnosing first-order social wrongs as non-pathological), but as ones interfering with the reproductive function of the social whole (insofar as that whole takes an organistic form). Thus, whereas normativist conceptions are uncomfortable with the naturalistic terminology, and would indeed dispose of it, "[t]he critical force of the concept" in the organistic view lies precisely "in the supposition that societal reproduction can fail by analogy to the way in which the self-maintenance of a living organism is disrupted when it falls ill" (Laitinen & Särkelä, 2019, 89). Notably, within the organicist view "[m]orality and politics can conflict with other institutional spheres of the societal whole", and so they too can "fail at their reproductive tasks, in which case they will be diagnosed as requiring revision" (ibid.).

How to accommodate sociotechnical diagnosis of pathology with the organistic view? One option is to understand technology as a 'prosthetic' part of the social whole[4]. Here, technologies are functional replacements of (or complements to) the organism's functional subcomponents, its "organs". Consider, say, Big Data datasets and automated decision-making systems as technical prosthetics of social organisms. Datasets could be understood from a Derridian technology-as-*prosthesis* viewpoint as augmenting a social organism's memory in that they perform and complement the archiving processes necessary for the reproduction of the social whole. The implementation of automated decision-making systems in the public sector is often guided the vision that institutional functions are optimized, made more effective, consistent, and objective by "tapping into" this prosthetic memory. In this sense, datasets as technology not only function as archives and memories, but they enable the optimized reproduction of the self-maintaining social organism through interaction with other technologies-as-organs, such as automated optimization systems.

Now, within this view, a pathological condition can be understood as sociotechnical insofar as *disruption* of the social organism's self-maintaining process is attributable to technical factors (in addition to social ones). The technical object as prosthetic can be, on the one hand, directly rejected by the social whole akin to how transplants or artificial limbs can irritate the body and be rejected by it. This would be the case when a specific technology or technological condition is reflexively taken as unfit to serve the ends of the social whole. For example, the use of carbon-intensive technology running on fossil fuels can be understood as pathological in this sense. There is a large consensus on addressing the climate crisis, and various ideological dynamics, such as capitalist and colonialist logics *qua* social patterns, contribute to (and reproduce) the present pathological condition of inaction. Importantly, however, from the sociotechnical point of view, technology itself is one causal reason of the organism's disease by effectively and actively undermining conditions of its self-maintenance in a causal-functional sense.

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[4] An alternative view is a relational one, where the ontological status of technical artefacts is less neatly separable from questions of epistemology. Relational views have been discussed in Coeckelbergh (2017) and Gunkel (2012), for example.

The notion of the interrelatedness and reciprocal construction of the social and the technical is essential here, as ideological narratives, for example, can distort second-order reflexivity regarding pathological conditions. Under pathological conditions, "technosolutionist" narratives can create vicious cycles of alienation akin to what was proposed by Neuhouser (2012). Mark Coeckelbergh highlights this issue vividly by raising the concern of AI technology possibly becoming an "alienation machine", that is, "an instrument to leave the Earth and deny our vulnerable, bodily, earthly, and dependent existential condition" (2020, 196). This is an example of a more indirect pattern of disruption where technical affordances (or lack thereof) configure second-order reflection. Note that the pathology is not in these cases "attributed to the many suffering individuals, not even to the malfunctioning institutional 'organs' but only to the social organism" (Laitinen & Särkelä, 2019, 89). Given the sociotechnical bases of the pathological condition, however, the "interface" between the social and prosthetic organs of the organism cannot be omitted from diagnosis. Threads of the social fabric, language (e.g., narrative), technology, and social activity mutually shape each other (Coeckelbergh, 2017), and the sociotechnical fabric as a whole, respectively.

As was stated above, morality and politics can also fail their reproductive functions within the organistic view. Accordingly, it may be that ethical and political standards for technology development and use need to be revised to safeguard the organism's technologically mediated self-maintaining process. Concrete examples abound, as several calls have been made for approaches to ethical governance of technology better suited to criticize existing power asymmetries in contemporary societies (Kalluri, 2020), more reflective of social inequalities and histories of oppression (Fazelpour & Lipton, 2020), and which involve public and deliberative forms of democratic decision-making (Wong, 2020). Within the organistic view, then, a pathological condition where the operative first-order normative standards are considered incapable of serving the reproduction of social values and ends can also be indirectly technically constituted, as it were. In such cases, the irritation located at the interface of the prosthetics and the organism is indicative of a disconnect between the ends of the social whole, on the one hand, and the standards applied in assessing the fit between social and technical components of the organism, on the other.

Now, the organicist conception is vulnerable to certain criticisms which I do not consider here[5]. However, one significant disadvantage of the organicist view I wish to highlight here is "that the organism analogy squeezes society into such a static shape that radical social critique becomes impossible" (Laitinen & Särkelä, 2019, 91). In other words, as the reproductive ends of social organisms are taken as given, critique of those ends would itself be understood as pathological. This implies that sociotechnical arrangements and conditions of possibility cannot be criticized within this view insofar as they serve the values and ends of the social whole, whatever they may be. This is problematic, firstly, because the need for critique of societal ends informed by sociotechnical considerations is partly what motivates the concept of sociotechnical

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[5] Laitinen and Särkelä (2019) discuss, for example, problems with ascribing similar idealized structures to organisms and the societies.

pathology to begin with (cf. ibid.). Secondly, this seems to also, in an indirect manner, limit the space for criticism of first-order normative content – namely, the ethical and political standards applicable to evaluation of sociotechnical arrangements. As the normative force of critique of first-order contents will likely be derived partly from conceptions of societal ends (see Honneth, 2007), the "naturalization" of the operative ends of a social whole can shield first-order normative standards from critique insofar as those standards are aligned with the naturalized ends.

A viable conception of sociotechnical pathology should retain the diagnostic power of the concept afforded by the naturalist frame without committing one to a view with no room for transformative social critique. The last conception discussed here promises to do just that.

### 4.2    Sociotechnical pathology as stagnation and degeneration of social life

Another naturalist conception of social pathology builds mutability into the very concept of social reality by understanding pathological states as things being wrong with social lifeprocesses. Laitinen and Särkelä, who attribute the ontological view underlying this conception to John Dewey, summarize its ontological commitments as follows: "Whereas organicism rests on the conception of the organism as an ideally organized self-maintaining substance […] the idea of a distinctively social life, by contrast, is committed to the idea of a lifeprocess operating above and beneath the living body and conceives life as irreducible to the organism" (2019, 94). Social life, according to this conception, can develop into a pathological state by losing its "transformative growth" and stagnating into "a merely organic process", or by failing to reproduce its form, degenerating "into mere inorganic processuality" (Ibid.). For the social pathologist, the diagnosis thus consists not in locating a systemic disorder or malfunction; the pathology is found in the absence of transformative growth natural to social lifeprocesses or in the degeneration of that life into "mere inorganic processuality" (Ibid.). In contrast to the organicist view, mere maintenance of form is not sufficient for social *life*, which is by definition growing, although it is necessary to the extent that form is required for reproduction of that life above a mere organic genus of living: "social processes need to disintegrate in order to integrate" and critique, in this view, "become[s] a medium of life", respectively (ibid., 95). Importantly, then, as this conception builds critique into the notion of social life, it retains both the necessity and transformative power of social critique as a core task of critical social philosophy without adopting the restrictive ontology of the organistic view.

The processual view of social reality seems a viable scheme for conceptualizing sociotechnical pathology if we understand technology as prosthetic to the social lifeprocess, respectively. A sociotechnical arrangement, according to this conception, is pathological if it either (i) contributes to the stagnation of social life or (ii) degenerates social life into mere processuality (as a genus of life). The advantage of this view is that it seems to capture many (if not all) previously discussed social wrongs in the production of which technical conditions and (partial) causes play a vital role. For example, it would seem to capture the social wrongs of algorithmic colonialism and

surveillance capitalism in a manner faithful to the (partially) technical constitution of such wrongs with the social fabric: they are wrong *qua*pathological in that they stagnate social life, and the technical mediation of these ideological practices amplifies that wrongness by making them ubiquitous and opaque, thus escaping reflection by the social whole. Furthermore, we can also diagnose sociotechnical practices and arrangements as pathological when they do not necessarily exacerbate but "merely" *reproduce* failures of social life. The reproduction of social inequality and structural oppression with and through automated systems (Eubanks, 2018; Noble, 2018), for example, lends itself to a diagnosis of pathology (in addition to involving apparent moral and political wrongs). In these cases, social life is pathological because it effectively stagnates its natural transformative growth through technology. Sociotechnical arrangements that generate and sustain 'feedback loops' (see above), for example, reproduce the very technological conditions actively preventing transformative growth: as data that capture social inequalities are fed back into the prosthetic memory of social life in a looped manner, pathological conditions of social life are further cemented. Note that this is analogical to the issue considered with the organistic view: social life is pathological because it is taking the baseline consideration for what the social fabric *ought to be like*[6] as given, constructing the (in)organic bases of social life according to ends that are closed and pre-determined, as opposed to open to critical scrutiny.

Importantly, however, the ontological commitments of the processual conception do not preclude the possibility of social critique. Technology can be understood as prosthetically complementary to the reproduction of values and ends of social life without prescribing it these ends in a "naturalistic" manner. That is, the presented ends of social life can be criticized, although this can only be done from within social life itself; and indeed, critique is part of that social life (see Laitinen & Särkelä, 2019, 94–96). Hence, this view accommodates for both the reproductive and transformative aims of technology development and use without closing out the possibility for social criticism when actual sociotechnical arrangements fail to deliver on those promises. Because critique is necessary for social lifeprocesses under any given sociotechnical arrangement, this view can retain an optimism regarding technology without dissolving into 'technological solutionism' or 'technochauvinism' (Broussard, 2018), without allowing technology to become an 'alienation machine' (Coeckelbergh, 2020, 196), and without rendering critical social philosophy toothless at the face of pathologies. Note that it also allows for understanding sociotechnical practices of resistance *as* critique without diagnosing them as necessarily pathological. Within the organistic view, the use of protective optimization technologies in the name of political resistance, for example, would be considered pathological if it stands in opposition to the reproductive aims of the social whole. In contrast, here, the exercise of resistance with and through technology can effectively *expose* pathological conditions of social life by making technological systems' logics of optimization and utility maximization transparent and thereby socially contestable (Kulynych et al., 2020). Thus, the processual view of

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[6] For a discussion on *ought to be* -norms, see Laitinen & Särkelä (2020).

sociotechnical pathology can provide the critical social philosopher a more nuanced view of social critique as it is conducted in technologically mediated ways.

Social critique could be itself pathological, however, by leading to the death of reproductive ends worth preserving or, conversely, by blocking transformative practice by preserving societal values (Laitinen & Särkelä, 2019, 95). Insofar as the practice of social critique itself is understood as self-transformative and fallibilistic concerning its own method, this is not an issue (see Särkelä, 2017). The present frame, however, highlights that critique also operates from within the sociotechnical arrangements that constitute its object. To remain truly self-transformative and fallibilistic, the pathologist needs to also account for how the technical mediates the relationship between "metacritical" and critical dimensions of sociotechnical diagnosis, respectively.

## 5    Conclusions

This paper has discussed the sociotechnical constitution and causes of social wrongs *qua* pathological conditions of social reality. The primary aim has been to introduce and motivate the concept of sociotechnical pathology, which bridges the gap between critical social philosophy and philosophy of technology by framing sociotechnical systems and arrangements as indispensable parts of social (or sociotechnical) ontology, and thereby the analysis and critique of pathological conditions of, or "wrongs-with", the social fabric. The concept is to aid critical social philosophy in the analysis of social wrongs, such as algorithmic oppression, algorithmic colonialism, surveillance capitalism, among other social ills, such as alienation and loss of meaning.  Four conceptions of sociotechnical pathology were discussed:

- *The anti-theoretical, normativist conception*: 'sociotechnical pathology' refers to diverse sociotechnically constituted social wrongs with no unifying theoretical structure.
- *The structural, normativist conception*: 'sociotechnical pathology' refers to sociotechnically constituted social wrongs which have a common theoretical structure amenable to analysis.
- *The organistic, naturalist conception*: a sociotechnical practice or arrangement is pathological when it obstructs or prevents the reproduction of the values or ends of a social whole.
- *The processual, naturalist conception*: a sociotechnical practice or arrangement is pathological when it stagnates or degenerates the lifeprocess of a social whole.

The general outlines offered here hopefully aid others on their journey towards constructing substantive conceptions of sociotechnical pathology, at least by pointing to some possible pitfalls along the road. In any case, the general argument for the necessity of sociotechnical considerations in analyzing social wrongs can be regarded as independent from this mapping exercise. There are surely other ways of conceptualizing sociotechnical pathologies, but any conception of sociotechnical pathology will plausibly concede some version of the general argument put forth here.

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