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From Afterthought to Precondition: re-engaging Design Ethics from Technology, Sustainability, and Responsibility

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Abstract: Despite recognizing that ethics is integral to design, and despite awareness that design brings about risks and undesirable side and after-effects, design ethics remains critically under-developed. What is design ethics? How should one broach an area as vast as design ethics? In this article, I examine three discourses that have been commonly used to engage—and to provoke—moral reasoning, awareness, and action in design. They are namely, technology, sustainability, and responsibility. Within the defined area of each discourse, I examine a limited set of debates and issues that are relevant to design ethics today. Through this critical analysis, I raise new questions and issues for design ethics. Subsequently, I suggest how a theoretically robust design ethics ought to engage with the concepts and categories of applied ethics on the one hand, and on the other, to condition this engagement with the domain-specific interests, concerns and experiences of design.

Keywords: Design; Ethics; Technology; Responsibility

1. Introduction

Despite the recognition that ethics is integral to design and design practices (d'Anjou, 2010; Devon & van de Poel, 2004; Findeli, 1994; Flusser, 1999; Fry, 2004; Manzini, 2006; Mitcham, 1995; Steen, 2015; Zelenko & Felton, 2012), design ethics remains "massively underdeveloped and even in its crudest forms remains marginal within design education" (Fry, 2009: 3). Design ethics—which is the study of morals and morality in design practices, and which encapsulates knowledge that evaluates, justifies and guides design—has yet to catch up with the extensive phenomenon of the "world as design" (Aicher, 1994). In an age when what used to be matters of destiny have now become novel burdens for decision-making (Ihde, 1990), the underdeveloped state of design ethics is perplexing. Naturally, this

begs the question: why has design ethics lagged so far behind the reach and ramifications of design actions today?

The reasons are manifold. First, design ethics concerns a vast area overlapping many independent fields of applied ethics—for instance, the ethics of technology, robot ethics and environmental ethics just to name three. Each of these fields maintains discourses that overlap with the substantive concerns of design ethics. Yet none of these fields, to the author's knowledge, explicitly reference design or design theory. For instance, robot ethics connotes three different areas of concern, namely, understanding the ethical implications of robotic usage in society, the moral code used by the robots themselves, and finally, discussion revolving around the self-conscious ability of ethical reasoning in robots (Veruggio & Abney, 2012). Conceivably, all three areas concern design intentions and consequences. But this discourse has yet to draw from design theory gainfully. Or consider the debate on ecological restoration (see Gobster & Hull, 2000): a key (and active) discourse within environmental ethics. However, the question of whether it is ethical—or to what extent it is ethical—to first degrade a tract of the natural environment and then later restore it is also rightfully, *a question of (environmental) design ethics*. If these examples are symptomatic of a larger trend, then design ethics has yet to be significantly informed by important debates and issues outside of design. It is therefore important to draw on some of these debates and issues to further develop design ethics.

Second, ethics is challenging for design because it does not exactly fall into the professional competences of designers (Findeli, 1994). Ethics presumes not only specialized knowledge but also demands emotive engagement. Unlike cognitive problem-solving, moral reasoning requires not only cognitive processing but also "total moral engagement on the actor's part" (Findeli, 1994: 60). The moral (action), according to Bauman (1993: 54), resists "codification, formalization, socialization, universalization". To calculate if one should jump in to save a drowning child would be immoral (Løgstrup, 2007: 85). But because design is essentially an activity characterized by distant "projectability" (Bonsiepe, 2010: 36), design also tends to deny any immediate emotive engagement that ethics presumably requires. To add to this, design problems are frequently ill-defined, if not outright "wicked" (Rittel & Webber, 1973). Moral values in design and commitment to these values only become clearer as designers struggle through the problem; these values are rarely present by default at the outset of design.

Finally, ethics could be categorized under what Schumacher (2004) suggests as divergent problems. In contrast to convergent problems—where successive attempts to solve the problem gradually coalesce and converge on an answer, a divergent problem becomes more divergent the more it is clarified and logically developed—until "some of them appear to be the exact opposite of the others" (Schumacher, 2004: 122). Ought one lavish a year's wages to honour a noble person who is about to be executed, or use that lavish sum to help the poor? Should one stay behind to take care of an elderly relative or leave to join the fight against an evil empire? Or should a designer abide by his convictions at the expense of admitting to undesirable consequences, or to avoid these consequences at the expense of

abandoning his convictions (Weber, 1981)? These are stark dilemmas. Yet even in their reductive starkness each depicts some of the deepest moral perplexities of the human condition. Is there then any overriding principle to resolve these dilemmas? Or how should consequences be weighed against integrity, or vice versa? To the extent that the field of ethics offers answers to these questions, the answers tend to be diametrically different. In this way, they only reflect the highly pixelated landscape of contemporary ethics today comprising of many divergent frameworks and arguments. While there is great richness in divergence, it is tantamount to an intractable complexity for ethical guidance—which makes for an extremely challenging task of finding out just what is the ethical thing to do in design.

However, admitting that obstacles exist for design ethics is not the same as denying its plausibility. Despite obvious difficulties and challenges, different design theorists and practitioners have persisted in envisioning and articulating a design ethics that can inform, clarify, and improve design practices. This task is all the more pressing when designers can no longer count on social norms to provide guidance in many matters of new technology and design (Flusser, 1999). In this context, design ethics is crucial for raising moral awareness, evaluating moral intuitions and clarifying the ethical dimension in design decision-making. Developing the substantive content and guiding vectors of this ethics is therefore a next important step.

1.1 Methods and Aims of Paper

My arguments in this paper follows from the following three premises: (i) design ethics remains under-developed; (ii) but discourses on design ethics—both within and outside of design—exists; (iii) however, little, if any, effort has been devoted to collate and analyze these discourses used to engage the ethical in design. Therefore, a critical survey of a relevant but limited set of issues in each of these discourses—which are namely, technology, sustainability, and responsibility—to further clarify and consolidate design ethics is warranted.

However, this survey is hardly comprehensive. This survey only attempts to identify a limited number of ideas cogent and emergent to design ethics in these discourses. Through this effort, my arguments raise new issues and questions for future work in design ethics. Recognizably, each discourse is vast and the enterprise of many book-length endeavors; where I have chosen to start in each of these vast discourses is therefore to some extent, idiosyncratic. But the choice of these starting points is not entirely inexplicable. Where possible, I begin from canonical origins; in other places I construct my own premises—all with the aim of conveying concisely the kernel of each discourse as it relates to design ethics. And finally, while the broader choice for these three specific discourses may be charged as a case of biased sampling on the dependent variables, each is however replete with literature and data that can spur further discussion in design ethics. If the author is guilty of biased sampling, then it is only because the author has to begin from the most likely places.

2. Technology: from Instrumentality to the Morality of Things?

Martin Heidegger (1889-1976) could be credited with one of the earliest insights on the moral ruptures brought about by modern technology on mankind. According to Heidegger (2004), modern technology has transformed the moral relations between person to person, and of persons to the world. Instead of treating persons or certain entities in the world as ends in themselves, they have been transformed into means by modern technology. In other words, modern technology, among other attributes, has precipitated the nihilism of absolute instrumentality.

But this nihilism never quite materialized. What emerged instead was the triumphalism of means, where means became its own absolute ends. For instance, where is that fastest car in the world going? What are the reasons for building the tallest building? And why is a watch that answers our phone calls even necessary? Rittel calls this phenomenon the "curse of feasibility" (Protzen & Harris, 2010: 223): 'I do because I can'. In parallel, C.W. Churchman suggests that the most startling feature of the 20th century is that mankind has developed such elaborate ways of doing things while at the same time have developed no way of justifying for any one of them (Churchman, 1961: 1). Indeed, the more pronounced and articulated technology becomes, the more humanity is exposed to the unanticipated side effects and risks of harnessing technology (Wolin, 2001). And attempting to address these side effects and risks with more technology only perpetuates the cycle of unanticipated and undesirable side and after effects (Beck, 1992; Findeli, 1994). The power, as the willingness, to harness technology has far exceeded the capacity to know its actual consequences, and this in turn creates a class of new problems that behoves a new ethic, hence the ethic of responsibility (Jonas, 1984).

Even so, the arguments mounted by Jonas and others on technology and ethics are often "defined in reference to large choices" (Manzini, 1992: 5). Manzini (1992) suggests there are few hints in these arguments for constructing a system of values—an ethics of design—for everyday design decisions. To the extent that Manzini is correct, little insight has been transferred from the macro-ethics of technology to everyday design practices. And to the extent Jonas's arguments remain valid, the triumphalism of means persists. Often, there is little substantive justification for why many technologies and products exist except for reasons of frivolity and increasingly, because of reckless greed. Like in Jonas's milieu, the future of this present age remains at risk—and in part due to design (Fry, 2009). Presently, design facilitates the ceaseless cycles of new product development, which in turn legitimize design. In this context, design and design ethics can be self-critical but it cannot do so without also being threatened by self-negation. Therefore, there is little design ethics can do in this paradigm of technology beyond tinkling warning bells (see Beck & Willms, 2004: 204).

Is there then another paradigm to develop design ethics in relation to technology? A patchy discourse on the morality and moral mediation of artefacts has emerged (Chan, 2015; Flusser, 1999; Latour, 1992; Tonkinwise, 2004; Verbeek, 2008; Verbeek, 2011). Unlike the instrumentalist paradigm of technology where technology is perceived to be external to

moral choices, this discourse posits technology as a mediator in moral choices. In the instrumentalist paradigm, technology is either used or being abused by the moral agent; technology is a value-neutral entity and ethical attributes only reside within the agent. By extension, an ethics of technology associated to this instrumentalist paradigm could only ask if the ends justify the means, or whether certain consequences are justifiable, and by what ethics, and to what extent is the agent virtuous or not in the use of technology. In other words, this paradigm would only admit to the view that moral agency begins and ends with the human, moral agent.

But in the mediation paradigm, it is no longer clear if moral agency resides in the human agent alone. In this paradigm, moral agency is seen as the outcome of an assemblage made up of human agents and technology. And while the exact extent of technological mediation remains unclear, the example of the obstetrical ultrasound technology goes to show how the moral assemblage comprising of doctors, patient, foetus and technology has been altered because of ultrasound (Verbeek, 2008). In this case, the visualization offered by obstetrical ultrasound has opened up new moral choices that were previously unavailable. And even if one demurs on this view, one is unable to deny that design parameters in technology—for example choosing to represent the foetus at a certain size on the viewing monitor to accentuate its personhood (Verbeek, 2011)—directly implicate design ethics.

Admittedly, there is still little consensus on the mediation paradigm (see Chan, 2015). In Verbeek's case, he suggests that the mediation paradigm of technology is at least useful to design on two counts (Verbeek, 2008). First, this paradigm is able to develop a moral assessment of technologies in terms of their mediating roles. And second, ethics is able to shift from the domain of language to medium of materiality. In the context of design ethics, I suggest that it is the latter suggestion that invites further reflection. To the extent that ethics can be materialized, ethics *has to be designed*. A recent thought experiment carried out at the University of Alabama (Birmingham) asks if self-driving cars—or autonomous vehicles— should be programmed to 'murder' its occupants, rather than to kill the pedestrians in the event of the classic Trolley problem (Windsor, 2015). There are varying forms of the Trolley problem; but all of them comprise of a moral dilemma between invoking a deliberate intentional harm, or to reject that intent in favour of some unpalatable consequences (e.g., between intervening by intentionally running the trolley into an innocent bystander, or to do nothing and allow the trolley to run into a small group of bystanders). In designing these autonomous technologies, it has become clear that designers can no longer avoid the subject of morality in technologies. If so, then it is not so much a question if mediation exists but to what extent mediation occurs and at what point does this mediation begin to assume a moral agency similar to the human agent. Invariably, one then has to ask: can a designer ever be responsible enough to determine, on behalf of other moral agents, the ethical action through design?

3. Sustainability: a Paradox for Design?

"Everything now has to be sustainable..." (Bruckner, 2013: 47). Sustainability has become the hegemonic social ethic today. And to this extent, the term 'sustainability' has also become almost meaningless (Russ, 2010). In design and elsewhere, this term has taken on a wide gamut of different meanings—everything from limiting the impacts of design on the environment to a moral obligation for future generations, and perhaps even to an assuagement for increasing consumption. But scrutinized more closely, sustainable design today raises many disconcerting questions.

From one perspective, Fry (2012) suggests that market growth constantly negates the impact reduction gains of sustainable products. Sustainable design, which by one formulation is at least to reduce the impact of design on the environment, is nullified when the scale of its realization in material and energy consumption exceeds its aggregate impact reductions. The Jevons' Paradox and the Rebound Effect are two other well-studied phenomena that point to the paradoxical possibility when widespread adoption of sustainable design can turn out to undermine the original aims for sustainability. From another critical perspective, sustainable design is perceived to have been hijacked and appropriated by agendas wholly unfamiliar and perhaps even inimical to its original meaning for its morally approbative cover. The highly engineered 'eco-cities' are indeed forms of sustainable development in terms of environmental performance; but incurring the various costs associated to building new cities when existing ones still offer ample opportunities for efficient re-adaptation is not sustainable. Harvey (2010) suggests that (new) urbanization is but a channel to absorb excess capital to better stabilize capitalism. These two perspectives do not nullify the need for sustainable design. But they do behove a closer scrutiny of what sustainability and sustainable design appear to promise.

Because sustainable design is a vast discourse, I shall only limit my arguments to two issues relevant to design ethics. Firstly, sustainability tends to suggest values associated to conservation, limited use or even, preservation of limited and especially, non-renewable resources. On the other hand, design tends to suggest values associated to exploration, experimentalism and expansiveness. In other words, sustainability tends to have prefigured aims; design does not. And while sustainability appears to constrain or even restricts, design assumes nearly the opposite. Admittedly, this relationship is more complex than how it has been portrayed; after all, it is possible to engage in exploratory and experimental design without consuming non-renewable resources. Yet to design is to admit to an open-endedness—that is, to experience epistemic freedom (d'Anjou, 2010; Protzen & Harris, 2010)—that is radically different from the boundedness suggested by the prefigured aims of sustainability.

On this, how designers modulate this freedom in relation to sustainability is telling. In contrast to d'Anjou's (2010) view on embracing a kind of Satrean freedom in design, Rittel argues that such Satrean freedom instead inhibits designers. To design, the designer has to limit this freedom by imposing some kind of boundaries—tantamount to the imposition of

constraining logics (i.e., *'Sachswange'*) found outside the immediate system of design (Protzen & Harris, 2010: 192). In other words, complete or radical freedom overwhelms as it also paralyzes (Fromm, 1994). In this context, sustainable standards and norms then easily become a source of self-justifying constraints used to initiate and to justify design. The ecologically justified showcase village of Huangbaiyu is a case in point (see May, 2011), where existing, local and arguably sustainable practices were eliminated in favour for the sustainable forms imposed by the designers. Because sustainability is morally approbative and because design is also incentivized by various institutions (e.g., Leadership in Energy and Environmental Design, or LEED) to promote sustainability today, the designer can be led into the moral hazard of prescribing unnecessary 'sustainable' features that ought to be avoided in the first place.

Secondly, while it is possible to design for non-human interests, overwhelmingly design has been deployed to serve human interests. The primacy of positioning human interests first above all other interests can be argued as a form of anthropocentrism (Sarkar, 2012), and anthropocentrism has been argued as the source of the environmental crisis today (Rolston, 2012). Admittedly, not all forms of anthropocentric activities are harmful to the environment; irrigation technologies used in certain conditions, for example, has led to the flourishing of biodiversities that otherwise would not occur naturally. Even so—visibly and overwhelmingly—the primacy of anthropocentrism has resulted in rapacious exploitation, environmental degradation, destruction of non-human species, and harmful wastes: "where design is, there is waste" (Bauman, 2004: 30). If so, then to what extent is it possible to concede to design ethics, when the subject matter of this ethics—design—underwrites the very source of the environmental threat itself?

On this point, design ethics today has little to say. The hegemony of sustainable design has endorsed the belief that design is needed to create a more sustainable world. But at the same time, this same belief also conceals the damage design is incurring. To some extent, this belief is not reproachable, for "things cannot be made ethical without design" (Fry, 2012: 220). Yet because a robust design ethics has to be self-critical, it is equally important for designers to question and to confront the various anthropocentric causes that they serve or materialize through design (Fry, 2004). Even so, this dilemma is not entirely up to design to resolve. After all, there is still little consensus today on how to value non-human species independent of anthropocentric values. Until there is knowledge and consensus on how to value non-human species, design cannot be actualized to serve non-human causes. In the absence of this non-anthropocentric valuation system, the obvious recourse is then to establish areas of conservation, tantamount to natural protectorates, where tracts of natural environment and natural species are protected from further impacts of human actions. But on this, the irony cannot be more profound: by creating these protectorates, humans have once more accentuated the distinction between our artificial world, and the natural world (Rolston, 2012). In doing so, this has just thrown anthropocentrism into a sharper relief— and once again, by design.

4. Responsibility: A Question of Design?

What is responsibility in design? According to Fry (2004), responsibility in design has so far been problematically understood and defined—and mostly not going beyond the obligation for professional due diligence. Generally, responsibility has been portrayed in the following two ways (Fry, 2004): the first entails responsibility to clients and users in the form of a professional ethic or code of conduct; the second admits to a broader social responsibility not unlike what Papanek (1985: 54) suggests as the "social and moral responsibilities of design". To the extent that this distinction is warranted, it has been made on practical grounds. Different professional codes—for example, in architecture, planning and engineering—are needed to address problems and issues peculiar to these different design professions. In other words, this distinguishes a *responsibility to* clients, superiors and rules, from a *responsibility for* the welfare of others and the environment (Bauman, 2001).

Justly, Fry (2004) argues that the delimited sense of professional ethic as 'responsibility to' is inadequate for evaluating the deeper premises of design projects and the broader impacts of the designed artefact. After all, a 'responsibility to' rules, norms and superiors makes one unwilling to stand up against dominant institutions or question them even when moral judgment calls for resistance (Bauman, 2001). Along this line of thought, Marcuse (1976) suggests that professional ethics tends to affirm and consolidate the status quo, and it cannot be relied upon to improve social inequities. For these reasons, professional ethic as 'responsibility to' is necessary but not sufficient in guiding the responsible designer. Yet even if one turns to the perceivably broader—and more ontological—'responsibility for', this venue poses its own challenges. Responsibility is inexorably always personal and contextual; one is beholden to a specific another, which forms the kernel of responsibility. Therefore, this 'responsibility for' the welfare of others and the environment may very well play an aspirational role for the responsible designer. But to demand anything beyond this is to venture into a philosophy that leaves duty without a context, and one that risks obscuring the relation between virtue and reality (Murdoch, 2014: 89).

To bypass this obstacle, it has been suggested that design education offers a venue for teaching responsible creativity (Maldonado, 1965). Along this line of thinking, being responsible is less about knowing a priori definitions of what responsibility entails, but more about the a posteri task of cultivating a morally responsible designer. A person can know what is good, yet refuses to do it (Aristotle, 2005). But a good person by definition, does what is good and proper. Even so, there is some tentativeness in relying on education to cultivate moral character (Findeli, 2001). This tentativeness is not without reasons: for in the context of a pluralistic and liberal society, it is not only difficult to decide what kind of moral character one should cultivate, but also that character education implies the questionable inculcation of desirable traits and virtues (Doris, 2003)—but whose desirable traits and virtues, one asks? More troublingly, Doris (2003) also discovers that moral behaviour is extraordinarily sensitive to variation in circumstance. Drawing on evidence from moral psychology, Doris questions if there is even such a thing as a 'moral character'—an attribute that all practices of character education must first presume.

But counter-arguments are no less compelling: not only are the methods and choice of subjects of many experiments in moral psychology questionable, but also importantly, they rely on fictional moral scenarios to draw conclusions of actual moral realities (Damon & Colby, 2015). Damon and Colby argue that even if one accepts the moderating influence of circumstances on moral behaviour, one cannot deny the evidence of a sustained dedication to a moral cause in cases they have studied, which they further suggest as evidence of moral character. Because philosophical horns remain locked on this debate, and because there are also well-justified opposition to character education in liberal societies, it is uncertain—insofar as the science and evidences go—if design education can hope to teach anything more than basic moral reasoning skills and theories in training the responsible designer.

Clearly then, whether one advances by first specifying what responsibility entails for design, or ventures into virtue ethics as character education, one encounters nearly insurmountable obstacles. Is there another way to understand design responsibility, and in tandem, to teach this responsibility without explicitly invoking character education? One obvious avenue—altogether neglected by moral philosophers and psychologists—resides within the quintessential act of design itself.

On this, Meadows (2008) presents a possibility where responsibility could be designed. In her example of designing a new town, the designer could specify that all parties that emit wastewater into a stream to place their intake pipes downstream from their outflow pipes (Meadows, 2008: 179). This way of conceiving design is however not new. Burckhardt (2012) calls this the invisible parameters of design in contrast to visible and materialized parameters. In this case, the designer who recognizes that the moral hazards of free-riding begin in the materialized (or visible) counterparts of pipes and drains is then able to design a complete—and responsible—system: one which no longer divides the world into a realm of objects and (invisible) institutions. A designer who is able to do this clearly understands responsibility beyond professional ethics on the one hand, and on the other hand, is motivated to actualize this moral insight through design. One then wonders if responsibility could then be taught neither through theoretical ethics nor character education, but practiced through such a unified form of design itself.

Even so, this approach is not without its own set of problems. Empirically, designers work in systems that are inherited, and formed by, prior design attempts. Considering Meadows's specific example, one could argue that it is very rare for a designer to have complete discretion over a complete design system. But more importantly, design ethics again questions if designers ought to be given this discretion—even if it were possible—to design responsibility. In contrast to Latour's (1992) version on moral artefacts—for example automatic door-closers and automated seatbelts, which 'clean up after us (i.e., the irresponsible 'us')'—Meadows's approach alters something deeper and more systemic in the constitution of our lifeworlds. On surface it appears to naturalize the volition for responsibility. But in substance, this volition is merely obliged by the starker realities of self-preservation.

5. Conclusion: A Modest Proposal

Engaging the three separate discourses of technology, sustainability and responsibility respectively in this paper, I have demonstrated how examining each discourse could yield its own issues, questions, and insights for design ethics. In each discourse, the connections to design were clarified and following this, a few conceptual blockades for design ethics were also identified. Specifically by 'blockades', I am referring to the epistemological limits in what design ethics assumes as its operative paradigm. For example in technology, design ethics can continue to advance fruitfully within the instrumentalist paradigm of technology. But what design ethics is able to claim will likely be limited by the foundational assumption of this paradigm, which is the instrumentalist view of technology. Or design ethics can switch tack to explore the mediation paradigm, where as discussed, knowledge remains uncertain. But this is precisely the epistemological territory where thoughtful discussions are most needed from the design disciplines. It is therefore not unreasonable to consider that future work on advancing design ethics lies in surmounting known blockades, or dissolving them altogether. Insofar as the identified blockades in this paper are genuine—or so the author tried to ensure that they are—then my arguments have contributed to design ethics by making its working targets clearer.

Subsequently, in seeking to understand design ethics through these three discourses, one quickly discovers how design is beginning to alter the very conception of ethics as the "direct dealing of man with man" (Jonas, 1984: 4). In other words, has ethics, as it is conventionally understood, been transformed by the capacity to design? In pondering this question either through the issues raised by the design of autonomous technologies, or the ones implied by the act of designing responsibility, design ethics comes close to a form of *ethics of design* rather than *ethics for design*. While the latter involves applying existing ethical frameworks and principles to evaluate design actions—which also render design ethics indifferent from any other field of applied ethics—the former is resoundingly a new epistemological category. In ethics of design, it is implied that the capacity of design has developed far enough to engender its own ethical issues and perhaps, even alter the conception of ethics itself. After all, how should designers or philosophers even come to terms with a capacity that when fully exercised, extends to specifying the fabric of responsibility itself?

Finally, if my limited but systematic review of literature pertaining to *ethics (or ethical discussions) in design* over the last fifty years is any indication, writings on ethics have always been sporadic. Yet in recent years, writings on ethics have in fact thinned—and this is taking into account the relevant ethical discussions on design mounted from other discourses, which this paper attempts to account for three of them. For a subject matter that has become visibly important, an inverse trend and attention on ethics in design is more than disconcerting. To this I entreat a modest proposal: if all scholarly and professional reports or papers in design henceforth could include a short section on ethics, design may well find itself in the diametrical scenario with much emerging content on ethics. But this I reckon as a happier—and necessary—scenario than a poverty of ethical discourse in present day

design. In doing this, it is highly likely that design ethics, which occupies the seat of an afterthought in design studies today, can shift to the spot of design's precondition.

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