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Q. Analyzing the language of digital culture, your book takes an inspiring screenshot of the major shift we are leaving in. All new media - you say - are programmable, because they share the same digital code. The procedures of sampling, cutting and pasting an audio, text, image or video file are almost identical. How this will influence the creative process and, generally speaking, our perception? Wagner or Baudelaire's aspirations to a synesthetic correspondence amongst the senses are becoming real? Or, is this process only cognitive and immaterial, and will not be able to affect in depth our relationship with the external world? In other terms, the convergence of all the media into the digital realm is a mind and neural process that will cut out the body experiences, or it will re-shape it in some way?

A. The idea of establishing correspondence between different senses and using such correspondence to organize a multimedia work has been very important for nineteenth and twentieth century art and aesthetics; however, at some point in the second part of the twentieth century, this idea loses its importance. Interestingly, this happens approximately at the same time as electronic and computer technology gave us new tools to create works where different media tracks have systematic relationships to each other. Maybe one place in popular culture where this idea still exists today is DJ and VJ performances. However, simply "slaving" one media track to another is quite different from more complex notions ideas of senses/media correlations, such as Eisenstein's use of contrapunt in his montage theory.

For me, computer multimedia holds the promise to represent human subjective experience in a new way. Unfortunately, I can't think of a single new media work, which has systematically tried to do this so far. I think the best experiments in this direction have been undertaken by filmmakers such as Peter Greenaway (Prospero's Books, Pillow Book) and Juan Luc Godard, whose JLC by JLC. Portrait in December (1994) is the best multimedia text I know of. In this film Godard uses about half a dozen of different "media channels" – shots of book pages (i.e., text); "normal" film; voice-over; background sound; music – setting up various relationships between them. I think every new media artist should go and see this film.

Q. The second question is about the opposition you describe between representation and control. This opposition involves a different perception of what an image is. The digital image has tactile proprieties unknown to the analog ones, while with the Graphical User Interface, the image becomes the "simulation of a control panel which allow the user to control

a computer". Can you recall the most fundamental steps, which made this shift culturally and technologically possible?

A. In the book I suggest that GUI (Graphical User Interface) which we all use since it was commercialized in 1984 Macintosh, "virtualizes" more traditional hardware control panel. That is, you car (still!) has a separate button for every function and the locations of these buttons are fixed, while in GUI the layout of control panel changes dynamically depending upon what program(s) you are using; you also can move icons on the screen yourself. A systematic history of how this transition (from hardwired control panel to GUI) came about would require more space than I have here, but let me just mention two important historical points. One: as far as I know, the original design by Alan Kay from late 1960s-early 1970s (done at Xerox Parc) for what eventually became GUI had fixed windows that could not be moved or resized; at some point the decision was made to have dynamic user-controllable windows. Second: in the 1980s the work on VR interfaces for pilots done at NASA was motivated by the idea that traditional hardwired cockpit interfaces became too cluttered and hard to navigate. It would be much better, the thinking went, to a have a flexible screen based interfaces where different controls would appear and disappear depending upon the task that the pilot is doing.

Q. On another level, your book reflect upon the dichotomy between representational and communication technologies. Teleaction and telepresence are changing, day by day, our way of perceiving space and time. As Virilio states, we witness the collapse of the spatial, temporal and human distance. You have been studying cognitive psychology. Do you have a negative perception of the effects of telepresence comparable to the French philosopher, or you see it has an extension of human potentialities? What sort of experience do we make with telepresence? Does it increase or reduce our capacity to deal with informations and to synthesize them, as compared to previous media, such as cinema, radio and television?

A. Rather than telepresence by itself, I am more interested in what I call co-existence, or co-presence. Co-presence in different spaces is one of the fundamental aspects of modern and informational societies. You are driving a car while talking on a cell phone; you are "telepresent" in different locations via Web cams; you are walking through the airport while checking your Palm Pilot. One constant in all these examples is the body present in a particular physical space; another space can take a variety of different forms. In the first example, it is a "virtual" space of a conversation between two remote parties; in the second example, it is "visual" presence in a remote space; and in the third example, it is the space of information. (Of course, we can also add another example of multi-tasking, that is,

working with different programs and different windows on a computer – thus being in a number of various information spaces at once.)

It may be interesting to relate this everyday modern experience of co-presence to the lack of synesthetic and montage sensibility in modern art, which I already mentioned in answering your first question (see above). That is, when I look at various recent video installations, for instance works by Doug Aitken such as Electric Earth, I do not see any montage relationships. Rather, in this installation different video screens are co-present. You look at one screen, then you move to look at another screen, etc.

Montage was the dominant aesthetic technique of the twentieth century because people have experience co-existence of different images, or spaces, or, more generally realities, as a shock. Today, however, we are completely used to it, both when different images meet on a single screen or layout (in television, print media, advertising) and when we ourselves are co-present in different spaces (as in my examples above). In other words, we take it for granted that we can be in different spaces at once. I think that art has an important task to problematise this experience. So I am interested in what can be called aesthetics of co-presence – the relationships that can be set up between different spaces. Notice that we are neither talking about VR (the aesthetics of virtual space) nor about "the relationship between physical and virtual space" which was a popular topic about five years ago. For me, it is not about one space or two spaces, but about many spaces at once, which can be physical or virtual or any combination of the two.

Q. In your book, you explain how the paradigm shift we are immersed in foregrounds certain elements, which were previously in the background. One of the most evident is the dynamics or the conflict between the database and the narrative. New media exalt the database as a collection of objects, leaving the narrative - proper of previous media such as cinema - on a secondary level. The narrative has to be deduced by the user, performing a certain number of operations. Or it can be deduced automatically by a certain algorithm, such as an intelligent agent. Given this context, who is the new media narrator or the new media artist today? In which way does she play with this vast amount of objects and with the softwares created to deal with them? Can you make specific examples?

A. To a certain extent, artists have always dealt with database-narrative problem. Think of a filmmaker who chooses limited number of shots from a much larger set of shots available. Or think of Sassure's semiotic theory, according to which (after it was applied in the 1960s to culture in general), any cultural text can be though as a chain of signs; at each point the author chooses which sign to use next from a paradigm available.

New media "externalizes," or "objectifies" this creative process. Now the database does not just exist in the mind of the author but is

literally in front of her or him, as clips, images, pieces of code, etc. presented by a software program.

This opens up a number of interesting creative possibilities. For instance, it is possible to create a narrative where each subsequent shot/scene would be chosen by a computer according to an algorithm. In my book I talk about one of the few projects which already realized this idea – an interactive TV show designed by a group of graduate students at Media Lab, University of Art and Design, Helsinki.

Another possibility that I have been particularly interested in recently is to create a work that will use a really big database – let's say, ten million records. I don't think anybody tried to do this yet. I am imagining a novel that, instead of telling us about a few selected events from the lives of a few characters, would present us with complete email archives of thousands of people. The trick will be to contract an appropriate interface to this vast data – I don't think simple search tools like what you get in Eudora would be enough.

Q. What is the navigable space, how did it came into existence? And how is it possible to define a "Poetics of Navigation"?

A. A typical activity, or behavior characteristic of information society, is navigation through a space, be it virtual physical space (as in many computer games, especially first-person shooters and action games, such as Unreal, Tomb Rider or Mario), or information space (for instance, surfing the Web). I see navigable space, along with a database, data visualization and simulation, as one of the new cultural forms of information society – or, at least, holding the promise of becoming the one. Therefore, I am interested in what I can call "poetics of navigation": how navigation through space can be used as a new way to tell a narrative or to represent human experience.

My own very small experiment in this direction is a project Data Beautiful (www.manovich.net/Data_beatiful.html) that I made using special software by artist Lisa Jevbratt. Lisa's software can be used to construct crawlers (the programs which "crawl" through the Internet, moving from one link to another – they are used by major search engines to "map" the Internet) with specific characteristics and then to visualize data obtained by the crawlers. Lisa invited a number of new media artists to use this software. For my project I made the crawler which would move through the Internet in a particular patterns: beginning on a particular page, following a link on this page to go to another page; then taking a back step to go back to the first page, etc. In this project, I wanted to focus on navigation (and resulting data -which I think is indeed quite beautiful!) as a category by itself, regardless of what data the crawler is looking for.