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A POSTPHENOMENOLOGICAL GUIDE TO AI REGULATION

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Abstract

This article is among the pioneering efforts to apply postphenomenology in the context of regulation, with a specific focus on AI regulation. Its primary objective is to assist regulators in crafting more “future-proof” legislation, a critical challenge given the rapid evolution of AI technologies and the emergence of new risks. The article suggests a map of AI risks that future regulations should address to ensure that they can adapt flexibly to new risks – potential and actual alike. The proposed mapping of AI risks is based on phenomenological relationships. The classical relations as formulated by Ihde (embodiment, hermeneutic, alterity, and background) are adapted to AI technologies, mainly by reversing the intentionality arrow in order to reflect the intense intentionality of this type of technology. The proposed mapping can assist in handling the challenge of how to quickly update the regulation, which by its nature is slower, especially compared to software development processes. In the first part of the article, postphenomenological variations are explored, offering a novel variation in which the intentionality arrow is reversed in the presence of AI systems. This variation requires modifications in all four classical relations, resulting in four new relations: algorithmic bodily relations, maximum opacity, “her,” and background collection. The second part adopts a normative stance, imbuing these new postphenomenological variations with ethical and political significance. This ethical-political framework serves as the basis for the third part, which offers recommendations for new AI legislation.

Plain Language Summary[1]

- This study applies postphenomenology—a philosophical approach that examines the relationships between humans and technology—to the regulation of artificial intelligence (AI).
- It highlights that AI technology is changing fast, which is why laws must be made adaptable to handle new risks quickly and effectively. A comprehensive framework can help prevent laws from becoming outdated even before they have been enacted. This is where postphenomenology can contribute.
- The research integrates philosophy of technology, ethics and politics into AI regulation discussions. It argues that AI systems have their own "intentionality," meaning they can influence human actions and decisions, and therefore regulations should ensure that humans and AI work together rather than AI dominating human actions and decisions.
- Since AI operates worldwide, the study suggests that countries should work together to create effective regulations. This global cooperation can better address issues like fake news and misinformation, which do not respect borders.

[1] AI-generated; author checked and approved

1 INTRODUCTION

Most people would not associate a telescope, a lady's hat, and a blind man's stick into a coherent group. To find commonalities, many are likely to consult with programs like ChatGPT. When tested, the software correctly answered that "they are all objects that can be used for observation or perception." Postphenomenologists do not need the assistance of generative AI tools, and they would quickly recognize these artifacts as participants in embodiment relations. Since its inception in 1979, postphenomenology has been thinking in terms of relations. As a theory and methodology, it has taken an ontological stance that details and explains how we, our technologies, and the world around us change – may the technology be a lady's hat, radio telescope, or microscope (e.g., Forss, 2012; Ihde, 1990; Rosenberger, 2008).

Critiques pointed out that the ontological analysis of relations misses a key element of power relations (Bantwal Rao et al., 2015). Others have pointed to the focus on user experience and have highlighted the importance of developers who actively shape the technologies discussed (Michelfelder, 2015). It became evident that it is not sufficient to understand the ontological aspects, and that the perspective must be expanded. We need to examine not only the functional, technical, and cultural aspects of a given technology, but also its ethical and political traits, as well as the motivations and considerations that affect technology developers, platform owners, users, and other stakeholders. In this article, I follow the postphenomenological efforts to extend the ontological point of view towards ethics and politics, which was first introduced by Peter-Paul Verbeek (2011) and later evolved into a political analysis centered on the concept of multistability by Robert Rosenberger (2017). This relatively new direction in postphenomenology has primarily catered to the needs of technology designers, thereby shifting from the more traditional perspective of users. This study aims to extend the scope further by focusing on regulators as stakeholders (see Jongepier & Keymolen, 2022; Wellner, 2022). Consequently, this article expands the scope of postphenomenology from the use and development of technology to its regulation.

I became interested in this type of stakeholder when I studied AI technologies. The rise of AI has led many regulators around the world to realize that they need to intervene and safeguard their citizens from the potential harm of this technology. However, for some, the question is slightly different, with efforts focused on striking a balance between such protection for the citizens on the one hand and promoting technological innovation on the other. This is the basic difference between the EU and the US regulatory efforts. Regardless, both approaches acknowledge that AI technologies may come at a price for their users and civil society.

The "posterchild" of the regulatory efforts is the EU's AI Act, with the first draft published in April 2021. The Act employs a risk-based approach, listing specific AI applications and ranking them according to their potential harm. The Act's novelty lies in its ordering of AI applications by the risk they pose to individuals and society at large. Fast forward to June 2023, when the European Parliament officially approved the Act (European Parliament, 2023), it turned out that the two-year gap between the initial draft and the approval necessitated some updates and references to new developments, mainly the public release of ChatGPT. The rapid adoption of ChatGPT signaled to legislators that generative AI should not be left outside the Act. Some changes were needed in the 2021 draft, and they required intensive negotiations ending only in December 2023, although the basic approach remained as is. This delay shows how a new risk arises, and how such a delay threatens to turn the regulation outdated, even before the relevant law is enacted. We can expect newer forms of AI, which are likely to require additions and amendments to the AI Act.

Typically, risks tend to be surprising when they are realized (Jasanoff, 2016). AI demonstrated how even the mere possibility of a risk can be a surprise, as evidenced in various public letters

warning that AI might risk humanity as a whole (Future of Life 2023).[2] Therefore, in the context of AI, we should be preparing not only for the realization of risks but also for the earlier phase of the emergence of risks. This preparation is of special importance when dealing with regulation, which involves slow processes whose results should endure many years. This is the challenge that will be addressed in this study. The aim is to suggest a map of AI risks to be answered by future AI regulations to ensure that they can flexibly handle new risks – potential and actual alike. The proposed map can answer the challenge of how to quickly update the regulation, which by its nature is slower, especially compared to software development processes. Because AI operates on a global basis, these recommendations are likely to be applicable to many regulators around the world.

The proposed mapping of AI risks is based on the postphenomenological relations originally developed by Don Ihde (1979, 1990) and their variations as developed by his followers – Peter-Paul Verbeek (2008), Heather Wiltse (2014), Nicola Liberati (2016), and Galit Wellner (2017, 2020a, 2021), to name a few. Whereas Ihde's original model is based on the I-technology-world formula with the additions of hyphens, parentheses, and an arrow, the variations play with new signs and unpack some of the elements. For example, Verbeek (2008) suggested using a slash to denote how technologies merge with the user's body in such a way that they cannot be practically detached, as in the case of medications, artificial valves, and pacemakers. Another direction problematizes the three basic elements and offers the replacement of one of the elements, usually the technology, with two new elements. This direction was pursued by Wiltse (2014), who suggests that in the case of digital technologies, we should split the technology element into "trace" that represents what the users can conceive during the interaction with the technology (e.g., system's output), and "substrate" that is directed towards the world (input) (2014, p. 169). She uses the "|" sign to update the postphenomenological formula for digital technologies. In this new formula, the new sign represents "a unified composition" (ibid, ibid) in which the trace and the substrate work together intensively. The postphenomenological relations offer a coherent framework for thinking about technologies and how they affect humans and environments. It is a structure that is applicable to technology development and regulatory processes, as both need to enable ethical and politically just human-technology relations.

This article is based on a variation of the relations created in the context of augmented reality (Wellner, 2020a) and gender bias in AI (Wellner, 2021). The variation assumes that the intentionality arrow, usually pointing *from* the experiencing "I," is likely to be reversed in the presence of AI. In other words, whereas traditional phenomenology is somewhat anthropocentric and "allocates" intentionality only to humans, postphenomenology takes a posthuman approach and "allows" intentionality to technologies. With the introduction of advanced AI technologies, such as LLM, the concept of technological intentionality has become more accessible and less controversial. We must differentiate between human intentionality and technological intentionality. Although different, they do not need to oppose each other; rather, they can work together in various ways, thereby producing a hybrid or distributed intentionality (see Hayles, 2017; Mykhailov & Liberati, 2022; Verbeek, 2008). Regulations should ensure cooperation between humans and technologies rather than the domination of AI intentionality.

The first part of the article examines the postphenomenological variations in which the intentionality arrow is reversed due to the presence of AI systems. This is based on my work on gender bias in AI (Wellner, 2020c, 2021). The second part aims to take a normative stance and give the new postphenomenological variations an ethical-political meaning in light of the works of Rosenberger (2017) and Verbeek (2011, 2020). The second part serves as a basis for the third

[2] Moreover, due to its technological intentionality, AI might be regarded as a risk in and of itself, and not just a mediator to some external risk.

part, which includes recommendations for new legislation on AI. As most countries are still negotiating such legislation, I hope that this article will assist them in producing more “future-proof” legislation

2 REVERSING THE INTENTIONALITY ARROW

The classical postphenomenological formula consists of three elements: I, technology, and world. The technology element is in-between (Botin, 2020) and serves as an active mediator. This is typically expressed as follows:

I – technology – world

The digital environment entails modifications of this basic structure, as described by Wiltse. AI technologies push for more modifications, where not only the technology element but also the world element is transformed. If the world for AI systems is depicted through the dataset, then the world element in the formula can be interchanged by “dataset.” Furthermore, the algorithm operates on a dataset based on the assumption that the dataset accurately represents the real world (Wellner, 2021)[3]. Hence, in the modified postphenomenological formula, the "world" element is replaced by "dataset," and "technology" by the narrower term "algorithm," thereby emphasizing the software aspects of AI technologies. The new basic formula for an AI-dominated environment is as follows:

I – algorithm – dataset

Simply replacing the words is not sufficient. The new realm of AI is likely to also change the very nature of the postphenomenological relations. My main hypothesis is that intentionality is no longer solely human, and we are witnessing a stronger technological intentionality (see Hayles, 2017). In other words, intentionality in the age of AI is distributed differently.[4] This section describes four new relations operating in AI environments. The goal is to explore the necessary modifications to the classical postphenomenological relations of embodiment, hermeneutics, alterity, and background.

2.1 FROM EMBODIMENT RELATIONS TO ALGORITHMIC BODILY RELATIONS

The first new type, corresponding to embodiment relation, is "algorithmic bodily relations." It refers to algorithms that follow the human body, extract data from it, and analyze how it moves in the world. All these actions are intended to create a data representation of the experiencing “I.” Similarly to the classical embodiment relations, the "technology" element extends the body of the "I" (the human user). However, whereas in embodiment relations, what is extended is the “body image” that includes the senses (i.e. seeing, hearing, etc.), in algorithmic bodily relations, the extension is performed on the digital representation of the human body. The quantification of the body is frequently intended to enable the “I” to alter her behavior, for example, walking more once the number of steps is measured (see Kristensen et al., 2021). The permutation for algorithmic bodily relations is:

(I ← algorithm) → dataset

[3] This assumption should be questioned as larger and larger parts of the datasets are the output of other AI systems as part of a feedback look, thereby forming, at best, statistical models of the world, not a truthful mirror of reality.

[4] The new distribution may urge postphenomenologists to rethink the experiencing “I” and expand it to a “we.” This direction deserves its own investigation and will be sought in another article (currently a work in progress).

Think of a face recognition system comprised of a camera that depicts the human face and an algorithm that attaches a name (and other identifiers) to the face. The technology “extends” the face by adding to it an identifier such as a name or an identification number, hence the parentheses around the “I” and the algorithm. Alternatively, it can be described as a relation between a passive user, an algorithm that analyzes the digital image of their face as taken by the camera, and a dataset on which the algorithm was trained. While Ihde explains that “embodiment as an activity … must be learned” (Ihde, 1990, p. 73), in the new relations, it is the algorithm that needs to learn (“machine learning”) to identify the face.

From a broader perspective, this permutation can describe how face recognition systems shape behaviors, practices, and politics. In the case of entering a country or a facility that is controlled by face recognition algorithms, when one's entrance is blocked, one cannot continue through the gate or door. This dominant position of the algorithm is represented by the reversal of the left arrow that now points to the human, rather than *from* the human, as in the classical embodiment relations. The second arrow that points to the dataset indicates that the picture and the results of the algorithmic analysis are fed back into the dataset to improve the next rounds of operation.

Another example is an algorithm that analyzes the user's typing speed to determine the user's mood. The results of the detection can serve as a parameter in the offering of certain content to reinforce or mitigate the detected mood. Such systems are used by investment banks to curb brokers' activities in the case of drastic stock market events (Condliffe 2017). The employees are "subordinated" to the algorithm's analysis, and hence the arrow points to the user. How should regulators refer to such systems when employed by online marketing sites to increase sales? What should be the regulatory response when these systems are employed to target specific audiences during a political campaign?

2.2 FROM HERMENEUTIC RELATIONS TO MAXIMUM OPACITY

The second type, akin to hermeneutic relations, refers to situations in which algorithms actively shape the users' worldview so that they perceive the technology and its input as an integral part of the world. Much like hermeneutic relations, where the technology and the world are regarded as inseparable parts of one whole, here, the algorithm and the dataset collaborate synergistically. The permutation of the formula is as follows:

$$I \leftarrow (\text{algorithm} - \text{dataset})$$

This form of hermeneutic relations is termed “maximum opacity” because the algorithms are not transparent with regard to the selection of displayed content as well as the training dataset. This opacity has two dimensions: one is a planned opacity, in which the algorithm is considered a trade secret of developing companies. We can assume that they consider our searching, browsing, and reading histories, as well as the IP address from which we enter the Internet, the device that we use for access (e.g., the model of the cellphone or the laptop), and the preferences of our Facebook friends. However, all these are guesses until a whistleblower reveals these practices or until a regulatory requirement is imposed on the companies that operate these systems. The second dimension of opacity is even less controllable, as it stems from the process of machine learning in which the algorithm is trained with a specific dataset and the preferences of the designers, explicitly and implicitly. The training process is opaque, so even the developers of a system do not always understand how it reaches a certain decision. This process renders the dataset inseparable from the algorithm and contributes to the positioning of parentheses in the postphenomenological formula around the algorithm and the dataset. Moreover, studies have shown that the training dataset cannot be blamed alone and that other parts of the system contribute to the bias (Danks & London, 2017; Silva & Kenney,

2019). Therefore, in "maximum opacity" relations, the algorithm and the dataset form an obscure entity, and hence the reversed intentionality arrow.

Whereas the technology element in hermeneutic relations is often demonstrated by books, newspapers, and news on television, their parallels in the algorithmic environment would be newsfeeds on social networks, where the news is selected and ordered by the platform's algorithm. In the case of algorithms that sort newsfeeds or search results, the order is never neutral and sometimes even reflects a chauvinist agenda. For example, in February 2019, *Wired Magazine* reported that Facebook's algorithm interprets the query "photos of my male friends" as a typo for "female friends," and presented pictures of women in bathing suits (Matsakis 2019) . Insisting on the search query "photos of my male friends" did not bring pictures of male friends, but rather male dogs and a few male-themed cartoons. While a Facebook spokesperson defined this as a bug to be fixed, Wired Magazine pointed to the users whose sexist search queries made the dataset gender biased via a feedback loop mechanism.

Another instance of hermeneutic relations can be automatic translations that give users the impression that they understand a message written in a foreign language and even capture the tone and subtext of the original message. Similarly to traditional media, these algorithms are frequently perceived as neutral representations of the real world. In my work, I have examined the relations of users with translation algorithms from a gender bias perspective (Wellner, 2020c, 2021). I demonstrated how these algorithms prefer the grammatical male form, thereby promoting a worldview according to which the world is ruled by men and for them. In March 2021, Algorithm Watch explored the dataset of a translation program that specializes in French-English translations (Kayser Bril 2021). One striking example is the reference to female politicians: "Female members of Parliament and female ministers are mentioned five times less often than their male peers ... This imbalance does not reflect reality. Currently, in France, two in five members of Parliament and half of the government ministers are women." In this example, a biased dataset turned the combo "(algorithm - dataset)" biased.

Sometimes, the bias might reside in the algorithm, as witnessed in the efforts to automate the job-seeking process. This process starts with job advertisements displayed to certain users. An algorithmic decision system determines which job advertisement is displayed, and to whom. Ali et al. (2019) demonstrated how such decisions occur through a real-world experiment in which they created several job ads on Facebook. All parameters were identical for all ads, targeting the same audience, and varying in the text and images presented. For each job, they created four variations that differed in gender and race, plus one neutral with no human being presented. The researchers found that advertisements for positions traditionally occupied by men, such as those in the lumber industry, were delivered mostly to men (over 90%) and white users (over 70%). Ads for janitors were delivered mostly to women (over 65%) and black users (over 75%) (Ali, et al., 2019, p. 20). The biased algorithm continued to operate, as shown by an experiment conducted by AlgorithmWatch in Germany in late 2020. It turned out that advertising platforms such as Facebook and Google just termed this biased practice as "targeting" and "optimization" while, in fact, these practices were discriminatory (Kayser-Bril 2020). In February 2023, "Workday," a company that specializes in AI-based screening tools for job applications, faced legal action for allegedly disqualifying candidates based on factors such as race, disabilities, or age over 40 (Gilbert, 2023).

These kinds of algorithms have been accused of showing women and other minorities relatively low-paying jobs compared to young, light-skinned men, and screening their CVs accordingly. Moreover, such systems not only show a world in which women and people of color hold lower-income jobs ("hermeneutic") but also "produce" such a world or at least contribute to and advance such a reality. These algorithms can be classified under the EU AI Act as a system that controls access to employment and, therefore, as high-risk AI systems. Should this be limited to the job market? Or should the scope be expanded?

2.3 FROM ALTERITY TO "HER"

The third type of algorithmic relations, parallel to alterity relations, deals with the algorithmic quasi-other, a concept that encompasses systems that communicate in a natural language in the form of a chatbot. Whereas in alterity relations, the technology does not always respond (e.g., dolls) or responds in a limited way (e.g., ATMs), chatbots are designed to facilitate a "natural" communication with the user, thereby establishing a dialogue that resembles a human-to-human interaction. It is tempting to think of the dialogue as neutral, but sometimes the dialogue is directed towards achieving certain goals, such as making the human user reach a purchase decision. Therefore, in the latest version of the EU AI Act, chatbots are classified as "limited risk" and, as such, are subject to transparency obligations, mostly to reveal the fact that the interlocutor is a bot. The permutation for "Her" relations is:

$$I \leftarrow \text{algorithm} (- \text{dataset})$$

The reversal of the arrow of intentionality can be exemplified by "auto-complete" algorithms that complement the user's typing with suggestions, as if guessing what s/he would like to write. In 2013, the UN used these suggestions in Google searches to expose sexism and discrimination against women (UN Women 2013). Similarly, as of the day of writing this article, WhatsApp's autocomplete is still gender-biased. In Hebrew, WhatsApp frequently suggests converting the female form of a word into the male form, even though both are grammatically correct. During dialogue with the system, the female user needs to insist on the female form and actively reject the suggested male form. Acts of acceptance or rejection can be regarded as quasi-dialogues.

Another example is Gmail's "Smart Compose" feature, which displays a possible response to an email. Users discovered that when they typed, "I'm meeting an investor next week," the Smart Compose's algorithm suggested the reply: "Do you want to meet *him*?" and did not offer "her" even as an option (Dave 2018). The company explained that most investors are male, so statistically, the proposed answer might fit most cases. The problem is that these emails are fed back into the system and reinforce the biased answer, even if the number of female investors increases[5]. Such cases call for greater transparency, beyond the mere fact that an algorithm is communicating with us. To appreciate the results, more information should be provided, such as biases in the datasets.

2.4 FROM BACKGROUND RELATION TO BACKGROUND COLLECTION

Lastly, the algorithmic permutation that corresponds to the classical background relation is termed "background collection." Similarly to the original background relation where the "world" component gains our attention, here what is important is the dataset. The algorithms that maintain background collection can be those that analyze the user's browsing history, as well as medical algorithms that diagnose cancer based on huge databases of X-rays and other imaging outputs. The formula would be:

$$(I \leftarrow) \text{ algorithm} \rightarrow \text{dataset}$$

In the classical permutation, the technology is placed in parentheses to denote its withdrawal to the background (to use Heideggerian terminology). However, in "background collection," it is the user who is withdrawing. In these relations, the user becomes the least important element in the transaction; hence, s/he is placed in the parentheses. This permutation accentuates the

[5] The way the company handled this bias was to "mute" the Smart Compose feature in gender-related references. Consequently, when a user types in a sentence regarding a meeting next week, the algorithm would not make a suggestion. Gmail's solution does not directly address the way the algorithm decides, but rather tweaks the output side. One may wonder why the Smart Compose algorithm itself has not been modified, or why it does not present multiple options as part of the dialog with the user.

shift of intentionality from humans to algorithms and the new distribution patterns of intentionalities. Unlike the original relation, where human intentionality was dominant, in the age of AI, algorithmic intentionality assumes a more prominent role. Had users been foregrounded, they would have received access to the insights gained from the dataset, which, in some cases, could have improved their health and even saved their lives.

In gig economy platforms such as Uber and Airbnb, paramount importance is placed on the customer, be it the passenger in a car or the guest in an apartment. Service providers who earn their living from the platform – the car driver or house owner – are less important for the companies who own the platform. Within this group of service providers, some users are of even less importance, and they are discriminated against based on their gender and/or race by being offered fewer opportunities or opportunities associated with smaller income (Barzilay et al., 2016; Fisman & Luca, 2016; Kricheli-Katz & Regev, 2016). In these newly formed multi-sided markets, the platforms had the opportunity to avoid existing discrimination and treat all users on the same basis. They could have provided equal opportunities for women to be drivers or homeowners. After all, gender should not be a relevant factor for end users. Surprisingly, these platforms duplicated salary differences and the unjust distribution of opportunities. Because they operate in the background, the average user cannot know whether she is discriminated against by the AI system.

2.5 NEW RELATIONS FOR THE ERA OF AI

All the new relations described above share an acknowledgement of the intense technological intentionality of AI systems, represented by a reversal of the arrow so that it points *to* the experiencing I, rather than *from* it. This state of affairs does not necessarily mean that the "I" is a "passive subject" (Aagaard, 2021). Rather we need to model a new balance within the postphenomenological relations, that takes into account the "enhanced" intentionality on the technology part. I termed this new balance as "relegation" (Wellner, 2020a) to denote a kind of delegation that is imposed on the end user. [6] The end user cannot resist, and therefore, the question of passivity or activity is not relevant. In the next section I describe the foundations for ethical and political aspects of these new relations.

3 CHARGING THE POSTPHENOMENOLOGICAL RELATIONS WITH ETHICAL-POLITICAL MEANINGS

This section delves into the transformative shift in postphenomenology towards ethics and politics in three steps. It starts with the work of Peter-Paul Verbeek, especially in his book *Moralizing Technology* (2011), where he offers a novel framework for the ethics of technology through the lens of postphenomenology. Subsequently, Robert Rosenberg's book *Callous Objects* (2017) advances a complementary perspective, laying the foundations for politics of technology in the logic of postphenomenology. The third step is provided by Verbeek as a systematic postphenomenological framework for the politics of technology.

3.1 A POSTPHENOMENOLOGICAL ETHICS OF AI

Verbeek's original ethics of technology merges into postphenomenology significant insights and principles from key thinkers, such as Bruno Latour, Michel Foucault, and Andrew Feenberg. When combined, these thinkers, together with Ihde's postphenomenology, provide a coherent ethics of technology for the 21st century. In this subsection, I examine some of the main

[6] After publishing my argument on relegation, I discovered that in 2006 Sarah Ahmed uses this term but in a different meaning that focuses on neglecting to notice. Whereas her focus is on the negligence element, my focus is on the delegation.

contributions to Verbeek's ethical framework, treating them as threads that intersect and enrich each other. The first thread is postphenomenology, which establishes the principle of mediated morality, according to which the connection between humans and technology is inseparable. Based on this principle, Verbeek argues that technology mediates moral experiences and affects ethical judgements. Because of this mediation, technologies cannot be regarded as neutral, passive, or mute.

Second, Latour's thread, especially in the form of Actor-Network Theory (ANT), emphasizes the non-humanist side of ethics of technology. Here, Verbeek challenges the traditional human-centered ethical perspective and argues that we should consider the agency and moral significance of technological artifacts themselves rather than solely focusing on human intentions and actions.

Third, Verbeek draws on Foucault's concepts of power and knowledge to examine how technology shapes and influences human behavior and subjectivity. Verbeek leverages Foucault's ideas about the ways in which power operates through disciplinary mechanisms and technologies of control to assert that technology not only reflects existing power relations but also actively participates in shaping and governing human actions and ethical choices.

Fourth, Verbeek engages with Feenberg's critical theory of technology, which underscores the democratization of technological decision-making processes. Verbeek incorporates Feenberg's idea that technology is not neutral but materializes certain values and interests that can be contested and transformed through democratic participation.

Each of these threads would be relevant for AI. **First**, AI is mediating the world for us in a different way than previous technologies, whether mechanical or digital. This mediation has moral significance, and our ethical judgements should be rethought in light of this technology. **Second**, with ANT, we should acknowledge that AI systems possess a certain form of agency, or in postphenomenological terminology–intense technological intentionality, thereby influencing human practices, interpretations, and decision-making. **Third**, in light of Foucault's "care of the self" as a practice of freedom in the face of power structures, critical engagement is required to explore how AI systems shape our moral subjectivity. Such an approach would encourage individuals to actively participate in the shaping of ethical AI systems and find ways to align their values with the development and use of AI technologies. **Fourth**, Feenberg's concept of democratization reveals a more societal course of action. The aim is to empower citizens, technological professionals, and regulators to connect ethical reflection and technical innovation, as part of the efforts to integrate ethical considerations into the design and use of AI technologies.

Thus, a postphenomenological ethics of AI would focus on moral considerations, ethical values, and societal principles associated with the design, development, deployment, and use of AI systems. It examines how AI technologies participate in ethical decision-making and how they ethically mediate the world for various users and non-users.

If ethics refers to moral reflections on behaviors, responsibilities, rights, and values, then it is positioned as centered on the individual, who may be a developer, an end-user, or a policymaker. However, there are additional considerations to be considered when entering the political dimension of AI systems.

3.2 A POSTPHENOMENOLOGICAL POLITICS OF AI

When Rosenberger analyzes street benches as anti-homeless technologies (2017), he reveals the political agenda behind their design and placement in the public sphere. Specifically, he uncovers the underlying political motivations behind these objects' design choices. By examining the ways in which public spaces are shaped, he sheds light on society's attitudes

towards homeless people and the relationship between contemporary design and homelessness. After reading his book, street benches can no longer be regarded as mute, neutral, and politically free objects.

Rosenberger's analysis departs from the implementation of the postphenomenological notion of **multistability**, according to which a given technology has different meanings for different people. The result is a multiplicity of stabilities, and in the case of street benches, two major stabilities arise: a device for sitting in the street or an alternative for a bed to sleep on.[7] However, AI systems are dramatically different from street benches mainly because they exhibit intense technological intentionality (cf. Mykhailov, 2020). The challenge is to balance and ensure that technological intentionality benefits the users. Whereas street benches come in various designs, AI systems exceed that multiplicity because they show different responses not only to different users, but even to the same user at the same time and place.

In a later work, Rosenberger further explains (2021) that the politics of technology can be located in various **contexts**: "The ways in which technologies are designed, implemented by communities, and taken up by users can all play roles in injustice" (p. 31). Thus, the political aspects are related not only to the design of our public sphere and public life in general, but they also help us expand the network of objects and people to include designers and those who instructed their work, such as policymakers. The network gains a kind of "depth" in which technologies may have intentionality, but such technological intentionality is shaped and directed by people. In AI, what should be revealed is the considerations, implicit and explicit, that lead to the development of a certain system. Then, it would come to Feenberg's recommendation to democratize the development process (e.g., Feenberg, 2001).

Artifacts like benches in public spaces led Rosenberger to focus on situations in which "technological arrangements" (p. 32) direct people to form habits that become the new normal. Consequently, his discussion involves **habits and sedimentation**. It is about **bodily performance** that is performed automatically, thereby forming a new normal. In such a normality, injustice becomes obscure for those who do not suffer from discrimination. Is this analysis relevant to AI? Whereas a bench requires bodily presence in a public space, the politics of the digital sphere does not necessarily require bodily perception or the formation of habits (cf. Wellner, 2017). Moreover, in the case of AI systems, each user might find themselves discriminated against, even without knowing that they were thus treated by the system. If one's CV was rejected by an AI-based hiring system, how can one know it was for the right reason and not because of one's gender, race, or any other irrelevant characteristic? If one receives a quote for an insurance policy, how can one know one's risk was correctly calculated by the algorithm? Even "active subjects" might suffer from biased technologies. This is where regulations should intervene and protect users, as discussed in the last section. However, before moving on to regulation, there is one more important theoretical development concerning the politics of technology.

3.3 THE DIMENSIONS OF POLITICS OF AI

In 2020, Verbeek offers a systematic framework for politics and postphenomenology (Verbeek, 2020) composed of three dimensions: the technological mediation of power, political interaction, and political issues.

The first dimension is an exploration of how technologies shape politics through actions and perceptions that they allow, augment, hide, and so on. The leading example is Rosenberger's research on street benches (2017) and how they actively participate in politics against unhoused people. "By organizing perceptions and interpretations, technologies embody subtle forms of power" (Verbeek, 2020, p. 144). Verbeek urges us to go from the micro to the macro level of

[7] There are additional stabilities, such as a counter to display things to give away (see Wellner, 2020b, pp. 114–115).

society, and specifically to democracy. In a nutshell, the challenge can be phrased as a set of questions: To what extent can the organization of technological societies take place in democratic ways? In situations where people can choose, how do technologies mediate their decision-making process? Are they free to choose from? Can they operate autonomously?

The second dimension focuses on the notion of political action as that which makes power possible (Verbeek, 2020, p. 147). As political action takes place in a public space, it is important to explore, according to Verbeek, how technologies shape this space. This determines whether and how people interact with each other. Verbeek mentions social networking platforms' filter bubbles and echo chambers that show people certain posts and block others (p. 149). When these platforms show and hide news items, they de facto manage the public space. Moreover, they are investing huge efforts to evade public scrutiny, as well as classical democratic checks and balances. The current situation is that they enact the rules, execute them, judge the users, and even define the exceptions, sometimes with no explanations andI sometimes retroactively (Shadmy, 2019). When brought to court, they often claim a lack of jurisprudence. Some scholars have suggested that the rules of public law should be applied to these platforms because they control the digital public sphere (Fischman-Afori, 2021).

The third dimension goes to the heart of politics and examines the "things that are 'at stake'" (Verbeek, 2020, p. 150), that is—the issues around which people gather. In Latourian phrasing, these are matters of fact that become matters of concern. Verbeek adds: "This technological mediation of political 'issue formation,' as the third political dimension of technologies, can be seen as part of a more encompassing political role of technologies, which can be called the political hermeneutics of technology" (p. 152). This dimension touches on the political questions themselves and provides us with tools to think of fake news and disinformation as practices that distort our political discourses around the world.

The political dimension exceeds the experiencing "I" and pushes us to think of an experiencing "we." The "we" is not a mere collection of "I"s but rather involves different mechanisms. However, this research direction in postphenomenology is yet to be pursued and is beyond the scope of this article.

4 CONCLUSION: TOWARDS A POSTPHENOMENOLOGICAL REGULATORY FRAMEWORK FOR AI

The goal of this study is to propose a regulatory strategy capable of addressing new risks associated with AI technologies. When these risks arise, existing regulations might become outdated, even before the relevant law is enacted, as witnessed with newer forms of generative AI and the EU's AI Act. Postphenomenology can offer a framework to flexibly deal with existing and new risks, or at least ensure that a planned regulation adequately safeguards citizens from as many risks as possible, thereby assisting regulators to maintain relevance throughout the long regulatory process. The proposed framework is portrayed in this part as a combination of the two previous parts so that each of the four new relations introduced in section 2 will be analyzed using the ethical and political tools outlined in section 3.

In examining "algorithmic bodily relations," we saw how brokers are bodily "subordinated" to the bank's algorithmic analysis, resulting in the reversal of the arrow of intentionality. This reversal was also spotted for the rest of the relations, and what is unique for algorithmic bodily relations is the body's new role as a source of data and, eventually, of control. Within a regulatory context, body-oriented relations remind us of risks concerning the quantification of the body, especially concerning the ways in which it is monitored and surveyed.

In line with Verbeek's three dimensions, three politically oriented questions arise. **First**, where is the body situated? It can be in a certain physical or digital space, and that space should be protective (to varying degrees) to ensure freedom for those who inhabit it. Usually, regulators look at physical spaces and, more recently, at digital spaces, such as the EU's GDPR and the Digital Service Act. Algorithmic bodily relations would remind us to refer to both as much as possible, as well as to their combinations.[8] **Second**, which bodily actions should be protected? For example, should there be regulatory relief for surveillance cameras that can reliably distinguish between legitimate activities, such as strolling down the street, and criminal behavior, such as theft? **Third**, what decision is made based on the data collected from (or extracted from) the user's body? Some decisions have greater political significance, as in the case of surveillance cameras deployed during government protests. Are they primarily intended to spot criminal activity? Do they gather and store data on and from all the individuals? Another example would be the misuse of personal data as part of efforts to muddle elections through the "personalization," "targeting" and "optimization" practices used by social networking and search engines. Regulators should consider a different approach to bodily political actions (e.g., demonstrations) and bodily commercial actions (buying clothing). Now, instead of categorically deeming specific algorithmic bodily relations as "unacceptable," such as face recognition in real-time, a nuanced reference to the body as an algorithmic site would facilitate protection against emerging hazardous AI algorithms. There should be a different regulatory treatment for the detection of people from a distance based on their bodily characteristics in the context of a demonstration compared to detection for personalized shopping. Moreover, if a new development emerged next year, enabling identification through genetic analysis from a distance, a flexible regulatory framework would be able to address the potential threats posed by this development with no need to pursue arduous legislative processes.

In "Maximum Opacity relations," we saw how algorithms explain the world and give it a certain meaning, usually without revealing their operational logic – from search engine results' ordering and the determination of the feed in social networking platforms through autocomplete suggestions to employment opportunity discovery and CV screening. The latter is already managed by the EU's AI Act, but this is a limited application of the more general concept of hermeneutic relations and its "opacity" permutation.

The postphenomenological political analysis starts with the question of space, which can be problematic, as demonstrated by the spread of fake news, when it became evident that the distribution is not limited to a certain jurisdiction and that they sometimes originate from the outside. Regulators need to think globally, not only locally, when it comes to risks and be willing to cooperate with other countries. The possibility of a coordinated global effort is slowly becoming more viable, perhaps too slow, given that in 2024, approximately half of democracies are going to elections and are facing increased muddling efforts, mostly from non-democratic countries. Second, in terms of political action, hermeneutic opacity might obstruct some political possibilities such as not displaying calls for a demonstration on social networking feeds. And thirdly, algorithmic opacity may refer to the nature of political action, alleviating the need to reveal the political motivation behind a given action. For example, an action can be presented as simple support to those who need help in everyday life, as is frequently done by extreme religious organizations. Regulators should, therefore, pay special attention to transparency, turning their focus from the algorithm itself or the training datasets towards elucidating the underlying logic governing the algorithmic system's operations. Developers should be part of this effort (Wellner & Mykhailov, 2023) and find methods to disclose the system's logic while safeguarding their trade secrets.

[8] There are more than two types of spaces, and here one can think of the augmented space as a third type, e.g. augmented reality that is not purely digital nor purely physical (Wellner, 2020a, 2023).

In “Her” relations, we saw how chatbots and other algorithmic dialoguing systems function as a quasi-other, sometimes with the intention of steering conversations towards outcomes beneficial or profitable for the developers or operators of the AI system. This aspect is covered in the AI Act so that chatbots are classified as “limited risk” and, as such, are subject to transparency obligations, mostly to reveal the fact that the interlocutor is a bot.

These three political dimensions are likely to point to additional obligations to be considered for future regulation. **First**, with regard to the question of space, the nature and boundaries of the space where the dialogue takes place color it, and therefore, the transparency obligation should also include the disclosure of the contexts in which the dialogue is triggered and maintained. **Second**, with regard to the content of the dialogue as a political action, regulators should consider protecting users from hate speech, as might be developed through a dialogue with a chatbot. Similarly, regulatory attention should be drawn to algorithms running autocomplete features and other suggestive mechanisms, and aim to prevent or at least minimize gender, racial, and age biases. **Third**, the purpose of the dialogue should be foregrounded, as dialogue with the chatbot might lead to political action. If the “political” is the goal of the dialogue, it should be communicated clearly.

“Background Collection relations” reveal how widespread the collection of data is, as shown by Shoshana Zuboff (2019). Currently, data collection and analysis are regulated based on their contexts, with some contexts (such as medicine) protecting the end users and others (like advertisements) providing some protection to specific audiences such as children.

One of the acute problems is political ads, which are personalized, targeted, and hidden from the public eye. They are practically “background” for those who are not directly exposed to them yet are subjected to their effects when public opinion is transformed before elections. Regulators can start answering this challenge with the help of Verbeek’s three dimensions of politics. **First**, with regard to space, the digital space during election periods requires special treatment to ensure that political ads are accessible to everyone, thereby fostering the possibility of public debate over key issues. It can be understood as a form of transparency, which may be an obligation of the political party that produces the ads or an obligation of digital platforms that are distributing such ads. **Second**, regarding political action (Verbeek’s second dimension), regulators should attempt to ensure that a response to an ad is possible. When an ad is accessible on an individual basis, responses are difficult to deliver. As per the **third** dimension according to which technologies shape the “matters of concern,” AI-generated fake news and disinformation have shown how algorithmic distribution directs the public discussion to marginal issues, thereby hampering the more important debates on crucial issues. The background decisions behind the distribution of such content should be made accessible to the public.

In summary, this article suggests a map of AI risks to be answered by future AI regulations that will be capable of addressing both potential and actual new risks. Verbeek’s three dimensions may help us map the potential risks of AI technologies, as indicated by the four relations of relegation. AI technology is developing at a fast pace, and the challenge of its regulation is shared by many regulators worldwide. We hope that the recommendations described above will be useful and applicable. AI regulation should assist users in fighting against relegation, first by revealing its existence and then by building mechanisms that would allow them to regain their intentionality. Delegation should not be imposed on the users, and if it does, those affected should be compensated, whether for their financial losses or for the derogation of their human rights.

Data Access Statement

No new data were generated or analyzed during this study.

Contributor Statement

This work was solely conducted by Galit Wellner, who was responsible for all aspects of the research and manuscript preparation.

Use of AI

During the preparation of this work, the author used ChatGPT for basic editing and improvement of wording, and Paperpal for basic editing and a submission-readiness check. After using this tool/service, the author reviewed, edited, made the content their own, and validated the outcome as needed, and takes full responsibility for the content of the publication.

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