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CONSULENZA INFORMATICA

Get a Life – A Second Life

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Introduction

(*The introduction to the talk was made through a video. It used a series of avatars synchronized to my voice speaking the following text:*)

(**Wizard avatar displayed**)

Thank you very much for your introduction, Lucia, and of course thank you very much for inviting me once again to speak at the Anglo-Italian Club of Viareggio. As always, it's a great pleasure for me to be here today.

As I explained at the beginning of last year's lecture, when looking for a topic for the next lecture, I generally just hold up my finger to the wind and hope for a topic to come along. And this time, fortunately, a topic did finally come along – I remember it was sometime during the summer of 2007, maybe August.

The topic was the virtual online community known as Second Life – that's where the title of the lecture comes from.

Now, I've talked about virtual online communities before. You might recall that two years ago they were the topic of my lecture, when I talked about things like Wikipedia. And last year I talked about YouTube, which is also a kind of online community; and you might recall that I said that YouTube contributed something very important to online communities – the visual aspect.

Second Life combines the idea of the virtual community and the visual aspect into the most compelling experience of all, a kind of virtual world, or "metaverse", as they like to call it. Second Life is a virtual world created with computer graphics – we'll see it later in this lecture. And people participate in this virtual world through graphical representations of themselves, called *avatars*. I'm speaking to you right now through an avatar.

The technology I'm using right now is actually rather sophisticated. The video camera can track my facial expressions so that my avatar reflects my movements.

For example, I can move my head from side to side … or up and down … I can open my mouth wide … and wink … and even raise my eyebrows … and the camera will track me.

But what really interested me when I started looking into this was not this fancy face-tracking technology, but rather the visual representations that people choose for themselves in the virtual world.

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It's really only limited by your imagination. For example, what does it mean to represent myself as a wizard? Would it be any different, if, for example, I chose to represent myself as a **princess**?

Would being a princess make me more sympathetic to the other participants in my virtual world? Or perhaps some people would be more attracted to a beautiful **ballerina**?

Or maybe I'm feeling aggressive and I'd like to scare people instead, so I could choose a **shark** as my avatar. Or maybe it would be even scarier if I chose a **dragon** or something like that. Maybe I could figure out a way to spit out fire when I spoke.

Or maybe I'd prefer to choose a more sympathetic fantasy creature, like a **unicorn**. Everybody likes unicorns, so maybe other participants would like me more this way.

Or maybe I want to convey some sense of what I am to the other participants. For example, if I chose a **gorilla** as my avatar, would people get a sense of me being a big, strong, heavy guy? They'd certainly get a different impression than if I chose a **kitten** as my avatar. Kittens are small and cute and cuddly and they wouldn't hurt anybody, right? So maybe that's what I want people to think about me.

Or maybe I want people to think I'm a real weirdo, an **alien** from outer space. It would probably make them very uncomfortable to talk with this kind of avatar.

Or maybe I don't want people to have any clues at all as to what I'm like, so I could choose an abstract avatar like a **cartoon stick figure**, or even better, I could choose an abstract figure that isn't human at all, like the **sun**, for example.

The more I studied Second Life, the more I realized that what really fascinated me was the way people chose to represent themselves in the virtual world. What does it tell us about them? What are they trying to achieve? That's one of the things I'm going to talk about today.

But first, I'm going to hand the presentation back to my alter ego in real life …

Snow Crash: the Origins of the Metaverse

The idea at the origin of Second Life goes back to the novel *Snow Crash* by Neal Stephenson, which was published in the early 1990s. In his acknowledgements at the end of the book, Stephenson writes:

> This book germinated in a collaboration between me and the artist Tony Sheeder, the original goal of which was to publish a computer-generated graphic novel … The words "avatar" (in the sense used here) and "Metaverse" are my inventions, which I came up with when I decided that existing words (such as "virtual reality") were simply too awkward to use … The idea of a "virtual reality" such as the Metaverse is by now widespread in the computer-graphics community and is being implemented in a number of different ways. (Neal Stephenson, *Snow Crash*)

So *Snow Crash* was an attempt to imagine what virtual reality might evolve into in the near future, when people can participate in that virtual reality through the Internet. He didn't like the expression "virtual reality", so he invented the term Metaverse.

> So Hiro's not actually here at all. He's in a computer-generated universe that his computer is drawing onto his goggles and pumping into his earphones. In the lingo, this imaginary place is known as the Metaverse. (Neal Stephenson, *Snow Crash*)

In the novel, people like the character Hiro named above spend their time "inhabiting" the virtual reality called the Metaverse. It is this concept of "inhabiting" that introduces the extra dimension, and I'll have more to say about its implications later on. But for now, consider one first implication: the idea of inhabiting the Metaverse introduces a social dimension. Thus, Second Life, as a Metaverse, combines aspects of two lectures I have made the past: Virtual Reality, and Social Networks.

The Development of Second Life

The creator of Second Life, Philip Rosedale, says that he had already been thinking about creating a virtual world before Stephenson's novel appeared – although he says he did find the novel inspiring. Regardless of where his inspiration came from, in 1999 he founded a company called Linden Research to develop Second Life (perhaps you won't be surprised to hear that this happened in San Francisco – and the name of the company comes from Linden Street on which it was based). He came from a rather noble background, as Chief Technical Officer of RealNetworks, one of the key companies in the development of streaming media; and the company itself has a rather noble group of investors, including Mitch Kapor, the originator of Lotus 1-2-3, the first PC office suite, and Jeff Bezos, the founder of online giant Amazon.com.

One of the first things they had to do in the creation of the Second Life Metaverse was continue the work of Stephenson in inventing the appropriate terminology. Stephenson had already chosen the word *avatar* for the virtual representative of the real participant. But what about the real participant (that is, *you*)? What should he or she be called? One possibility might be "player". But Second Life isn't a game. There is no score, no competition, no winners or losers. Another possibility could be "user". But Second Life is more than just a program like Microsoft Word. Surely you don't just "use" Second Life – as we said earlier, you *inhabit* Second Life. And so finally, after some thinking, they came up with the word they would use to denote the real participants: Residents.

Inside the Second Life Metaverse

So what do you find when you go "inworld" (the term for entering Second Life)? At the most basic level, the first thing you find is ... a world. That is: space, places, land. In other words, you find *real estate* – or perhaps it would be more appropriate to call it *virtual estate*. In Second Life, as in real life, the land is owned by somebody. It is bought and sold by the Residents. But what is the real estate bought and sold with? It is bought and sold with money, of course. There is a thriving economy in Second Life, with its own currency, called Linden Dollars.

If all of this sounds preposterous, think back to one of the most popular board games of all time, Monopoly. Monopoly had its own currency – the famous *Monopoly money* – and real estate. The players bought real estate and put up houses and hotels on that real estate, and charged other players for the use of that real estate (which basically amounted to landing on a particular square with a roll of the dice).

But as I noted earlier, Second Life isn't a game like Monopoly, with scores and winners and losers. Residents buy and sell real estate for essentially the same reasons in Second Life as they do in real life: for building things, often for doing business, such as running (virtual) stores or (virtual) nightclubs.

Before going on, let's stop for a reality check (no pun intended). What exactly is this "real estate" in Second Life? Does it have any existence at all? Remember that,

although it is virtual, Second Life isn't imaginary. Therefore, a little thought should convince you that it must have *some* correspondence to something real, and indeed it does. In a very concrete sense, the Metaverse exists in the computers inside Linden Labs, and real estate corresponds to resources (such as disk storage space) in those computers.

Avatars also have an existence that is virtual but also real: Nicholas Carr, author of the book called *IT Doesn't Matter*, which enraged the software community a couple of years ago, did a back-of-the-envelope calculation of how much electricity an avatar consumes per year, finally coming to the conclusion that an avatar consumes about as much electricity as an average human being in Brazil. So while the world of Second Life may be virtual, it leaves a very real mark in the real world in terms of resource consumption.

Virtual Assets, Real Value

But let's get back to the question of the Second Life economy: if its virtual real estate exists only inside a computer, and is bought and sold with virtual Linden Dollars, how could it possibly have anything other than virtual value, just like a hotel on Park Place in Monopoly has only value in Monopoly money? It turns out that the line between virtual and real value in Second Life is much more blurred than it may appear at first. The "virtual estate" is bought by the Residents from Linden Labs for real money, and monthly rentals are also paid to Linden Labs for such "virtual estate". Once this land is paid for, it is traded among the Residents like in the real world, and clearly it is rooted in real money whether the trading is virtual or not. In fact, there was a notable case of questionable "virtual estate" trading just last year, and the trader in question was thrown out of Second Life – and he in turn sued Linden Labs for confiscating his "virtual estate." When people sue in real courts over virtual land, then obviously it's because it's worth real money to them.

Furthermore, the Residents retain the intellectual property rights to anything they create in Second Life (including their avatars). That means all that digital imagery has potential real value in real dollars. Lawyers regularly earn huge fees (in real money) helping Residents file for the various kinds of protection available ranging from trademarks to copyrights.

Indeed, there is a currency exchange in Second Life, called LindEx, where Linden dollars are exchanged (they are pegged at around 270 to the American dollar), to the tune of as much as 6 million (real) dollars in a single month.

One effect of this blurring of the line between virtual and real in the Second Life economy is that the real Internal Revenue Service has begun to take a real interest, and started really investigating whether some of this virtual commerce shouldn't be taxed in real dollars.

Another effect of this blurring of the line is the question of government. There is no government in Second Life, because there usually isn't any need. Since nothing is physical, nobody can really get hurt, at least in a physical way. But people can get into arguments, so how do they resolve them if there is no government? In fact, it finally happened: in July of last year: one avatar sued another. The dispute was over a Sex Bed. You read that right: a Sex Bed, or more precisely, a SexGen Bed. It was a fancy bed in Second Life that made (virtual) sex great for avatars. One avatar was selling it,

but another avatar was selling unauthorized copies, so he sued. But he had to sue in real court, because in Second Life, there is no real government.

So if there is no government, is there any concept at all of a "higher authority"? That is the subject I'd like to talk about next.

The god of the Second Life Metaverse

Several years ago, Jostein Gaarder wrote a book called *Sophie's World*, a popular history of philosophy. The main character was a girl named (this will not come as a surprise) Sophie. Every once in a while something strange would happen in Sophie's world – something incomprehensible. It turned out that Sophie was actually part of a story within a story. And those incomprehensible things were the intrusion of the author of the story she inhabited. Gaarder used this literary device in the book in order to illustrate a question that philosophers have pondered for centuries: What if we are all just figments of somebody else's imagination? What if we only exist in the mind of somebody?

Although Second Life doesn't exist only in the mind of somebody, it comes pretty close to it in many ways. The existence of the Metaverse inside the Linden Labs computers means that Linden Labs has, in a very real sense, godlike powers over the Metaverse as its creator. In fact, the so-called "acts of God" that we speak of in our real universe have a kind of counterpart in Second Life that is fondly (or perhaps not so fondly) referred to as "Acts of Linden."

Here is one example: if Linden Labs decided to make more computer disk memory available to Residents, then effectively it would be making more virtual land available. According to the laws of supply and demand, therefore, the pre-existing real estate would suddenly be worth less than it was when it was bought.

A recent, famous example of an "Act of Linden" occurred when Linden Labs laid down an edict forbidding gambling casinos in Second Life (on the prompting of FBI investigators, since online gambling is forbidden in the "real" United States).

This meant that things like virtual casinos and horse racing operations had to shut down. It turned out that the largest virtual bank in Second Life, called Ginko Financial, had installed a lot of automatic teller machines in exactly those major virtual casinos, and its cash was all withdrawn before it had a chance to do anything about it. It was forced into insolvency – all because of the Act of Linden forbidding gambling.

Moving around in Second Life

The subjects of Second Life economy, real estate, and general governance are so enormous and complex that I can't possibly do justice to them in this talk, so now I'd like to just select a few topics of particular interest. While we're on the subject of Acts of Linden and other such "virtual superhuman" phenomena, I'd like to talk for a moment about how you move around in Second Life. Normally you do so by walking, of course, as in real life. But Second Life is virtual – what's to keep you from doing things you can't do in real life … like flying? In fact, one characteristic of Second Life is that it's possible to endow Residents with superhuman powers, and indeed one way to move around in Second Life is to fly. Another way to move around is teleporting, as they used to do in Star Trek.

This ability to acquire superhuman powers has led to some very intriguing possibilities, one of the most fascinating of which is the use of superhuman powers for teaching in the Metaverse, as I'll discuss next.

Education in Second Life

An important success of Second Life has been in the field of education. In the last couple of years, well over a hundred "virtual islands" have been sold to educational institutions so that they could build virtual classrooms and the like. And we're not talking about obscure, third-rate institutions by any means: Harvard, Stanford, INSEAD (the prestigious French business school), and many others have signed up and started offering courses.

"For what possible reason would either a student or teacher prefer a virtual classroom to a real one?" you might ask yourself. Well, for one thing, keep in mind that much learning today is *already* distance learning. I myself gave a class from my home in Pisa to a group of students in Washington, D.C. a couple of years ago, using their Internet-based distance learning facility. The Open University in the United Kingdom specializes in distance learning. And Second Life has turned out to be a much-preferred way of participating in distance learning courses. It "bridges the distance gap" between student and teacher much better – probably through the feeling of shared presence given by the avatars, and the ability to interact in a more natural way.

At Stanford, the Virtual Human Interaction Laboratory is studying such things, to find out exactly what it is about virtual interaction, especially in classrooms, that makes it all work, and what kinds of interesting enhancements might be possible. They have coined the term "transformed social interaction" for the phenomena they are studying.

Consider what might be done to make a virtual classroom even better: you could endow the virtual teacher with what is called "social sensory abilities," which would be superhuman in a real environment. Two examples: you could track the eye gaze patterns of students in the virtual classroom to see whether they're paying attention, and raise the alarm if their interest level seems to be going down. Or the environment could keep track of eye contact between teacher and students and alert the teacher when certain levels of eye contact have not been kept with certain students.

Conversely, the *student* could do superhuman things, too: in a real life classroom, students are dispersed throughout the classroom, and some poor fellow might end up far away in the last row. But in a virtual classroom, *every* student could sit right in front of the teacher – superhuman in the real world, but perfectly possible in the virtual world. Furthermore, if the student didn't catch something the teacher said, he could just rewind and do an instant replay – something you only see on an American football field in real life, but easy in a virtual classroom.

By the way, all of you English teachers might be interested in knowing that the teaching of foreign languages (for example, *English as a Foreign Language*), has turned out to be very popular in Second Life, and many language and cultural institutes (such as the British Council) have established presences there.

Virtual education is a hugely promising enterprise in Second Life – yet another one of those unexpected phenomena that arise when you turn a bunch of people loose in an interactive environment.

Italian presence in Second Life

So how have Italians reacted to Second Life? It turns out that Second Life has become rather popular in Italy. One of the most high profile cases regarded the television show *Isola dei Famosi*, conducted by the popular host Simona Ventura. During the last season's show, there was a parallel show inside Second Life.

You may recall from last year's lecture that I said that one of the first Italian politicians to put videos up on YouTube was Antonio di Pietro. It seems that he has been at the forefront of new technology uptake among politicians, because not only does he make YouTube videos, and have an active weblog, he was also the first Italian politician to create a Second Life Presence.

The Region of Tuscany was the first administrative region in Italy to take up a presence in Second Life, a kind of "virtual ambassadorship." Private industry has also established presences in the Italian Second Life community. For example, last May, IBM Italia took up a presence.

The Italian IBM presence was also the scene of another, very Italian kind of "first" in Second Life: on September 20 of last year, the unions called for a strike of all avatars (!) in IBM Italia, the first official industrial strike inside Second Life. Even in the Metaverse, the Italian way of doing things manages to manifest itself.

The Origins of Avatars

Now let's get back to the first topic I brought up and illustrated in my talk, which involves another implication of an inhabited, virtual Metaverse: since the *real* you can obviously not inhabit a Metaverse (unless some very serious new technology comes along), there has to be some kind of *virtual* you in a Metaverse – some kind of virtual "representative" of you. As we noted at the beginning of this talk, Stevenson adopted the word "avatar" to designate that "virtual representative."

Before we look at how Stephenson intended to use the word, let us step back a bit and look at the original meaning of the word "avatar." It is a Sanskrit word, and comes from Hindu mythology. Quoting the Random House dictionary, it refers to "the descent of a deity to the earth in an incarnate form or some manifest shape; the incarnation of a god." The ten avatars (Buddha is one of them) of the deity Vishnu are a well-known example of this.

So, in a sense, you could say that Stephenson turned the word around: instead of being the earthly manifestation of something unearthly, as in the original Sanskrit, he used the word "avatar" to denote the unearthly (virtual) manifestation of something earthly (us).

> As Hiro approaches the Street, he sees two young couples … He is not seeing real people, of course. This is all a part of the moving illustration drawn by his computer … The people are pieces of software called avatars. They are the audiovisual bodies that people use to communicate with each other in the Metaverse. (Neal Stephenson, *Snow Crash*)

It only takes a brief moment of reflection to arrive at the next, obvious question: what does your avatar – your "virtual representative" in the Metaverse – look like? Here is Stephenson's reply:

> Your avatar can look any way you want it to, up to the limitations of your equipment. If you're ugly, you can make your avatar beautiful. If you've just gotten out of bed, your avatar can still be wearing beautiful clothes and professionally applied makeup. You can look like a gorilla or a dragon or a

giant talking penis in the Metaverse. Spend five minutes walking down the Street and you will see all of these. (Neal Stephenson, *Snow Crash*)

I'll have more to say about this now, but first, here is a little footnote from Stephenson himself on his choice of the word *avatar*:

> After the first publication of *Snow Crash*, I learned that the term "avatar" has actually been in use for a number of years as part of a virtual reality system called Habitat … Habitat includes many of the basic features of the Metaverse as described in this book. (Neal Stephenson, *Snow Crash*)

How do people choose avatars?

The question of choosing an avatar isn't actually new – it's more a variation on a theme that has been studied for quite a while. In 1959 the sociologist Erving Goffman wrote a book called *The Presentation of Self in Everyday Life*, which gave rise to a term called "impression management" by social scientists studying the phenomenon. What is new is that impression management is now being practiced not only in real life, but also in virtual life. At the Stanford Virtual Human Interaction Laboratory, they are studying how people are influenced by having different avatars to represent them.

The researchers at Stanford found that changes in digital self-representation (e.g. in avatars) make a real difference in how people see themselves and behave in real life. As an example, when people are given tall avatars, they tend to become more aggressive and dominating in negotiations than those who are given short avatars. As another example, people who are given avatars of old people are found to display fewer prejudices about older people in their behavior.

Even more interesting is the way in which people can be influenced by blending the features of real faces together in order to create a more sympathetic or persuasive avatar. For example, the Stanford researchers demonstrated the blending together of a person's features with the facial features of George Bush; and Hillary Clinton; and Bill Clinton. Depending on who you are trying to persuade, then, you could make yourself more attractive to somebody by incorporating features of a desirable person into your own avatar, so that the subject of your interest is subconsciously influenced by those "sympathetic features."

Coming Soon at a Theater Near You

This isn't the last you'll be hearing of avatars. Hollywood is getting into them big time, with the making of a film with the title *Avatar*, directed by James Cameron (who gave us, among other movies, *Titanic*). The plot involves a paralyzed former marine named Jake Sully, played by the actor Sam Worthington, who agrees to participate in an experiment whereby he exists as an avatar with the form of a 3-meter tall alien. It should be coming your way sometime in 2009.

Conclusion

Earlier this month (on 4 March 2008) I was reading a column by *New York Times* Op-Ed columnist David Brooks. The column was entitled "A Defining Moment," and was an analysis of a pair of speeches made by Senators Hillary Clinton and Barack Obama, the current front-runners for the Democratic nomination in the 2008 Presidential Race, at an event one evening a few months ago. Brooks believed that the speech made by Obama that evening constituted the defining moment of the Democratic campaign.

> Obama sketched out a different theory of social change than the one Clinton had implied earlier in

the evening. Instead of relying on a president who fights for those who feel invisible, Obama, in the climactic passage of his speech, described how change bubbles from the bottom-up: "And because that somebody stood up, a few more stood up. And then a few thousand stood up. And then a few million stood up. And standing up, with courage and clear purpose, they somehow managed to change the world!" For people raised on Jane Jacobs, who emphasized how a spontaneous dynamic order could emerge from thousands of individual decisions, this is a persuasive way of seeing the world. For young people who have grown up on Facebook, YouTube, open-source software and an array of decentralized networks, this is a compelling theory of how change happens.

Reading this paragraph, I reflected on the fact that I had mentioned every one of those things – Facebook, YouTube, open source software, decentralized networks – in my talks here in Viareggio over the last few years. And I was reminded once again that, for the last three years in a row, *every* one of my talks had been about social networks.

Perhaps this really is something new under the sun.