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## **Toward a Definition of “Virtual Worlds”**

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This is a brief essay, we call "think-pieces", designed to stimulate a discussion on a particular topic. The topic for this series of essays is "defining virtual worlds".

**Keywords:** virtual worlds, network, synchronous, persistent, avatars.

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## Toward a Definition of “Virtual Worlds”

By Mark W. Bell, Indiana University

In a *Journal of Virtual Worlds Research*, many authors will use the term “virtual world”, and a common definition would help avoid misunderstandings. There is currently no agreed-upon definition, however, and the term is used in different ways at different times by academics, industry professionals and the media. Chesebro (1985), analyzing the general functions and uses of definitions, argued that a definition should “name the outstanding and structural ingredients of a situation.” Several authors have offered their own views about the ‘outstanding and structural ingredients’ of virtual worlds, as an ancillary part of larger arguments they were trying to make. These tentative definitions do not agree with one another in all parts, however. This paper will review the existing definitions and attempt to find a common ground among them.

### *1. Prior Definitions*

While many scholars have sketched out informal definitions, formal definitions have been more rare. Three stand out as particularly influential. Richard Bartle, creator of text-based virtual worlds in the 1970s and 1980s, defines the “world” part of “virtual worlds” this way: “a world is an environment that its inhabitants regard as being self-contained. It doesn't have to mean an entire planet: It's used in the same sense as "the Roman world" or "the world of high finance" (Bartle, 2003). This addresses the notion of world, but does not address what makes a world “virtual”. Raph Koster, an experienced developer of virtual worlds in the 1990s, argues that “a virtual world is a spatially based depiction of a persistent virtual environment, which can be experienced by numerous participants at once, who are represented within the space by avatars” (Koster, 2004). Koster begins to draw out some of the essential characteristics of a virtual world (persistence, numerous participants), but lacks the explicit mention of the technology needed to bring these environments into existence. Edward Castronova, a virtual worlds researcher, defines a “virtual world” as “crafted places inside computers that are designed to accommodate large numbers of people” (Castronova, 2004) Castronova’s definition contains the technological element lacked by Koster but does not include the ideas of persistence or synchronous communication. Using Castronova’s definition, a chatroom or a shared document would be a “virtual world.” Finally, while these definitions refer to shared spaces, they do not explicitly identify the people and their social network (which must always result from any sharing) as essential to the definition. This may be an essential component. Without users, a virtual world would be an empty data warehouse.

### *2. Toward a combined definition*

Combining elements from these three definitions and including an emphasis on the essential element of people, a new definition results:

**A synchronous, persistent network of people, represented as avatars, facilitated by networked computers.**

### 3. Discussion

Each of the terms in the proposed definition is understood in a specific way and makes a specific, unique contribution, as discussed below.

**Synchronous:** Shared activities necessitate synchronous communication. A turn based or non-real time virtual space is more like a delayed email thread than a world. The notion of a “common time” allows for mass group activities and other coordinated social activities. Virtual worlds also offer an awareness of space, distance and co-existence of other participants found in real life spaces giving a sense of environment. The concepts of “near” and “far” are difficult to apply to something like *CNN.com*, but not *Second Life*. The greatest difference between these entities is that pages of a website, even when shared, do not constitute a navigable landscape, but rather a walled finite space. Virtual worlds however, regardless of scale, offer participants a sense of geography and terrain.

**Persistent:** A virtual world cannot be paused. It continues to exist and function after the participant has left. Persistence separates virtual worlds from video games such as *Pac-Man* or *Galaga*. This persistence changes the way people interact with other participants and the environment. No longer is one participant the center of the world but a member of a dynamic community and evolving economy. A participant has a sense the systems in the space (environment, ecology, economy) exist with or without a participant’s presence.

**Network of people:** People are central to virtual worlds. Participants communicate and interact with each other and the environment. It is an ecosystem in which the actions of a participant ripple through the world affecting every other part of the system. Participants can form short term and long term social groups (Williams et al., 2006) but it is not needed to still be an active part of the ecosystem. A user can go into the *World of Warcraft* and not speak to anyone but still interact with the environment. Even these solitary actions affect the world for every other participant.

**Represented as avatars:** An avatar is any digital representation (graphical or textual), beyond a simple label or name, that has agency (an ability to perform actions) and is controlled by a human agent in real time. thereforeSo, a textual description of a character in MUD-1 would be an avatar. A fully graphical character, a player creates in *Age of Conan*, is an avatar. In contrast, a Facebook profile does not have agency beyond its creator (the agent). The roles of avatar and agent are represented by how we communicate actions to others. One can say, “My avatar rides into the castle and slays the dragon.” Those are separate actions being done by the avatar. Conversely, one can’t say “My Facebook profile is emailing you.” Avatars function like user-controlled puppets. Users command the actions of the avatar, but it is the avatar itself which performs the action. Even forms of communication which come more directly from the user, such as voice chat, are presented as actions taken by the avatar.

**Facilitated by networked computers:** Without networked computers, the combined definition could describe a world that is similar to a virtual world.. A well managed game of *Dungeons and Dragons* could be seen as a synchronous, persistent network of people represented by avatars. The difference between a *D&D* game and a virtual world is how data and communication are facilitated through networked computers. No pencil and paper game could allow the data management of all the objects, environments, interactions, and transactions,

storing them all indefinitely that is made possible through networked computers. Also, the computer keeps track of all the conversations, social connections and networks of people allowing them instant communication across national and geographical boundaries. No matter how much money or time players applied to a standard pencil and paper role-playing game it could never attain the levels of complexity and persistence made possible through networked computers. Networked computers allow the scale of the worlds to expand past horizons of imagination.

#### ***4. Applying a combined definition***

So using the combined definition, a video game like MarioKart is not a virtual world. In the game, there can be synchronous action (multiple players) in an environment, but no persistence. The Mario characters are a representation of agent but there is no network of people persistently connected to the player in real time. Social networks, such as like Facebook, are also not virtual worlds. A social networking site has persistence but no sense of synchronous environment (and therefore no sense of space). There are no avatars on Facebook, only descriptions of agents.

Also, the inclusion of avatars and networked computers separates “virtual worlds” from real world social environments, like a bar or restaurant. Virtual worlds may be an extension of these things, but avatars and networked computers give “virtual worlds” different characteristics than their real world counterparts. Environments that are virtual worlds include *MUD-1*, *NeverWinter Nights*, *Second Life*, *World of Warcraft* and the upcoming *Hello Kitty Online*.

The purpose of creating a combined definition is to create a common framework, to be built on. Exposing the definition to a wider audience will allow new ideas and tighter construction to be added. The definition is the beginning of a further process of defining that must go on in the area and become part of the *Journal of Virtual Worlds Research*'s work.

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