**Some thoughts about digital and material culture**

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*1696 Bonjour Stradivari cello.*

1

A while back I was reading Neil Gershefeld's <u>When Things Start to Think</u>. This book includes an account of the research involved in the creation of a digital Stradivarius. Because of my work in the area of creating digital replicas of rare heritage artifacts, I am interested in the types of research activities that question how the essence of the material can in turn push the boundaries of the digital. And furthermore how these frontier-based activities in turn question the essence of the digital. What ontological premises are already in place in our analog, material, world that we assume to exist in the yet to be constructed, or actually being constructed digital world? What is the repertoire of activities, performances and gestures available to us as creative agents?

Among the explicit and implicit questions pursued in the research were those of How can the old technology of a cello be enhanced by the new technology of a computer? Is it possible to model the experience of being able to perform great music in the manner of a gifted performer so that it can be made accessible to those who do not have the talent or the training?

In order to answer these questions, the activity of performing and playing with a Stradivarius cello, by the famous performer Yo-Yo Ma, was measured and translated into a cybernetic system.

Aspects of spatial interaction and performance with the instrument such as, "Where is the bow?" were translated into low-level calibration inputs. Tacit knowledge such as "What

kind of bow technique is being used?" was translated into mid-level analysis. The aesthetics of performance or "What kind of sound should be associated with a particular action" became high-level mappings. (In spite of its efficiency, I cannot help but wonder if there are better ways to design a cybernetics system? Ways that include both the complexity of the phenomenon as well as the biases of the observer?)



*1706 Turner-Brott Tecchler cello*

The new instrument produced through this research resembled a normal cello that had lost a few pounds but was able to extend some of the already existing capabilities of the instrument:

> *Bowing near the bridge (called ponticello) makes a bright, harsh sound; bowing near the fingerboard makes a softer, sweeter sound. In one section of the piece these mappings were extended so that playing ponticello made still brighter sounds than a cello could reach ... The computer launched short musical phrases derived from the cellist playing. (Yo-yo described these feelings as ensemble playing except that he was the emsemble.) (Gershenfeld, 35)*

In the end Gershenfeld conceded, that a perfect replica will not be possible until the day that the technology can be as unobtrusive and invisible as that of the original Stradivarius. Successful, loving, interaction between musician and instrument is so that "when it works well I have trouble telling where I stop and the instrument begins" he remarked.

2

How are the ontological aspects of precious material culture to be regarded in the digital domain presently devoid of such interfaces that seem more natural to humans?

Basic-level categories, for example, are supposed to be "human-sized". They are not inherent but rather, contingent on the interaction of people with objects. (Lakoff, 1990) They refer to the way that objects are perceived, imaged, organized as well as how people behave towards them with their bodies. Are basic-level categories of material culture important enough so that they ought to be studied and perhaps even modeled using computing tools?

In the case of rare artifacts (and heritage items) of material culture, such as a Stradivarius, the interaction often occurs within a limited space, in the ritualized context of performance, and with a very particular body, that of a virtuoso musician. So, modeling a

performance with a Stradivarius would also have to focus and include the practice and communities in which these musicians operate.

Then there is also the lifecycle of the artifact itself resulting from the physical changes that the object endures through time. But decay and deterioration not only relate to the organic lifecycle but also to history: The wood with which it is made comes from trees that are most likely very different from our modern trees (e.g. mature trees that were allowed to live their life unaided by modern technology). Stradivarius was created in a certain point in time and in a world that may be difficult, if not impossible to replicate. This incapability simultaneously removes the artifact and increases the level of aura in the artifact.

Aura refers to the sense of associations. It is to do with the evocations and interrelations that come together within an object. "To perceive the aura of an object is to invest it with the ability to look at us in return." (Benjamin) But also, through the artifact we are now able to conjure a world.

What is it about the digital when employed in a particular manner that so corrupts the essence of sacred matter? Why does it so trespass the integrity of the object? Is this what Heidegger called the "being set upon", "made to stand in order"? To be measured and consumed… Returning to my digital interactions, I cast aside these ruminations…

3



*Models of nature by Antoní Gaudi. Museo de la Sagrada Familia, Barcelona.*

A few weeks later, an industrial design student shows me her plans for the design of a so-called Gaudí chair for a competition. This brings me back to my earlier reflections about the digital Stradivarius…

When a designer takes upon herself to design this chair, she is effectively working as a translator in two ways: She is engaging in a discourse of a historical nature. She is also doing research to anticipate the eventual form so it conforms and extends that which is regarded as the essence of Gaudí. The chair itself can be regarded as a historical event. Its acceptance, circulation, and potential enshrinement within the cannons of design history all bear witness to this.

As far as I know, there is no "Gaudí" chair but there are chairs that were designed by Gaudí. To say that we are going to design a Gaudí chair does not mean that we are going to directly reproduce the Gaudí chair. And even if such a chair existed and we made hundreds of copies, the essence of Gaudí would still be untouched. In fact, the presence of the original is a pre-requisite to the concept of authenticity.

One could think that the design of a Gaudi chair does not impose, or alter the essence of Gaudí. For in the same manner that there is a distance between the nature that Gaudí studied and sought to emulate and Nature itself, there is still a difference between the chair, Gaudí, and his creations. It is the distance between the Modern and the Post-modern "ethos".

**Printed Sources**:

Benjamin, Walter, The Work of Art in the Age of Mechanical Reproduction, Illuminations, Fontana Press, 1982/1992.

Gershenfeld, Neil, When Things Start to Think, New York: Henry Holt & Company, 1999.

Lakoff, George, Women, Fire and Dangerous Things, What Categories Reveal about the Mind, University of Chicago Press, 1987/1990.

Images of Stradivarius violoncello courtesy of the Instrument Bank of the Canada Council for the Arts. Photography by Geo. Heinl & Co. Toronto.

Models of nature by Gaudí at the Museum of La Sagrada Familia in Barcelona, Spain. Photograph by Lily Díaz-Kommonen, 2006.

**Electronic sources**:

Gershenfled Neil. "Digital Expression", KurzweilAi.net
http://www.kurzweilai.net/meme/frame.html?main=/articles/art0576.html
(February 26, 2007)

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