The Social Ontology of Virtual Environments

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ABSTRACT

This essay analyzes the ontological structure of institutional and other social entities in virtual environments. The emphasis is on institutional reality, which consists of entities (objects, events, etc.) like money, contracts and chess pieces, that are constituted in part through collective agreements. It is studied how institutional entities are constructed in virtual environments, how they relate to institutional entities in the real world, and how they are recognized by users.

Keywords: Social Reality; Institutional Reality; Ontology; Virtual Environments; Language; Interpretation.

1   INTRODUCTION

Computer systems have become the site of many objects, events and activities. The virtual environments generated by them seem to contain the virtual or electronic equivalent of almost anything found in the physical world. So we have electronic books, electronic money, virtual bars and chat rooms, and activities like trade, design, gameplay, and communication. The ontological status of these various electronic objects, activities and events is not always clear. Some virtual entities appear to be mere simulations of their physical counterparts. For instance, a real martini cannot exist in cyberspace and cannot literally be drunk in cyberspace, although it is possible to hold a simulated martini in a virtual reality environment and to pretend to drink it. Other virtual entities appear to be just as real as their physical counterparts. For example, electronic money is, for all purposes, just as real as physical money, and electronic gambling can have the same devastating consequences as gambling in a physically real casino.

This paper aims to take away the ontological puzzlement that currently exists regarding objects and events in virtual environments by analyzing their ontological status. By a virtual environment, I mean any software-generated structure that is able to contain, or function as an environment for, software-generated objects and events, and human interactions with them. The paper contains an ontological investigation of virtual environments, with particular attention paid to the construction of social and institutional reality in them.

The structure of the paper is as follows. In section 2, a basic ontology of the real world is outlined, which is based on recent work by John Searle. Searle's ontology distinguishes between physical and social reality, and outlines basic

characteristics of social reality as well as of institutional reality, which is part of social reality. This ontology provides the background for a subsequent ontological investigation of virtual environments in section 3. In section 3, a comparison is made between virtual entities (entities encountered in virtual environments) and real-world entities (entities encountered in the ordinary world), and it is argued that institutional entities, unlike other entities, can have literal existence in virtual environments. Subsequently, it is analyzed how institutional entities are constituted and recognized in virtual environments.

2 BASIC ONTOLOGY OF THE REAL WORLD

A basic ontology of the real world is an account of the basic types of things that exist in the world, classified according to their mode of existence. By a mode of existence, I mean the way in which something has come into reality and the manner in which it currently exists. One of the most influential ontologies of the real world has recently been presented by John Searle [1]. Searle's account is coherent and well-supported with examples, and is more complete than most other ontologies of the real world, since unlike many other ontologies it also tries to account for social reality, and not just for physical reality. Searle's organizing principle in arriving at his ontological distinctions is the relation of things to human interpretation of them. Searle argues that things may be wholly independent of human interpretation or thought, but they may also be partially constituted, to different degrees and in different ways, through human interpretation.

This organizing principle leads Searle to make a fundamental distinction between physical reality and social reality. *Social reality* is the set of all entities that are not genuinely objective but are the outcome of a process of social interpretation or construction. *Physical reality* is genuinely objective and includes entities that exist independently of our representations of them. Searle illustrates this distinction by pointing out the difference between physical and social facts. *Physical facts* includes such truths as that there are snow and ice near the summit of Mt. Everest, that apples grow on apple trees, and that there is electric lighting in many houses on the Western hemisphere. Searle is willing to admit that the *concepts* used in expressing physical facts are socially constructed; concepts like that of Mt. Everest, of a house and of the Western hemisphere constitute a particular way of representing physical reality, and this mode of representation is socially constructed. Yet, Searle denies that the *referents* of these concepts are also socially constructed. Rather, Mt. Everest, houses, trees and the Western hemisphere exist independently of our representations of them.

Searle contrasts the class of physical facts with the class of *social facts*, for which it is true that not just the concepts used in representing these facts, but also the facts themselves are socially constructed. Social facts all have in common that they are defined over human institutions, practices, and artifacts. They pose a paradox in being at the same time 'objective' (in the sense of being widely accepted and uncontroversial) and dependent on human representation. The class of social facts includes such facts as that Bill Clinton is a married man, that Beatrix is the queen of the Netherlands, that a bar of gold is worth a lot of money, that Harvard university offers a graduate degree program in physics, and that the curved object in my kitchen drawer is a corkscrew. These facts, Searle claims, seem to be objective in that there is (near-)universal agreement on them; they

are accepted as uncontroversial and true in just the same way that physical facts are accepted as true.

Yet, Searle argues, it also seems to be true of these facts and the entities that play a role in them (such as marriage, relations of ownership, monetary value, universities, and friendship) are human constructs in a way that physical facts and entities are not. In particular, these facts and entities seem to be dependent on human representation or intentionality in a way that physical facts and entities are not. There is nothing intrinsic about the green paper bills that are used as money that determines their nature as money. Only when people start representing (intentionally using, accepting, believing in) such bills as money, intuitively, does it become a fact that these bills are money. On the other hand, Searle claims, it is intuitively true that facts such as the fact that hydrogen atoms include two protons or that Mount Everest is the highest mountain on earth continue to be facts even if there are no humans who represent hydrogen atoms as having two protons or Mount Everest as being the highest mountain.

How do social facts come into existence? Searle argues that, barring some exceptions, they come into existence through the *collective imposition of a function* on some object, event or action. For instance, it is now a fact that the Dutch Delta works constitute a barrier against floods, because this function has in the past been collectively imposed on them in Dutch society. Likewise, it is true that Bill Clinton is married, because by the performance of certain ceremonial acts, a certain functional relationship, that of being a husband, was imposed on him to another person, Hillary Rodham. Searle claims that the collective imposition of function is a *collective intentional act*, which is an act that is intentionally performed by a collective (e.g., Dutch society, or

American society).

Searle distinguishes between two kinds of collectively imposed functions, which give rise to two different kinds of social facts. The first kind, consisting of ordinary collectively imposed functions, leads to *ordinary social facts*, which seem to apply mainly to *(material) artifacts*. Examples of such facts include the fact that devices of a certain form are screwdrivers (accounted for by the collective imposition of the function of driving screws on such devices), or the fact that the Delta works are a barrier against floods (accounted for by the collective imposition of the function of obstructing high tides on them). The second kind, called *status-functions*, leads to *institutional facts*, that constitute *institutional reality*. Such facts are normally created within the context of previously created human institutions. Examples include the fact that Bill Clinton is married, that dollar bills exist, that some people possess real estate, and that Paul McCartney is a former member of the Beatles.

Ordinary social facts and corresponding entities and properties come into existence when a function is collectively imposed on an object that is inherently able, in virtue of its physical constitution, to perform this function. Hence, the ontology of such social entities is accounted for by the fact that these entities are accepted by a society or group of having a certain function, and have the inherent feature of being physically able to perform this function. For example, an object is a screwdriver just in case *(a)* people have imposed on it the function of driving screws, and *(b)* it has the physical capacity to drive screws. Whenever these conditions hold, it becomes an uncontroversial, 'objective' fact that the object in question is a screwdriver.

There is a large class of social entities, however, that have collectively imposed functions, but that are not able to perform this

function solely in virtue of their physical constitution. In such entities, the act of collective imposition of function attributes causal powers to these entities that these entities did not previously have. Functions of this sort are called *status functions*. Status functions are imposed when people collectively assign a *status* to some object. This collective assignment of status brings with it an agreement to consider or treat this entity *as if* it had inherent causal powers to perform this function. Such agreement, Searle claims, takes the form of a *constitutive rule*, which has the form "*X* counts as *Y* (in *C*)," where *X* defines the class of objects which qualify to be assigned a status, *Y* defines the status that is assigned, and *C* is any context which must be present for this status to hold. Thus, for example, undergoing the marriage ceremony (*C*) has made Bill Clinton (*X*) into a married man (*Y*). That this happened is because in American society, the constitutive rule applies that when a person undergoes a properly performed marriage ceremony, he or she turns into a married person. This constitutive rule exists because of a collective agreement (which is a collective intentional act) in American society that someone who undergoes a marriage ceremony acquires a certain status.

The social facts that are the result of the imposition of status functions are called *institutional facts*. They are called that because they are normally created within the context of human institutions, such as marriage, universities, and money. According to Searle, the great ontological difference between entities created by the assignment of status functions and entities created by the assignment of ordinary functions is that the former need not be able to physically perform the function that is imposed on them. Thus, for an entity to be money, it is necessary and sufficient that it is accepted by a collective to *be* money, whereas for an object to be a screwdriver, it must be accepted as such, *and* be physically able to drive screws. Yet, this raises an important question: How are entities able to live up to the status functions that are assigned to them if it is not required that they are physically able to perform the status function assigned to them?

Searle explains that for many entities, the imposition of status functions occurs under the expectation that the entity in question has inherent capacities that enable it to *live up to* its status function. For example, to qualify as a licensed driver, one has to take a written test and a road test, and the expectation is that individuals who pass the test have inherent capacities to drive well. The status granted to licensed driver has the consequence that they are permitted by society to operate a vehicle. Obviously, this status could also be attained without passing any tests, if a society chose to relax the conditions under which individuals are granted the status of a licensed driver. In such a society, the status of licensed driver would still bring with it the rights, privileges and duties that licensed drivers have under the system of law. Many licensed drivers in this society will, however, unlikely be able to live up to their duties on the road, as they are likely to lack the skills to drive well.

There are other status functions, however, for which the presence of certain intrinsic capacities seem to be a less important condition for their assignment to an entity. Almost any object, for example, can be made to have the status of money, if a society chose to make it so. Shells, gems, pieces of metal, pieces of paper and other items are all qualified to take the status function of money in a society. There are much less specific demands on the inherent capacities of an entity for it to be assigned the status of money, than for it to be assigned the status of, for example, a licensed driver. Searle discerns a scale

from 'arbitrariness to reason' with respect to the inherent constitution of the entities that are assigned status functions. At one end, there are entities such as money, which can be of almost any form. At the other end, there are entities such as licensed drivers or surgeons or research institutions, which are required to display certain highly specific abilities to be assigned this status.

Many entities in the real world are institutional in nature. They include people (e.g., janitors, professors), physical objects (e.g., dollar bills, wedding rings, contracts, chess games), properties (e.g., being licensed, being under probation), events (weddings, parties, elections), and actions (trespassing, scoring, prohibiting). Importantly, language is also an institutional phenomenon. The marks that read "tree" can only refer to trees because it is collectively accepted that these marks have this meaning. Nonlinguistic symbols similarly derive their meaning from a collective imposition of a symbolizing function to them.

Social reality is always relative to a community or collective that engages in the imposition of functions. When there is agreement in a community on the assignment of functions, this community has a shared social reality that it collectively accepts to hold objectively. However, a community may be divided over the social reality it accepts, in which case some members accept a different social reality than others. For example, in the mid 1990s, a large group of Northern Italians, led by Lega Norte frontman Umberto Bossi, declared Northern Italy an independent state named Padania. From then on, the existence of Padania had become a reality for Lega Norte, but not for the rest of Italians. This example is however not unusual. Every day, all of us are confronted with differences between our social ontology and those of others we encounter: people that accept different meanings for words than we do, that assign different functions to

artifacts, that accept different constitutive rules for games, or that attribute different social statuses to people or events. So even though a large part of the social reality we accept is shared with others, a large part is also contested.

To conclude, Searle distinguishes between physical reality, which is independent of human interpretation, and social reality, which is usually constituted in part by the collective imposition of functions on things, actions or events. Social reality is subsequently divided into ordinary social reality and institutional reality. Ordinary social reality consists of functional entities such as screwdrivers and chairs that must be able to perform the function imposed on them. Institutional reality consists of entities such as dollar bills and weddings whose identity is derived from that fact that some status function has been collectively imposed on them according to the rule "*X* counts as *Y* (in context *C*)." It was also noted that language is institutional in nature and hence part of institutional reality, and that the function or status of objects may be controversial, so that consequently different members of society may employ different social ontologies.

3   THE ONTOLOGY OF VIRTUAL WORLDS

3.1   VIRTUAL ENTITIES

Just like the real world, virtual worlds have an ontology, meaning that entities encountered in them have a mode of existence that may be analyzed. Before such an ontological analysis can be performed, it must first be clear what entities are found in virtual worlds at all. This can be done by performing a naïve description of the kinds of entities encountered in virtual worlds by ordinary users. At first glance, virtual worlds

contain many of the same kinds of entities found in the real world. They may contain spaces, trees, desks, chairs, pencils, dogs, written messages, conversations, money, words, etc. They may also contain entities that have no direct counterpart in the real world, such as cursors, menus, windows or scroll bars, but even these are not unlike some entities that may be encountered in the real world.

Entities encountered in virtual worlds may be called *virtual entities*. At first glance, the ontological status of virtual entities is puzzling. They resemble fictional objects like characters in novels or movies because they do not have physical existence: they have no mass and no identifiable location in physical space. However, virtual entities are not just fictional objects because they often have rich perceptual features and, more importantly, they are *interactive*: they can be manipulated, they respond to our actions, and may stand in causal relationships to other entities. So in our everyday ontology, virtual entities seem to have a special place: different from physical entities, but also different from fictitious or imaginary entities [2].

3.2 SIMULATION AND ONTOLOGICAL REPRODUCTION

Being virtual is not the same as being unreal. A remarkable fact about virtual entities is that many of them are accepted as an integral part of the real world. For example, virtual environments can contain real (electronic) money and real documents, and people can play real chess games in them, and trade real insults. An electronic document on a computer is just as real as a paper document in the physical world: it can be moved, lost and destroyed, and it can serve most of the same functions. On the other hand, virtual

entities can also be recognized as *un*real, as mere simulations or representations of real-world entities. Virtual rocks and trees are not normally interpreted as real rocks and trees, but as simulations of rocks and trees. It seems, then, that there is a distinction between virtual entities that are accepted as mere simulations of real-world entities, and virtual entities that are accepted as being, for all purposes, as real as nonvirtual entities.

I will call virtual entities that do not just simulate real-world entities but that are in every way equivalent to them *ontological reproductions* of real-world entities. So virtual versions of real-world entities are either mere *simulations*, that only have resemblance to real-world entities by their perceptual and interactive features, or ontological reproductions, which have a real-world significance that extends beyond the domain of the virtual environment.

Interestingly, this distinction between simulations and ontological reproductions turns out to map onto the ontological distinctions made in the previous section. Physical reality and ordinary social reality can usually only be *simulated* in virtual environments, whereas institutional reality can in large part be *ontologically reproduced* in virtual environments. To illustrate, rocks and trees (physical objects) and screwdrivers and chairs (ordinary social objects) can only be simulated in virtual reality. On the other hand, money and private property (institutional objects) can literally exist in virtual reality. I will now proceed to explain why physical and noninstitutional social entities generally *cannot* be reproduced (and note some exceptions to this rule), after which I will explain why institutional entities *can* be ontologically reproduced.

The reason that most physical and noninstitutional social entities cannot be

reproduced in virtual reality is that computers evidently are not able to reproduce their essential physical properties. A virtual seed does not possess the physical properties by which it can provide nourishment or grow into a tree. Likewise, an ordinary social object like a screwdriver is in part constituted by the physical ability to drive screws, which cannot be reproduced in virtual reality. It should be pointed out, however, that some physical and ordinary social entities *can* be ontologically reproduced on a computer. This is possible because computer systems are physical systems that have physical powers, and some of these physical powers may be conferred onto virtual entities modeled in them. Computer systems may not be able to ontologically reproduce physical entities that have mass. However, due to their physical powers, they are able to ontologically reproduce certain 'weightless' physical entities, like images, sounds, shapes, and colors. For the same reason, they can contain software emulations of artifacts like synthesizers, VCRs and stereos. These are, however, exceptions to the rule.

In contrast to most physical and ordinary social entities, institutional entities *can* be ontologically reproduced in virtual environments. This is possible because institutional entities are ontologically constituted through the assignment of a status function, of the form "*X* counts as *Y* (in context *C*)". Now, in principle, any status function can be assigned to anything, if only there is the collective will to do it. For example, it is possible in principle to collectively grant telephones the right to marry, which means there can be married telephones. Therefore, if an institutional entity can exist in the real world, it can also exist in a virtual environment. In practice, of course, status functions are only assigned to entities that have certain features that make it sensible to assign the status function to

them. As it turns out, many virtual entities lend themselves well for the meaningful assignment of status functions to them. The consequence is that a large part of institutional reality is currently being reproduced in virtual environments, where real institutional activities are taking place like buying, selling, voting, owning, chatting, playing chess, gambling, stealing, trespassing, taking a test, and joining a club, and requisite objects are found like contracts, money, letters, and chess pieces.

3.3 THE CONSTRUCTION AND RECOGNITION OF VIRTUAL INSTITUTIONAL ENTITIES

What has not yet been explained is how institutional entities in virtual environments initially arrive at their status, nor how users are able to recognize them as having this status. This is what I will proceed to explain now. First, the *recognition* of institutional entities in virtual environments by users depends on two things: Users must accept the proper constitutive rule ("*X* counts as *Y* (in *C*)") for the entity, and they must recognize the entity as satisfying that rule (i.e., recognize it as being an *X)*. For example, a convention may be operative in a virtual environment that yellow rooms are women-only chat rooms. For a user in this environment to recognize a virtual entity as a women-only chat room, he or she must first recognize the virtual entity as a yellow room, and must also recognize that yellow rooms (*X*) count as women-only chat rooms (*Y*) in the context that virtual world (*C*).

In both the real world and in virtual worlds, the status of an entity is often difficult to recognize by only studying the entity and nothing else. For example, it is not always easy to see that an encountered piece of land constitutes private

property, or that an man one encounters on the street is married. To remedy this situation, the status of institutional entities is often clarified by what Searle (1995) has called *status indicators*. Status indicators are markers that are intentionally attached to an entity so as to facilitate recognition of its status. So private property may be marked with a fence or with 'keep out' signs, and a married man may use a wedding ring to show that he is married. Often, status markers are linguistic: they are texts or official documents that accompany some entity so as to indicate or certify its status. However, there are also many nonlinguistic status indicators, such as wedding rings and uniforms, and many similar objects and behaviors that have a symbolical, iconic or indexical meaning. The general context in which an entity is encountered may also help to indicate its status. Moreover, some institutional entities, such as dollar bills and English words, do not normally require separate status indicators, because they have intrinsic features that indicate a permanent status and that are recognized by any competent user (although for Chinese users, American money and English texts may be accompanied by a status indicator like an inscription in Chinese identifying them as such).

The interpretation of institutional entities in virtual environments as opposed to their interpretation in ordinary reality also poses a special problem. As claimed earlier, institutional entities in virtual environments may either simulate or ontologically reproduce possible real-world equivalents. This means that users who interpret a virtual institutional entity (e.g., a virtual check or a virtual document) must also decide on the *reality status* of the entity: is it an ontological reproduction that has real-world significance, or is it a mere simulation, that only has meaning within the context of the virtual environment? In the absence of status indicators

that also indicate the reality status of the object, this may sometimes be difficult to decide. After all, the way in which virtual entities are hooked up with the real world is often hidden from the users' view. For instance, it cannot easily observe just by looking at it whether pressing a virtual payment button will only result in a payment in the context of a simulation, or whether money will actually be transferred from one's bank account to the other end of the world.

In multi-user virtual environments, this kind of ontological uncertainty often reveals itself in social interactions. This may be due in part because the simulated character of virtual environments may make users feel that their interactions with others may also contain elements of make-believe. As a result, users may sometimes have very different ideas about the reality status of their interactions. Sherry Turkle [3] has observed this phenomenon in MUDs. A regular topic of discussion among MUD users is the status of violence and sexual assault in MUDs. If MUDding is to be understood as playing a game, then perhaps violence and sexual assault are permissible, because they can be introduced as elements of normal play. However, if MUDding is to be understood as built up out of real social interactions, then perhaps violence and sexual assault in MUDs should be understood as really happening, and should be treated as such. Which version of events is correct depends solely on the status functions that MUDders are willing to agree on. And they may not want to choose. Interestingly, users of virtual environments sometimes appear as if they want to keep the dividing line between reality and role-playing fuzzy, so as to have the benefits of real-life social interactions while always having the fall-back option of claiming that it is all make-believe. More often, however, uncertainty about the reality status of institutional entities poses a

problem for users of virtual environments that they need to overcome.

Let us now turn to the *construction* of institutional entities in virtual environments. This is the process by which entities in virtual environments acquire a status function and hence aquire their institutional identity. Remember that status functions result from the collective agreement that an entity (*X*) falls under a constitutive rule of the form "*X* counts as *Y* (in *C*)". Now, the initial proposal to apply a certain constitutive rule to an entity need not involve all members of the community that accepts the rule, or even a majority of them. Often, new status functions are proposed and introduced by small minorities, sometimes only by one individual, after which the rest of the community follows suit.

Two main motivations may induce members of the community to accept a proposed status function. First, members may recognize the proposing individual or group to have *special authority* to impose certain kinds of new status functions. For example, when the Bank of England issues a new pound note, British subjects will generally accept the bill as being a pound note, because they accept the authority of the Bank of England in issuing money. Second, people may just hold the status function to be *useful*, and therefore adopt it. For example, members in the linguistic community may come to accept new words like 'nimby' or 'yuppie' simply because someone has proposed them, and they are found to be useful expressions. Often, a combination of both kinds of motivations is operative.

In virtual environments, likewise, a status function of a virtual entity is fixed either because some recognized authority (such as a producer, provider, system operator, or certifying agency) is believed to endorse this status, or because this status has been proposed in a nonauthoritative way and members of the community of users have come to accept it as useful. For example, a virtual room may become a women-only chat room either because a provider has labeled it that way from the beginning and is granted this authority by its customers, or because this status has gradually emerged and come to be accepted within the collective of users. Users also frequently reject impositions of status functions on virtual entities by authorities and often come to assign their own status functions.

4   CONCLUSION

In the ontological analysis of virtual entities presented in this paper, a distinction was made those that are mere simulations and those that are ontological reproductions that fully reproduce relevant functional features of real-world entities. It was argued that physical reality and ordinary social reality can usually only be simulated in virtual environments, whereas institutional reality can often also be ontologically reproduced through a sensible assignment of status functions. Narrowing the focus to institutional entities in virtual environments, it was argued that these are recognized by users through status indicators, either in the entity itself or in its context. These status indicators should both indicate the characteristics and the reality status of the entity. It was argued that virtual entities acquire an institutional status either through a proposing individual or group that is granted special authority, or through a perceived usefulness of a status function amongst users.

The above analysis is intended to clarify the ontological status of virtual entities. Theoretically, the analysis is a contribution to philosophical ontology. However, there are also practical considerations that make such an analysis relevant. First, an analysis of this sort

may help us anticipate and deal with (moral, legal and political) controversies concerning the status of actions in cyberspace, as different interpretations may exist as to the status of certain actions in cyberspace. Second, such an analysis may eventually help us predict the future evolution of cyberspace by telling us what can and cannot be done in cyberspace, insofar as this is objectively determinable. Predictions of this sort may be helpful in guiding policy regarding the design and use of computer systems.

Third, such an analysis may help us maintain a clear sense of the dividing line between simulation and reality. As philosophers like Baudrillard and Virilio, and more recently psychologists like Turkle) have argued, the dividing line that exists between reality and simulation is getting increasingly blurry in contemporary society. For example, the death of a Tamagotchi, the virtual pet popular among children, may feel as real to a child as the death of a live pet. Although blurring the divide between reality and simulation may sometimes be desirable, as some have argued (e.g., Stone, 1995) [5], there are times when this distinction must be able to be drawn. After all, some objects and activities in cyberspace are real, because they have real consequences (e.g., an electronic payment is a real payment because it transfers buying power from one agent to another), whereas others are mere simulations that remain inconsequential (e.g., the death of a virtual pet is not a real death because it does not involve a live organism). An ontological analysis of virtuality may help maintain the distinction.

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