ON THE POSSIBILITY OF PRE-EMPTIVE ETHICS IN POST-TRUTH INTERREGNUM

SILVIYA SERAFIMOVA

Institute of Philosophy and Sociology, Bulgarian Academy of Sciences

silviya.serafimova@ips.bas.bg

Abstract

The major objective of this article is to elaborate upon Pellizzoni's concept of pre-emptive truth as a particular type of post-truth towards what I coin pre-emptive ethics. Adopting the latter can contribute to avoiding both moral absolutism and moral relativism in the post-truth interregnum of knowledge production. Specifically, I examine two types of what I consider pre-emptive sociotechnical imaginaries of "smart" futures: 1) a 'negative' model due to which pre-emptive ethics functions as controversial post-ethics that inherits the pitfalls of moral absolutism and moral relativism regarding privatization of morality (Porpora et al., 2013) and 2) a 'positive' model broadening the "imagined" publics of "smart" users and democratic decision-making (Ballo and Vaage, 2022) by justifying AI virtue ethics (Hagendorff, 2022) as an illuminative candidate for pre-emptive ethics.

Keywords: post-truth, post-ethics, pre-emptive truth, pre-emptive ethics, sociotechnical imaginaries of "smart" futures

Introduction

Tackling the performative potential of post-truth to knowledge production and the associated challenges to morality necessitates one to examine the genealogy of post-truth beyond its use as a catchphrase. [1] Considering that post-truth's performative potential underlies the "shifts or intensifications in major public imaginations of science and politics…" (Rommetveit, 2022: 4), those of knowledge production can be traced back to the ontological and epistemic transformations behind the "economies of knowing and unknowing" (Rommetveit, 2022: 8). In turn, analyzing the genealogy of such shifts assumes that researchers should explore how one can preserve the normative potential of the new ethical frameworks, viz., to look for solutions to overcome both moral absolutism and moral relativism triggered by post-truth scenarios of knowledge production.

On the one hand, we face the historical development of post-truth, [2] as coined by the American playwright Steve Tesich in his article *A government of lies* (1992), which describes the attitudes of the US public about the First Gulf War that no longer wants to know the truth, and Alterman's book *When Presidents Lie: A History of Official Deception and Its Consequences* (2004) about the Iraq invasion, which is interpreted as based upon falsified evidence (see Rommetveit, 2022: 9).

On the other one, there are scholarly debates about the ways of approaching "post-truth attributions" as "ultimately deeply normative" (Rommetveit, 2022: 2). In this context, the following two general strategies of dealing with post-truth are adopted: 1) defending the normative validity of fact, truth and rationality by "condemning constructivist, post-modern, attacks on these" (see McIntyre, 2018, Wikforss, 2018; Rommetveit, 2022: 2) and 2) the Science and Technology Studies (STS) post-truth debates about "blurring of categories separating facts from values, opinion and imagination, affect from reason, and science from politics" (Rommetveit, 2022: 5).

The beginning of STS post-truth debates can be traced back to Steve Fuller's analysis of post-truth and STS's skepticism towards scientific truth claims known as the principle of symmetry. [3] According to the latter, "untrue" claims are granted equal status as "true" ones for the purposes of explaining the status of truth (see Bloor, 1976; Rommetveit, 2022: 15). Roughly speaking, the argument is that "truth or untruth of any scientific knowledge-claim cannot be explained by reference to its eventual standing as true or untrue" (Rommetveit, 2022: 15).

Fuller's view that "post-truth would count as independent corroboration (2018: 59) of strong STS commitments" (Rommetveit, 2022: 15) raised heated responses by the editor of the journal *Social Studies of Science,* Sergio Sismondo (2017), and followed up by reactions from Collins, Evans and Weinel (2017), Jasanoff and Simmet (2017), Lynch (2017) and a final comment made by Sismondo himself (2017a) (see Rommetveit, 2022: 15). As Rommetveit sums it up: "Whereas the debate certainly has continued well beyond the SSS [*Social Studies of Science*] discussion, it provided occasion for some fairly well-established positions to be played out in a new setting" (Rommetveit, 2022: 15).

Based upon the clarifications above, the major objective of this article is to elaborate upon Pellizzoni's concept of pre-emptive truth towards what I coin pre-emptive ethics.

Extrapolating the concept of pre-emptive truth as positively "retro*acting*" on the past by transforming things, while moving back and forth through time (2022: 75-76), one can shed light upon how building pre-emptive imaginaries can constructively predetermine morally and politically justifiable futures.

Specifically, I examine two models of what I coin pre-emptive sociotechnical imaginaries of "smart" futures: 1) a 'negative' model underlain by the 'negative' impact of pre-emptive ethics as privatization of morality (Porpora et al., 2013), fostering the symbiosis of moral absolutism and moral relativism and 2) a 'positive' model showing how if pre-emptive ethics is examined as retro-*acting* rather than simply re-*interpreting* 'old' ethical theories, one can successfully justify AI virtue ethics (Hagendorff, 2022) as constructive pre-emptive ethics.

Is post-truth always a matter of post-ethics?

Similar to the *historical* development of post-truth, the idea of post-ethics [4] is triggered by the changes in US politics since the Iraq war and Trump's election. For instance, Porpora et al.'s book *Post-ethical Society* (2013) reveals how the latter is determined by the so-called privatization of morality, viz., by the withdrawal not only of religion but also of morality from the public sphere (Porpora et al., 2013: 2). In this context, post-ethical society is described as meeting the requirements of the postmetaphisical age where morals are left without foundations (see Porpora et al., 2013: 4).

Regarding the changes brought about by Trump's election, post-ethical society is considered a society of general distrust that is developed by *all* the actors in the political discourse. As stated by Anderson, we live in a post-truth society, "But we also live in a post-ethics society—and actually a post-reality society, because about half of our politicians do not trust science and frequently do not tell the truth. We are a post-ethics society chiefly because we cannot trust politicians to put partisanship aside to address extremely pressing problems before us. The crisis in American democracy will not be resolved unless we address both problems" (Anderson, 2021).

Going back to the STS debates, one can point out that the scientific clarification of such arguments necessitates the exploration of why we should question the already-mentioned principle of symmetry in broader terms. That is why I claim that assuming a symmetry between post-truth and post-ethics deprives us of the possibility not only to rethink asymmetry beyond

the different forms of naturalism (see Pellizzoni, 2022: 79) but also to go beyond the pejorative, asymmetric usage of post-truth (see Rommetveit, 2022: 10). [5]

Based upon the clarifications above, I introduce the concept of pre-emptive ethics to demonstrate that not every single form of post-truth fosters post-ethics as *non*-ethics. It can also retro-*actively* revive existing ethical frameworks, as well as apply them to the changed post-truth reality. Specifically, I analyze why Pellizzoni's theory of pre-emptive truth can be elaborated in terms of coining AI virtue ethics (Hagendorff, 2022) pre-emptive ethics that can contribute to questioning the negative consequences of post-ethics in the "smart" city discourse.

The role of pre-emptive truth in the post-truth discourse

The discussions about pre-emption in the military and security discourse began yet in the late 1990s (Cooper, 2006; Kaiser, 2015). Pre-emption's major objective is "to confront merely guessed threats, lacking even the inconclusive but robust evidence required for precautionary measures…" which one should ""incite" … help them emerge, acting to create the reality that demonstrates such very action was sound since the beginning" (Pellizzoni, 2022: 75). Consequently, the epistemic and moral relativism of pre-emptive truth can be defined as initially 'bracketed' due to Pellizzoni's assumption that "pre-emptive truth does not operate at the epistemic but at the ontological level" (Pellizzoni, 2022: 75).

In this context, pre-emptive truth is defined as "retroactive, not in the sense of re*interpreting* the past in the light of the present (which would be nothing new), but in the sense of retro*acting* on it, making it become a place where different things have happened" (Pellizzoni, 2022: 75). Tracking the genealogy of the latter shows that everything can be transformed "within a threshold that cannot be crossed, since action aims precisely to push forward the eschatological event" (Pellizzoni, 2022: 76).

Specifically, pre-emptive truth grounds a new type of "secular eschatology" due to which the "arrow of time is replaced by a more complex temporal structure…" (Pellizzoni, 2022: 75). Thus, knowledge and reality are "adjusting to each other, moving back and forth through time" (Pellizzoni, 2022: 76). Pre-emptive truth as such is of particular interest for STS in terms of demonstrating "how the same governmental machinery works in regard to the regenerative eschatology associated with technological change" (Pellizzoni, 2022: 76).

The constructive performative potential of pre-emptively retro-*acting* can be found in Pellizzoni's clarification that truth "is no longer a matter of archetypes to be theoretically represented, tested, corrected, and elaborated further, but of prototypes to be made, produced, and introduced in the world" (Pellizzoni, 2022: 78). In other words, pre-emptive retro-*acting* indicates an ontological transformation of the technoscientific groundings by replacing the *archetypes* of adjusting knowledge and reality with *prototypes* that (re)create reality by recognizing a new type of knowledge production.

Pre-emptive sociotechnical imaginaries

By inducing the changes above, pre-emptive truth fosters the creation of particular sociotechnical imaginaries, viz., technoscientific imaginaries that are supposed to both (re)create and regulate the development of post-truth (post-ethical) society. [6] While for Taylor social imaginaries address "the ways people imagine their social existence, how they fit together with others, how things go on between them and their fellows…" (Taylor, 2004: 23), Jasanoff defines sociotechnical imaginaries as "collectively held, institutionally stabilized, and publicly performed visions of desirable futures, animated by shared understandings of forms of social life and social order attainable through, and supportive of, advances in science and technology" (Jasanoff, 2015: 4). Considering that people can live in deeply perspectival "imagined worlds" (see Appadurai, 1996: 33), what makes sociotechnical imaginaries recognizable as technoscientific imaginaries of "smart" futures is their performative potential to create imagined futures. Specifically, they rely upon "technoscientific logics" that operates "across complex fragmented realities" (see Ballo and Vaage, 2022: 143).

In this context, the genealogy of the imaginaries of "smart" futures in Ballo and Vaage's sense can be traced back to the gradual transformation of social imaginaries into technoscientific imaginaries as sociotechnical imaginaries. This means that "technoscientific imaginaries" "are almost always imbued with an implicit understanding of the social world…" (Jasanoff et al., 2007: 6), viz., they "are simultaneously also *sociotechnical* imaginaries, encoding visions of the good society…" (Jasanoff et al., 2007: 6).

Based upon the clarifications above, I argue that 1) post-truth sociotechnical imaginaries are triggered by the technoscientific logic behind the ontological and epistemological fragmentation of truth-being and the associated truth-seeking in the process of knowledge

production and 2) pre-emptive sociotechnical imaginaries, as post-truth imaginaries, have the potential to transform by pro-spectively (re)creating future imagined worlds.

The impact of pre-emptive ethics on a 'negative' model of "smart" futures

The general concerns about sociotechnical imaginaries arise within the context of the Fourth Industrial Revolution (4IR) which (according to the representatives of the World Economic Forum) displays a sociotechnical imaginary in Jasanoff's sense (see Philbeck and Davis in Vicente and Dias-Trindade, 2021: 709). In social, political and moral terms, the question is whether the sociotechnical imaginary can create a morally and politically justifiable future that can avoid the pitfalls of future essentialism (Schiølin, 2020: 542). Specifically, one of the most disturbing outcomes of the essentialism above is the reduction of democratic options by encouraging "the transformation of a corporate, highly elitist vision of the future into policymaking and public reason on a national level" (Schiølin, 2020: 542), or what Rommetveit and Wynne call an obstacle model, viz., when publics are removed or circumvented due to being seen as "potential threats to the imagined necessary progress…" (Rommetveit and Wynne, 2017; Ballo and Vaage, 2022: 151).

Regarding the visions of "smart" futures, the risk derives from the possibility of an "imagined" publics creating such futures in which living in a "smart" city would mean living in "a "black box society"" (Pasquale, 2015; Ballo and Vaage, 2022: 150) as *desirable*. In the language of post-ethics, fostering the privatization of morality in Porpora et al.'s sense (2013: 2) is considered not only *inevitable* but also *desirable* for those who deliberately withdraw from the public sphere.

Demonstrating such desirability indicates the increasing danger of falling into the trap of moral and political relativism that results from the predetermined privatization of morality. In this context, post-ethics can be coined 'negative' pre-emptive ethics of moral absolutism (privatizing morality by re-*interpreting* it instead of retro-*acting* on it), which, paradoxically enough, cannot exist without being disguised as praising the normative validity of moral pluralism on both social and political levels (viz., by disguising the re-*interpretation* as a matter of retro-*action*).

The non-contradictory at first sight symbiosis of moral absolutism and moral relativism originates from the times of post-truth as ""times of interregnum,"" when ""the old is dying

and the new cannot be borne”” (Gramsci, 1971: 276; Ballo and Vaage, 2022: 139). That is why the future essentialism Schiølin warns against can be described as post-ethical interregnum where the privatization of morality is a result of the deliberate collective dispersal of responsibility, as well as an outcome of concentrating the power into the hands of self-authorizing elites in the name of *the best is yet to come*; where by best the withdrawing subjects continue to understand their own moral and socio-political views of prosperity *as if* they coincide with those of the elites in question.

Practically speaking, one of the most illuminative embodiments of the symbiosis above can be seen in narrowing the “smart” “imagined publics” to that of “the imagined consumer” (Ballo and Vaage, 2022: 149). The latter is “de-contextualized” and “often constructed as some form of rational “Resource Man” (Strengers 2013) or “smart user” (Throndsen 2017; Silvast et al. 2018)” (Ballo and Vaage, 2022: 149), where by “smartness” one understands the absolutization of the technoscientific logic.

Such a vision of “smartness” questions both the ontological and the epistemic groundings of pre-post-truth knowledge production since it can pro-act “smart” futures that are technologically *right* in the sense of necessitating a large-scale “smart” urbanism based on non-contradictory “*knowing and governing through data*” (Ballo and Vaage, 2022: 150). These futures, however, are morally *wrong* because they treat “smart” citizens as “passive recipients of economic development” and democratic decision-making (Ballo and Vaage, 2022: 151). The reason for the moral narrowing is that the absolutization of the already discussed technoscientific logic dissolves “prior categories of calculation and ordering” (see Rommetveit, 2022: 7) at the expense of expanding the control via data.

Based upon the clarifications above, the climax of moral, social and political relativism in this post-truth interregnum can be described as 1) increasing the risk of lacking shared future imaginaries (see Ballo and Vaage, 2022: 152) and 2) absolutizing the performative potential of these imaginaries as turning into new forms of truth regimes (post-truth regimes) (Ballo and Vaage, 2022: 152). The “colonisation of the future” is such a regime (see Ballo and Vaage, 2022: 152) that is driven by the misconception that by creating futures, the creators have the *right* to possess them, when by *right* they understand consensus-based decisions.

The role of pre-emptive ethics for a 'positive' model of "smart" futures

Elaborating upon Pellizzoni's theory of pre-emptive truth, I argue that the constructive performative potential of pre-emptive imaginaries can be realized if "smart" cities, recognized "as a techno-ideological apparatus, that through data analysis and algorithmic forms of governmentality tends to colonize space and time…" are converted into "real smart cities," where smartness and digital networks are replaced by "the development of differential and collective intelligence (noodiversity)" (Fitzpatrick, 2020: 19). Noodiversity [7] itself links "the vitality of technical culture to the variety of individuations coproduced between people and their tools" (Moore, 2020: 2).

In this context, I raise the hypothesis that the 'positive' technoscientific imaginaries of "smart" cities are pre-emptive imaginaries that retro-*act* different models of noodiversity. These models can encourage citizen-centric democracy irreducible to the rights and obligations of "smart" citizens as digital citizens alone. Specifically, the performative potential of noodiversity can be described as expanding narrowed "imagined" publics by adopting the pre-emptively retro-*acting* Ancient Greek *nous*, which is no longer recognized as one's special faculty to perceive truth. It is rather considered as being "artefactual, fragile and finite, produced through the interaction of biology, technology and their social organization" (Moore, 2020: 2). As a major methodological contribution of the pre-emptively retro-acting *nous*, one can point out how it disenchants technologically achieved inclusiveness as non-equivalent to social integration. The reason is that inclusiveness and integration may assume different types of accessibility that are not morally, socially, and politically interchangeable by default.

Judging by the clarifications above, I also argue that noodiversity can foster 'positive' technoscientific imaginaries of "smart" cities by addressing what Ballo and Vaage define as an opportunity to broaden "the narrow framings of imagined ("smart") publics" towards more complex relationships between the citizens (Ballo and Vaage, 2022: 153). In other words, noodiversity can make room for what Ballo and Vaage call a critique of the dominant technoscientific logic by "opening up new decentered spaces for dialogue between government and citizens…" (Ballo and Vaage, 2022: 153). The practical embodiments of such a critique can be found in the politics of noodiversity as "an antidote to the monocultural diet…" (Moore, 2020: 3); in this case, as an antidote to the "smart" consumers' culture.

As a key condition of successfully addressing the critique of noodiversity above, I see its pre-emptive potential to retro-*actively* de-center spaces. Thus, one can delineate not only the epistemic but also the normative boundaries of what Ballo and Vaage call an appeal for "place-based knowledge" (Kohler, 2002; Ballo and Vaage, 2022: 153). Specifically, pre-emptive retro-*actings* concern not the reverence of the place's center, but the process of *de*-centering as a matter of *re*-centering. Thus, the new locality becomes a dialectical process of *re-locating*. It avoids dispersing locality when the latter is under the pressure of one's accelerated accessibility to place in time.

Approaching place-based knowledge from the perspective of noodiversity also contributes to understanding why if one wants to question the knowledge production in the Big Data urban governance, as well as make room for possible 'positive' transformations of the "smart" futures, one should broaden the imagined "smart" publics by rejecting the privatization of morality. This can happen by revealing why place-based knowledge requires tackling not only the role of data justice for the interaction between "smart" citizens but also its intrinsic relations with environmental and social justice (see Lucivero, 2020: 1024) [8] that ground the complex understanding of citizenship.

In turn, adopting such a complex concept of justice including data, social and environmental justice can contribute to 1) showing that "smart" citizens are not merely digital citizens and 2) opening up "data platforms and programs as a "non-corporate" part of "smart city"" (Ballo and Vaage, 2022: 153). A point of intersection of justice and citizenship can be found in the assumption that the more complex understanding of justice necessitates a more complex recognition of citizenship that is irreducible to its digital transformations.

Thus, the 'positive' technoscientific imaginaries for "smart" futures based on a pre-emptively constructed agenda (underlain by the means of noodiversity) foster the enrichment of a citizen-centric approach to urban innovations (see Barns, 2016; Ballo and Vaage, 2022: 153). Specifically, they show that technodiversity cannot exhaust both the idea and the regulation of noodiversity in practice; a stance that can be well exemplified by referring to the so-called ethics of desirability in the "smart" future discourse.

According to the ethics of desirability, technological development displays how technological situatedness is determined by the goals set by technological users, viz., it "… stands outside of the technological paradigm and critically questions it by taking into account

the socio-political determinants that have led to the paradigm" (see Vandemeulebroucke et al. in Bolte et al., 2022: 7). The goals above are not entirely technological since they require one to adopt different competencies due to one's diverse social roles in the public discourse. That is why skills to achieve such goals are not only those related to science, technology, engineering and math (STEM), but also skills addressing the complex embodiments of morality.

AI virtue ethics as pre-emptive ethics

What should a pre-emptive ethical model meeting the requirements of ethics of desirability look like? I suggest elaborating upon Pellizzoni's idea of pre-emptive truth towards pre-emptive ethics fostering AI ethics that generates constructive imaginaries of a "smart" city. In other words, introducing such pre-emptive ethics can make room for justifying the symbiosis of data justice, social justice and environmental justice as guiding democratic decision-making on a broader citizenship level.

The methodological benefit of 'positive' pre-emptive ethics is that it implies neither moral absolutism nor moral relativism but retro-*actively* transforms 'past' ethical theories and principles. For the purposes of showing why this transformation is a matter of retro-*action* and not of *re*-interpretation, one can go back to Baofu's second feature of his post-ethical argument, viz., the one that we may use different ethical approaches which "are not necessarily compatible with each other" (Baofu, 2011: 23).

Based upon the clarifications above, I consider Hagendorff's AI virtue ethics (2022) [9] an eligible candidate for such pre-emptive ethics. Consequently, applying an elaborated version of Baofu's theory of post-ethics can contribute to grounding Hagendorff's nontypical choice of care as one among the four virtues (including justice, honesty and responsibility) that shape AI virtue ethics (Hagendorff, 2022: 5).

In this context, Pellizzoni's theory of adjusting knowledge to reality by "moving back and forth through time" (Pellizzoni, 2022: 76) can be displayed as a dialectical process of constantly 'moving' between virtue ethics and AI ethics as virtue ethics. Thus, one can clarify why the issue of citizenship is irreducible to that of "smart" citizens, as well as reveal why technological integrity does not coincide with social inclusiveness by default. Specifically, pre-emptive ethics can enrich the issue of post-ethics to the extent that AI virtue ethics is recognized

as ethics grounding *AI virtues in 'human' moral virtues that are not exhausted with the virtues prescribed in the AI discourse itself.*

Conclusion

Judging by the clarifications above, I draw the conclusion that one cannot think about post-ethics by analogy with post-truth in the discourse of knowledge production. The origin of such an analogy can be traced back merely to the similarities between the historical development of post-truth and that of post-ethics. These similarities concern the reasons behind the privatization of knowledge and the privatization of morality in Porpora et al.'s sense. Consequently, in both cases, the result is distrust in the normative validity of knowledge and morality themselves.

Some other illuminative similarities are apparent in the socio-political 'outcome' of their implementations: both post-truth and post-ethics contribute to building a political order that meets the definition of what Crouch (2004) calls post-democracy—a society where "representative democracy and electoral politics were increasingly becoming "empty shells"…" (Rommetveit, 2022: 9).

To sum it up, the line of historical development affects the recognition of *post* as a commonly shared prototype feature having a negative performative potential. The latter determines the general understanding of *post*-truth as *non*-truth and *post*-ethics as associated with *non*-ethics, while underrating the complexity of blurred boundaries between facts and norms, opinion and imagination, and science and politics.

In this context, I argue that pre-emptive truth in Pellizzoni's sense can be recognized as one of the constructive types of post-truth regarding knowledge production, as well as regulating the associated moral, social and political 'production' in the post-truth interregnum.

On the one hand, there are 'negative' pre-emptive ethical models, where pre-emptive ethics supports sociotechnical imaginaries of what Schiølin calls future essentialism, while, on the other one, adopting 'positive' pre-emptive ethics can contribute to transforming prost-ethical society by retro-*acting* in Pellizzoni's sense. Specifically, I outline the implications of a 'negative' pre-emptive ethical model, where the symbiosis between moral absolutism and moral relativism leads to future essentialism regarding "smart" citizenship and a 'positive' pre-

emptive ethical model that can broaden the "imagined" publics of "smart" users and democratic decision-making in Ballo and Vaage's sense.

In turn, coining AI virtue ethics pre-emptive ethics in the "smart" futures discourse can benefit the recognition of data justice as inseparable from environmental and social justice. That is why the most illuminative representations of such pre-emptive ethics concern the ways of overcoming what Ballo and Vaage call narrow "imagined" publics of "smart" users who uncritically anticipate themselves as nothing but "smart" citizens. Consequently, by defining pre-emptive ethics through the idea of noodiversity (understood as the faculty to retro-*actively* transform the multiple embodiments of reasonability), one can positively modify (in the sense of adapt) placed-based knowledge that broadens "imagined" ("smart") publics.

Last but not least, I draw the conclusion that the retro-*acting* transformations above necessitate not an introduction of AI virtue ethics as *AI* ethics due to which 'digital' virtues foster the development of "smart" citizens in a digital urban environment, but a recognition of AI virtue ethics as pre-emptively transformed *ethics.* The major benefit of the latter is that it prescribes why it is 'human' virtues that contribute to implying citizen-centric approaches to urban innovations in general.

NOTES

[1] Post-truth is "a concept deeply invested in media discourse, in media technologies and unfolding information ecologies of the early 21st century," which turns into a "catchall phrase" referenced by Wikipedia "as a distinct style of doing politics" (Rommetveit, 2022: 1). Gaining publicity with the commentaries on the UK's Brexit referendum and the US election of Trump, post-truth is defined by the Oxford Dictionary as induced by ""circumstances in which objective facts are less influential in shaping public opinion than appeals to emotion or personal belief"" (Rommetveit, 2022: 1).

[2] For the genealogy of the usage of post-truth, see Rommetveit, 2022: 9-10.

[3] For the role of the symmetry principle in the STS discussions about post-truth, see also Pellizzoni, 2022: 67-72.

[4] There are different projects of post-ethics such as that displayed in Peter Baofu's monograph *Beyond Ethics to Post Ethics. A Preface to a New Theory of Morality and Immorality* (2011). Its objectives, however, are not related to tackling the specificities of post-truth discourse.

[5] The pejorative asymmetric use of post-truth results from "how the promoters of domestic regime change gathered support from "deplorables" and ignorants with little respect for science and evidence…" (Rommetveit, 2022: 10).

[6] For instance, Sismondo argues that the STS has not contributed to the rise of post-truth debates (Sismondo, 2017; Malcolm, 2021: 1065). On the other hand, Collins et al. (2017: 584) claim that post-truth raises serious concerns about the functioning of modern democracies. That is why the STS researchers should play a guiding role in addressing the problems with expert knowledge in the post-truth society (Malcolm, 2021: 1066). For a detailed classification of the STS's responses to the role of post-truth for the post-truth societies, see Malcolm, 2021.

[7] Noodiversity is a concept introduced by Bernard Stiegler who determines "the conditions for a variability capable of reconstituting a noodiversity - a variability of a noodiversity that is obviously also a technodiversity, and which alone can cultivate a biodiversity capable of preventing the technosphere from destroying the biosphere" (Stiegler, 2020: 76).

[8] Providing a complex analysis of data justice, as related to both environmental and social justice is necessitated by "how the data revolution distributes environmental benefits and losses among groups and communities…" (Lucivero, 2020: 1024). As a major reason for conducting such an analysis, Lucivero points out the fact that "the populations that currently suffer more from the environmental implications of ICT [Information and Communication Technologies] are also the ones that are at the present time less likely to benefit from the digital revolution…" (Lucivero, 2020: 1024).

[9] According to Hagendorff, the choice of virtue ethics is motivated by how one's cultivation of virtues, as related to character dispositions, can positively influence professional decision-making in the AI field (Hagendorff, 2022: 15). In addition to justice, honesty, responsibility and care as virtues motivating "a kind of professional decision making that builds the bedrock for fulfilling all the AI specific ethics principles…," Hagendorff introduces "two second-order AI virtues" (Hagendorff, 2022: 15-16). These are prudence and fortitude whose application can contribute to overcoming some crucial implications of the so-called bounded ethicality such as value-action gaps, moral disengagement, situational forces etc. (Hagendorff, 2022: 15-16).

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