



Digital Duplicates, Relational Scarcity, and Value: Commentary on Danaher and Nyholm (2024)

Cristina Voinea¹ · Sebastian Porsdam Mann² · Christopher Register¹ ·
Julian Savulescu^{1,3} · Brian D. Earp^{1,3} 

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Abstract

Danaher and Nyholm (2024a) have recently proposed that digital duplicates—such as fine-tuned, “personalized” large language models that closely mimic a particular individual—might reduce that individual’s *scarcity* and thus increase the amount of instrumental value they can bring to the world. In this commentary, we introduce the notion of *relational scarcity* and explore how digital duplicates would affect the value of interpersonal relationships.

Keywords Digital duplicates · Artificial intelligence · Relationships · Griefbots · Value · Ethics

1 Introduction

It has recently become possible for just about anyone to create a digital duplicate (DD) of themselves, or indeed, of someone else: for example, by fine-tuning a large language model on reams of person-specific data (Iglesias et al., 2024). Suppose I create such an AI-powered chatbot, which is then downloaded to millions of computers. Assume, too, that it would pass a “Personalized Turing Test” (Steinhart, 2007): based on linguistic cues alone, even close friends and family members might be fooled into thinking it was me.

Have I made myself less scarce? And if so, have I therefore become less valuable?

✉ Brian D. Earp
bdearp@nus.edu.sg

¹ Uehiro Centre for Practical Ethics, University of Oxford, Oxford, UK

² Center for Advanced Studies in Bioscience Innovation Law, University of Copenhagen, Copenhagen, Denmark

³ Centre for Biomedical Ethics, Yong Loo Lin School of Medicine, National University of Singapore, Blk MD 11, 10 Medical Dr, #02-03, Singapore 117597, Singapore

Danaher and Nyholm (2024b) address these questions in a recent paper. They argue that DDs may reduce our *instrumental* scarcity by allowing individuals to overcome spatial and temporal limitations via high-tech, interactive representations of themselves: we could, in a sense—that is, by way of our DD stand-ins—“be” in more places at once, possibly indefinitely, and thus in principle be able to generate more value. Since there is only one “original” of each person, however, our *intrinsic* scarcity may not be affected, and the real or perceived value associated with our uniqueness may even be enhanced.¹

We agree that DDs would not reduce a person’s intrinsic scarcity, on various plausible metaphysical views, insofar as their unique seat of consciousness would not be duplicated. And if we value, say, interacting with a particular individual who subjectively experiences the interaction along with us, it may well be the case that the presence of a great many, easily accessible, DDs of that same individual would make interactions with the original person—whose capacity for conscious attention is intrinsically limited—seem, by way of contrast, that much more special.

In this commentary, we build on the ideas of Danaher and Nyholm (2024a) by introducing the concept of *relational scarcity* and discuss its associated value, as well as how this may be affected by the advent of DDs. In a brief Appendix, we also suggest that DDs could reduce *instrumental* forms of scarcity beyond the ones the authors suggest, with potentially significant implications for education, cultural heritage, and healthcare.

Table 1 provides a summary of Danaher and Nyholm’s arguments about the potential effects of DDs on individuals’ instrumental and intrinsic scarcity and the implications of these effects for how each of us is valued. Table 2 provides a similar summary of our arguments about DDs and *relational* scarcity, which are elaborated in the following section.

2 Relational Scarcity and Value

While Danaher and Nyholm examine how DDs could extend an individual’s value into the world, we focus on how DDs might impact *relationships* and the value attached to or derived from them, both by the person duplicated and by their partners (Voinea, 2024; Voinea et al., 2024). We introduce the concept of *relational scarcity* and explore its associated value.

Relational scarcity refers to the limitations on the number, depth, and quality of meaningful relationships that can be maintained or influenced by an individual. Relational scarcity thus has two dimensions: (a) quantitative, referring to a limitation on the number of relationships a person can maintain; (b) qualitative, pertaining to a limitation of the depth and quality of relationships, due to the scarcity of cognitive and emotional resources and time needed to sustain them.

¹ We note that the distinction between intrinsic and instrumental scarcity is not totally clear to us. At times, Danaher and Nyholm suggest that intrinsic scarcity consists in the fact that someone is ontologically unique. Elsewhere, intrinsic scarcity consists in an individual’s subjective point of view. Whether and how DDs affect intrinsic scarcity depends on these issues. For example, if an individual lives longer, does that reduce their intrinsic scarcity? Only on the second interpretation.

Table 1 Instrumental versus intrinsic scarcity and the potential effects of DDs on their associated value

Scarcity Type	Definition	Effect(s) of DDs	Implications for value
Intrinsic	Danaher & Nyholm (2024b), p. 106 “Intrinsic scarcity is the fact that you are, in and of yourself, inherently scarce, irrespective of your contribution to external ends. ... Your identity and your experiences are unique and they cannot be copied and pasted to others. You could have an identical conjoined twin (with, for the sake of argument, a separate brain and nervous system) linked to you at all times. You could see and experience many of the same things. But you would not be the same. If you died, your twin could not replace you.”	* DDs cannot copy one’s unique identity or conscious perspective, so they can only be proxies or agents operating on one’s behalf. They can’t affect intrinsic scarcity.	* DDs do not affect the intrinsic value of the original person since they have no effect on intrinsic scarcity. * DDs may, however, heighten or accentuate the perceived value of (interacting with) the original person, given their uniqueness, which may be made more salient by the presence/ accessibility of a potentially large number of ‘duplicates’.
Instrumental	Danaher & Nyholm (2024a), p. 106 “Instrumental scarcity is the inability, due to our ontological properties, to contribute to multiple goals or ends at the same time and space, or the inability to contribute to a very large or limitless number of goals or ends over an extended period of time. In short, it is the inability to be an instrument to a larger number of valuable ends.”	* Insofar as DDs extend important aspects of a person through time and space, they may be able to reduce instrumental scarcity, e.g., by extending a person’s influence via their (potentially many) DDs.	* By reducing instrumental scarcity, DDs could add to individuals’ instrumental value by helping people exert more influence or accomplish more goals. * DDs could also reduce instrumental value, however, by exceeding an optimal threshold (akin to “flooding the market”), potentially leading to diminishing returns over time.

Because of these limitations, relationships can have different types of value. Relationships that are irreplaceable—e.g., the result of joint projects or experiences, intertwined histories, and/or patterns of interdependence—have intrinsic value (Nyholm, 2015). We propose that for a relationship to have intrinsic value, it has to be *subjectively co-experienced* by the partners, typically resulting in shared memories. (Relationships with persons with advanced dementia may represent edge cases.) Instrumental relational value, in contrast, refers to the practical benefits relationships provide us with, such as connections, entertainment, emotional support, etc. It’s important to note that relationships oftentimes have *both* intrinsic and instrumental value (Earp, Sandberg and Savulescu 2016).

So how do DDs affect relational scarcity? We suggest that DDs could reduce *quantitative* relational scarcity but might have little direct impact on *qualitative* relational scarcity. They might, however, *indirectly* reduce qualitative relational scarcity, as explained below.

First, DDs could reduce quantitative relational scarcity by enabling more frequent, widespread, and simultaneous interactions with (certain aspects of) a person, i.e., through their DDs. By serving as a proxy of interactions with the original person,

Table 2 Relational scarcity and the potential effects of DDs on its associated value

Scarcity Type	Definition	Effect(s) of DDs	Implications for value
Relational	Voinea et al. [this manuscript] “Relational scarcity refers to the limitations on the number, depth, and quality of meaningful relationships that can be maintained or influenced by an individual. [It] has two dimensions: (a) quantitative, referring to a limitation on the number of relationships a person can maintain; (b) qualitative, pertaining to a limitation of the depth and quality of relationships, due to the scarcity of cognitive and emotional resources and time needed to sustain them.”	<p>* DDs could reduce quantitative relational scarcity by enabling more frequent, widespread, and even simultaneous interactions with (certain aspects of) a person, via their DDs.</p> <p>* DDs cannot directly affect qualitative relational scarcity, insofar as this depends on sharing time—and having meaningful experiences—with someone who subjectively appreciates and values those experiences, as they cannot replace the unique subjective experience of what it is to be <i>me</i> in a relationship.</p> <p>* DDs might, however, indirectly reduce qualitative relational scarcity, insofar as the ability of various people to interact with my DDs <i>instead</i> of me “frees up” my own time and attention for investing in the relationships I value most.</p>	<p>* By reducing quantitative relational scarcity, DDs could contribute to an increase in instrumental relational value for both the people who are interacting with the DD and the original person who has been duplicated, insofar as such interactions either <i>constitute</i> ‘relationships’ of at least some minimal sort or <i>fulfill some of the needs or desires</i> that relationships with a person normally fulfill.</p> <p>* DDs do not directly impact qualitative relational scarcity (see the column to the left), so they have no direct effect on intrinsic relational value either: neither for the persons duplicated, nor for those that engage in interactions with the original person or their DDs.</p> <p>** DDs might, however, indirectly reduce qualitative relational scarcity (see the column to the left), which could potentially increase intrinsic relational value for favored relationships.</p> <p>* Relationships with DDs of deceased or comatose individuals may offer users (some of) the instrumental value provided by the original relationships.</p>

‘relationships’ with DDs could provide *instrumental* relational value, both to the people who are interacting with the DD and the original person.

For example, influencers who duplicate themselves digitally can extend their reach and audience, thereby deriving more money, attention, or other (ostensible) benefits from the interactions that their followers have with their DDs (see, e.g., Dawson, 2023). Followers, too, could find value in interacting with an idol’s DD, as it could provide them with experiences that would otherwise be impossible to have due to the scarcity of the original influencer’s time and attention, such as personalized advice, enjoyment of conversation, etc. (see Appendix). Moreover, as DDs take on routine, less demanding interactions, they may free up time and cognitive and emotional resources for the original person to invest in and focus on more meaningful relationships (e.g., those with intrinsic value). So, by reducing quantitative relational scarcity, DDs might *indirectly* increase opportunities for the original person to develop more intrinsically valuable relationships.

Second—and by contrast—DDs are not likely to *directly* affect qualitative relational scarcity, because they (almost certainly) cannot replicate the original person’s seat of consciousness (Iglesias et al., 2024): that is, the unique, subjective experience of what it is like to *be* someone in a relationship, including the qualitative feeling of retrieving shared memories of previous joint experiences. This means that they will also have little, or no, direct effect on the intrinsic value of close relationships, which are made possible by the partners subjectively co-experiencing them.

To illustrate, imagine I have a close friendship with someone named Eve. Having a DD substitute me in this relationship does not provide me with the same intrinsic value as the original relationship with Eve, as it is not *me*—roughly, the unique seat of consciousness that has subjectively co-experienced, and formed shared memories of, the ups and downs of said relationship—that is experiencing the relation. I might not even know, much less experience, how my DD is interacting with Eve.² Similarly, Eve cannot experience or derive intrinsic value from interacting with my DD, as she is only chatting with something that imitates my idiosyncratic characteristics; she isn’t actually chatting with *me* (Starmans and Bloom 2018). Finally, while a DD might successfully imitate my behavior or personality traits, *it* cannot feel and reciprocate the feelings that give rise to relationships that are valued intrinsically (in part *because* such relationships require conscious, mutual involvement rather than mere imitation or automatic interaction).

That being said, DDs *might* help to “scaffold” or maintain a kind of residue of the intrinsic value of a relationship one has with, say, a recently deceased loved one, or with someone in coma. This is because they can help to rehearse or uphold the shared memories that partly constitute(d) the intrinsically valued relationship, i.e., for the sake of the still-living/conscious partner (Iglesias et al., 2024). They might also help to provide at least some of the *instrumental* value of that relationship, for example, by telling jokes in the manner of the individual who is no longer conscious,

² Consider an alternate scenario, however. Suppose I have my DD look after a lonely grandparent who lives in another country, whom I can only see infrequently. In between video calls, my grandparent talks with my DD and may derive some—additional—instrumental value from our relationship via these means. Moreover, the DD could be programmed to provide me with a record or summary of their daily interaction, involving me in some distant way. This might not be ideal, but it could be better than some alternatives.

offering emotional support or a ‘listening ear’ to the conscious partner, and so on (Voinea, 2024). Of course, the deceased or comatose person would not derive any experiential benefits from such “proxy” interactions. However, as we have argued elsewhere, people might have reasons to create a DD to fulfil certain non-experiential (e.g., posthumous) goals or desires: i.e., goals that don’t have to be subjectively experienced to be fulfilled (Iglesias et al., 2024). Thus, while a DD could not help a person posthumously experience their child’s piano recital, it might be able to help them posthumously finish writing the epic letter of advice that was to be read on their child’s 18th birthday.

3 Conclusion

The advent of digital duplicates challenges our traditional notions of scarcity and value across intrinsic, instrumental, and relational dimensions. As DDs blur the boundaries between life and death, presence and absence, we must grapple with fundamental questions about the nature of relationships and authenticity. We thank Danaher and Nyholm for their significant contributions to this task.

Appendix. Further Potential Effects of Digital Duplicates on Instrumental Scarcity

Danaher and Nyholm mention several intriguing potential effects of DDs on individuals’ instrumental scarcity/value (see Table 1). Here, we suggest some additional areas where DDs might increase instrumental value by reducing the instrumental scarcity of individuals.³

- *DDs could democratize access to knowledge and expertise.* Imagine a DD of Marie Curie teaching radioactivity, or Richard Feynman teaching quantum physics, to students worldwide, complete with their rich personalities and stories to share about their roles in scientific discovery. This could reduce the scarcity of high-quality education, while increasing interest and engagement, potentially augmenting the instrumental value of the original educator(s) to society.
- *DDs could support socio-historical and cultural preservation.* Beyond the examples just given, the ability to create interactive duplicates of historical figures from a broad range of professions or social roles could help maintain and transmit cultural and historical knowledge across generations. This could be particularly valuable for preserving endangered languages and cultural practices (Porsdam Mann et al., 2023).
- *DDs could enable scalable, individualized interactions in fields such as therapy or mentorship.* In addition to DDs of inspiring scientists, scholars, or educators, DDs could also be created of renowned therapists, mentors, or life-coaches to

³ The value derived from digital duplicates will likely vary significantly based on cultural norms, generational perspectives, and specific use cases, among other factors.

provide personalized guidance to a much larger number of individuals than would be possible for the original person. They could, for example, help people in coming to know themselves better and in becoming better moral agents (Giubilini et al., 2024).

- *DDs could add value in healthcare contexts.* For example, DDs of individual patients could be used to help predict their treatment preferences when they lose capacity, potentially helping family members or other surrogate decision-makers with the process of making a substituted judgment (Earp et al., 2024), including by allowing active engagement with an avatar of the patient, including the avatar providing reasons for their preferences. We explore the idea of creating a ‘digital patient avatar’ in forthcoming work.

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Declarations

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