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Proceeding Paper
The Fourth Space as Reality [†]

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Abstract: In 2021, Daniel Hardegger reinterpreted the notion of The 4th Space as meaning the virtual space. It dwells within the three dimensions: Physical space where it is instantiated, technological medium used to access it, and the time frame. The ontology of Hardegger's 4th space relies on traditionalist real-space physicalism. Luciano Floridi, in his 2014 The 4th Revolution, has placed the informational revolution within his prior framework of information-based ontology, where human beings as well as virtual and physical objects, are all inforgs—informational entities. In this brief article, we compare and contrast these ontologies.

Keywords: 4th space; 4th revolution; inforgs; virtual ontology

1. Comparison of Floridi's and Hardegger's Basic Ontology

In his groundbreaking 2021 position paper, Daniel Hardegger develops the notion of The 4th Space interpreted as the area of integration of virtual and 'real' spaces of human functioning [1].

In his revolutionary 2014 book The 4th Revolution, Luciano Floridi—among other topics—works on erasing the ontological as well as axiological gap between digital and other aspects of reality [2]. This claim is based on his view of human beings as inforgs—informational entities, where the ontological background, or sources of information (physical, psychological, or digital), are inessential. The essential aspect is informational content [3].

From Floridi's viewpoint, in the context of the 4th (digital) Revolution, dualism between the 'real' and the virtual is no longer charmingly old-school. Instead, it is now recognized as a hindrance in any attempts to grasp the unity of human nature in the digital age. However, from Hardegger's viewpoint, in the context of the 4th space theory, Floridi's informational monism may be viewed as over-enthusiastic ontological exaggeration, characteristic of the early adopters of new paradigmatic frameworks.

Ethos of Virtual Space

Our ethos, following Martin Heidegger, will be viewed as a dwelling-space [4]. It is always already deeply semantic. Human dwelling space includes symbolic artifacts, such as cave paintings, iconic symbols and songs (such as Homeric poetry), writings and rituals, sacred and profane ceremonies and texts (including the holy scriptures of various traditions). It comprises the semantics of high and folk cultures, including body paintings, dances, fashion, and other features of the pop-cultures over the ages. These days, ontological semanticity of human beings also involves movies, games (online and otherwise), and yes, avatars and virtual realities.

There is no ontological gap worth emphasizing between semantization of our daily routines: The meaning of one's clothing, food, or other rituals—and semantization (as well as domestication) within virtual spaces. The latter may also be viewed as virtual practices, where virtualization does not humper their standing as real, ensich (within Hegelian sense,

in which it roughly means 'what matters in a long run' or 'what it is meant to become' [5]). For today's people, plastic credit cards, virtual investments, and online banking are where the money is (wealth ensich). Many other meaningful things virtually happen too, from romance, voting and learning, to theft and informational manipulation.

This unified ontology is important as a bridge between the fourth space as virtuality and its emergence base (in human actions, practices, and technologies)—according to Floridi's work. Those entities are all real. They create various aspects of Hardegger's fourth space, viewed as one (vital) dwelling opportunity of digital natives. Its existence and persistent presence were made possible by the Fourth Revolution.

Thus, prima facie, Hardegger's fourth space is an instance, or instantiation, within Floridi's universe of the 4th revolution, or so it seems.

2. Hardegger's Three Axis Model

The above Floridian transcription of the fourth space, its role and ontological status, is not where the story ends. Hardegger's seemingly old-school strong distinction between the virtual and the real finds its source and justification in the multidimensionality of virtual beings, which he presents.

2.1. The Three Axis Analysis

Hardegger argues that 'conflicts, but also opportunities, arising from the digital/virtual communities, stem from the fact that the private, professional, and communal roles mix there, and absolute separation is not possible' [1].

In order to provide a research framework for this space of multifarious relationships, Hardegger introduces the following three axis model [6]:

2.1.1. *X*-Axis, Solidity of the Physical Space

First, Hardegger emphasizes the solidity of the real world 'place', which is his important x-axis. A person engaged in virtuality is always already in one's home, office, car, forest, or other physical location.

This ontological realism provides ontic priority and grounding to the physical space (or, space-time) of the 'real', traditional, brick and mortar world. This leads to the nearly epiphenomenal status of the virtual worlds. Though somebody may ask, in accord with Floridi's perspective, whether they are not all materialistic ontologies since virtual space is not immaterial, it is very materialistically explicable indeed.

2.1.2. *Y*-Axis, Medium Where Virtuality Happens

Hardegger also emphasizes y-axis, which is the medium of access to the virtual space (such as one's laptop, smartphone, etc.), which includes hardware and software. Depending on this aspect, whether we have an old desktop or 4D goggles, we are in very different realms of the virtual space.

This is the aspect discussed by Floridi but never quite seems distinct within his ontology, which is built upon—or reduced to—information.

2.1.3. *Z*-Axis, Solidity of the Physical Space

Finally, there is z-axis, which is the time, in which virtuality happens. It reminds me of the role of a timer in the Turing machines, which makes GOFAI mathematically 'discrete' following algebra, not 'continuous' following chemistry [7].

Those various times and speeds relate to the speed in which virtual activity happens on various platforms for different games, bloggers, readers, etc., but it reaches beyond computer speed. It also reaches to the agent-observer side of the equation, meaning here the epistemic relationship. A fast computer may be working with a contemplative human mind, watching a 7 h long 7 chacras meditational music—and then the time of perception, not that of hardware and software, brings about the basic timer of that virtual space.

We examined this post-Einsteinian move of adding time to the construction of space at the virtual Polish Congress of Cognitive Science later in September 2021. The question is whether the dimension of temporality is special to virtuality, or is it a feature of any process, especially perception of the work of art [8,9]. Temporality is a feature of any human, thus epistemic, process—if properly analyzed, always already spread out in time. However, why emphasize temporality in virtuality so much?

If temporality is an important part of Hardegger's ontology within materialistic realism, it is not there to focus on the uniqueness of virtual worlds but rather of their compatibility and co-existence within the real world we live in.

2.2. Importance for Hardegger's Ontology

The model based on the *x-y-z*-axis is introduced by Hardegger as a formal conceptualization. If this is so, we present its ontologization, which requires one to make a choice between:

a.   Ontological unity, such as Floridi's ontology of information,
b.   Emergent materialism of the virtual.

In the latter case, the virtual space is always already a mere image within the material machinery of the universe. Such virtual space would have to remain ontologically secondary to its material emergence base, but not quite so.

We may view the whole Kultur-universe, the realm of meanings, as such emergent property. The order of 'making' (first came the Earth, then many other things have happened, then one's computer came about and then virtual reality), is not the order of importance within the realm of meanings, viewed as the semantics of the human life world. Our dwelling space, investment space, work space, even romance space, to some extent, may be largely virtual, though virtuality comes late in the order of making the world happen.

3. Contextual Ontologies

It is easy to be tempted to ask who is right, Floridi or Hardegger. However, both of those authors have a deep appreciation for the contextuality of such a message. Ontology is not quite a two predicate business since it depends on space-time and machinery (both technological and conceptual) at hand.

This Fall, I assigned, as one of the term-paper topics to my UIS students, analysis of extensive fragments of L. Floridi's The 4th Space and D. Hardegger's draft paper "The 4th Revolution". I expected them to situate Hardegger's 4th space within Floridi's 4th revolution.

To my puzzlement, I found three unrelated papers, written by online students not even quite familiar with each other, presenting different arguments in support of the following thesis:

> While Floridi's 'Turing Revolution' created our reality, this happened before we were born, in the late 20th century, and is largely history. The 4th Space Revolution, which is happening now, is more relevant to us since this is our revolution, which is happening through our lives.

I would say, upon a minute's consideration, the point well taken. For digital natives, digitalization is no longer the news, it is given reality. Virtualization, on the other hand, is happening now. Despite its roots that extend, in popular culture, for over 30 years—true virtualization is happening now. Thus, Hardegger's focus is the game of the day.

What about his ontology? When digitalization is no longer an issue of the future, ambitions towards its metaphysics cool down.

Within the philosophy of information, Floridi's informationalism is doing well [3]. On the other hand, when we want to pencil in virtual space onto the picture of the world, good old materialist realism seems apt for the job [6]. In terms of entrenchment [10], the account that describes the virtual world as a feature of civilizational development in the

area of communication through electonics provides a great fit with our daily experience. This may change, of course, with the changes in our epistemic base—if virtual space ends up dominating human experience—but predicting this would be sheer futurology.

Right now, we should be ready for quite a ride through AI innovations, with no pre-determined set of detailed outcomes, technological or ontological.

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