BABYLON S M L XL

The missing Language of Cyberspace

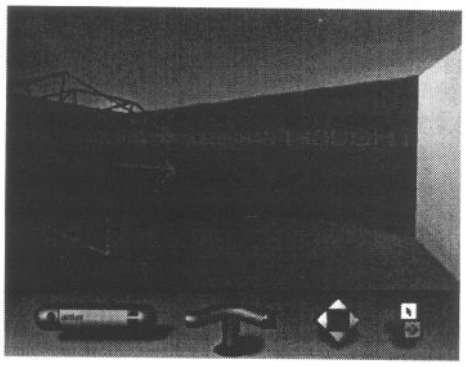
FLORIAN WENZ
Chair for CAAD and Architecture
Swiss Federal Institute of Technology

We first discuss the future role of the CITY as a main generator of culturalflction and suggest a superimposition of the PHYSICAL city and the DIGITAL city. We then draw parallels between the original intentions behind the World Wide Web and Hyper Text Markup Language and its expected follow up CYBERSPACE and Virtual Reality Markup Language. The development of three-dimensional SEMANTIC CODES for interactive environments is identified as one main task of the future. Within this framework, Babylon SM L XL, a series of research experiments conducted at the Architectural Space Laboratory at the professorship is investigating concepts and methods. The images display some scenes from this work in chronological order, while the captions provide content descriptions and ME TA CODE abstractions.

1. The Crisis of the City

Cities, as the main processor units of civilisation seem to be on the decline. After most of the flows of humans, information or goods have been focused into urban hot spots for centuries, some of these streams are now being diverted by other forces. One of the main reason for the urban concentration process, the simplification of complex system flows through short transmission distances is becoming increasingly less dominating.

This, of course, has to do with the accelerated separation of the communication body from the physical body in networked communities. The architect Toyo Ito describes the Japanese society as "a society permeated by information and penetrated by communications systems. A society in which each individual has two bodies: a 'real'



Babylon_S, "True Spaces and Beliefs" September 1995
An early experiment, that investigated the combination of animated objects and static objects and consists of a hyperlinked web of scenes, which are to be read as personal signals of the author, forming a cinematic 3D story-space. The sequences use simple rooms (True Spaces) and juxtapose them with "translated" truisms (Beliefs) by the well known communication artist Jenny Holzer. i.e. "Action causes more trouble than thought".

{{anim}(belief}}{true_space}

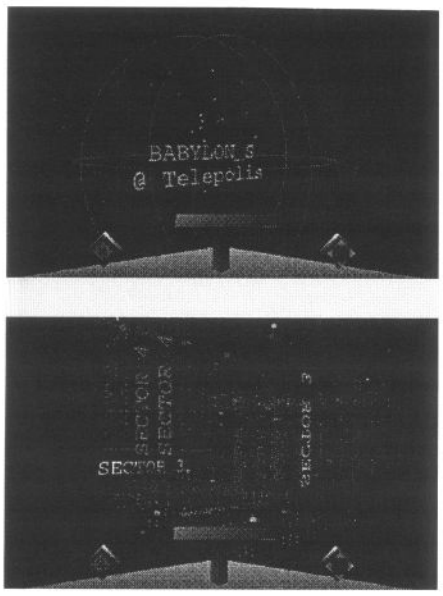
body consisting of its physical presence, and a 'fictional' body, shaped by the information directed at or received by it." While face-to-face communication as a basic emotional need remains untouched, a wired person can perform functional communication from anywhere to anyone. As a consequence, Ito sees the elimination of the very concept of the city: "A kind of de-socialisation will take place within the city which will then be perceived as a 'fictional' structure, its spaces no longer needed to serve the needs of a 'real' population. At this time the non-city will emerge as the 'real' answer." (1)

Really? What can be observed at present are major global shifts of economic resources in online workforce markets, that can transform cities in very short time spans. Public access to the Internet was opened in India on August 15, 1995. Only 18 months later, the city of Bangalore, the capital of Karnataka state, is known as the Silicon Valley of India, being the home of some of the biggest and most profitable software companies in India, with a highly educated networked workforce and an extremely attractive market base to potential foreign investors. As part of a global urban infrastructure, a metacity of connected markets, cities are apparently still in high demand.

A very different image of the city was on display at the exhibition "The Archaeology of the Future City" (Museum of Modern Art, Tokyo, Japan, 1996), which interpreted the city as a materialised memory map of cultural history: "The City is an accumulation of spaces cobbled together in time. The City in time reflects the powers, rules, and economic systems of each age, succeeding as an actual space linked to that particular age's technology and styles. Personal aspirations can be found swirling in every nook and cranny of this city space, leaving traces of their collisions with public systems. The

actual existing city is thus a complicated object, an amalgam of the traces of diverse 'times' and 'spaces', and the reality of the city is a compound made up of logic and contradiction." (2)

With a minor shift of internal perspective, the author could also be talking about the Internet in its present state. All that needs to be adjusted is the mental configuration CITY, the cognitive map of imagery, that every one of us makes up to create his own personal navigation maps. PLACES, STREETS, CROSSINGS are still there, but they are now being rapidly superimposed by traces of interactions with new associative object-systems like NODES, LINKS and NETS. In her essay 'Associative Assemblages' Christine Boyers investigates this gap, that exists between the city that we can visualise and the invisible city that is constituted in and through its fields of information circulation: "These spaces or systems, which combined discourses and architectures, programs and mechanisms, also seem to be dislocated from space, deeply hidden within the electronic matrices of a global computer network that connects all points in space and directs our lives from some ethereal 'other' location." (3)



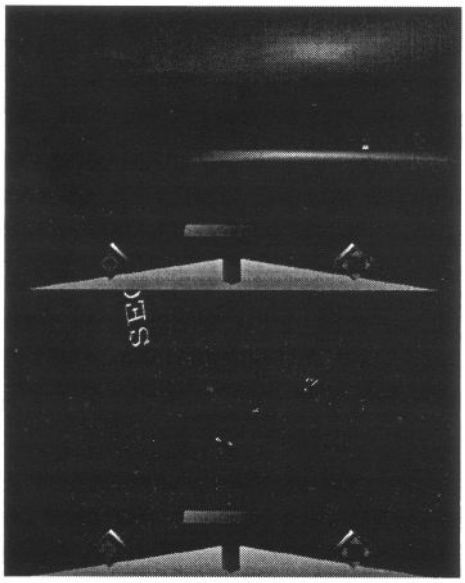
{{LOD}{url{symbol)}{url{shape_ext}}}

Babylon-S, "@Telepolis - The City"
November 1995
This was the centrepiece of our installation at the exhibit to the international conference "Telepolis - the
Networked City". (Luxembourg 1996). It served as the entrance gateway to the 3D website of Telepolis and provided an interface to all the other VRMIL models in the exhibit.
All the extensions to VRML are written in Open Inventor, which was at that time the only way to program interactively in 1.0. Here are some of the concepts, we explored:
- Dynamic loading of "sectors" from different locations on the Internet, into on consistently perceivable environment
- hierarchical structured model with "city code" in its
top level, controlling position, transformation and lighting while authors only control the geometric shape of the sectors.
- Multiple formal representations, depending on the user's relative position:
from far away - a symbol
from just outside - spacial outlines

2. The Crisis of the Net

The strategy, that is responsible for the enormous success of the World Wide Web from its original conception in 1991 to its present omnipresence is clearly revealed in an early proposal by its inventor Tim Berners-Lee, now Director of the World Wide Web Consortium [W3C]: "The WWW project merges the techniques of networked information and hypertext to make an easy but powerful global information system. The project represents any information accessible over the network as part of a seamless hypertext information space." (4)

This original vision was written before anybody knew that the WWW will actually work and well before the first webbrowser. Just like the engineers of packet switching must have had a vision of what the consequences of this technology will be, we can, in retrospect, read between the lines some of the implications of these design guidelines: 'easy but powerful" points to Hyper Text Markup Language, a very simple encoding syntax for flow-layout documents and the Uniform Resource Locator, a universal locator mechanism for data sets, "hypertext information space" is the non-hierarchically evolving rhizomatic content mass, now known as The Web which was first made "seamless" by the Mosaic Webbrowser, probably the single most important piece of software ever written. What followed is already history, but is is safe to say, that despite all extensions of functionality, these ingredients are still the substance of the Web.



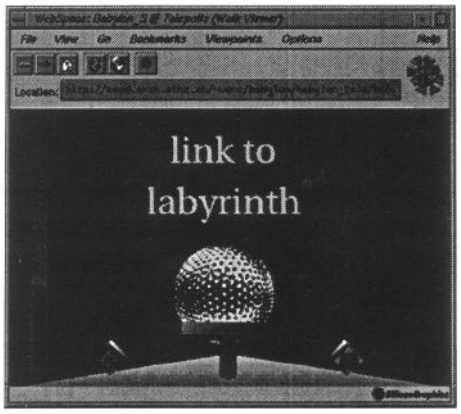
Babylon-S, "@Telepolis - The City" November 1995

Top: Different perceptual resolutions for environment (exterior) and spaces (interior). On entering this sector, it becomes hyperreal, as it is being lit by physical lighting mode and begins to simulate material presence.

Bottom: Abstracted form or spacial drawing, the opposite of hyperreality. From the inside, this sector dissolves into a line drawing of itself, and transforms from a closed space to the perspective idea space.

{{LOD} {abstract} {physical}}

During the First International Conference on the World Wide Web, in Geneva, Switzerland, 25-27 May 1994, Mark Pesce, Peter Kennard, and Toni Parisi presented a paper entitled 'Cyberspace", describing a visualisation tool for WWW, "Labyrinth", which uses WWW and a proposed protocol, Cyberspace Protocol (CP) to visualize and maintain a uniform definition of three-dimensional objects, scene arrangement and spatio-locations. As the next logic step beyond HTML, they proposed VRML (Virtual Reality Markup Language) an unsophisticated, but effective description language for objects, scenes and binding of external objects similar to URLs. It is important to note here, that "Labyrinth" was never meant to mirror or represent the existing physical world, but to superimpose a continuously smooth layer of abstraction (3D.SPACE) on top of the existing networked reality: "At its fundamental level, cyberspace is a map that is maintained between a regular spatial topology and an irregular network topology. The continuity of cyberspace implies nothing about the internetwork upon which it exists. Cyberspace is complete abstraction, divorced at every point from concrete representation." (5)



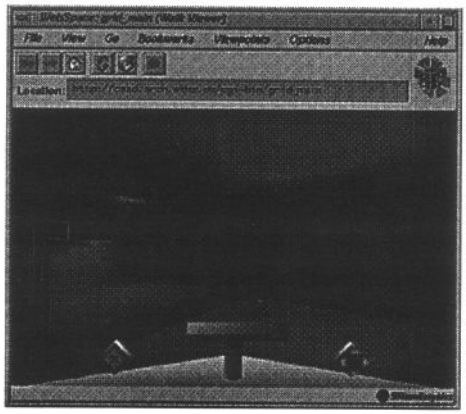
Babylon-S, "@Telepolis - The City"
November 1995

Macroworids with enclosed Microworlds. Animated 3D logos form symbolic anchors and are entry and exit points to other linked worlds by other authors. Text in space adds another level of abstraction and gives the User a sense of what to expect after the anchor is activated.

{{anchor world_URL}{symbol} }

The proposal was received with great enthusiasm by the Web community and supported by a large number of individuals, institutions and companies. A mailing list was created, which consciously utilised the collective intelligence of a large number of experts and within a very short period of time, a language draft for VRML 1.0 was issued, followed by the first browser software from Silicon Graphics Industries. In its present state, VRML 2.0, which extends 1.0 by interactive scripting functions is among the core technologies of the Internet and large efforts are being made to establish a commercial market for VRML worlds.

In those research fields, where results can be communicated effectively through three-dimensional scientific visualisation, i.e. molecular chemistry, VRML is already established as an Internet standard, as VRML scene descriptions also offer excellent content compression, as opposed to images or animations. Companies like "Worlds Inc." or 'Black Sun Interactive" market three-dimensional chat world applications based on VRML, where users, represented through interactive models called AVATARS can move around abstract WORLDS and communicate with each other through text or audio signals, thus trying to establish new forms of social interaction. "Community ... The Next Generation from Black Sun: Communicate in real time with people from around the world, explore dynamic 3D worlds, lead tours of your site, host moderated events and play interactive games - this is the Internet as you always imagined it.' (6)



Babylon-S, "Matrix - The Space" November 1995
Matrix consists of a theoretically endless grid of self-similar spatial entities, which are constituted in real time by a remotely-connected machine and surround the user with a coded architectural syntax during interactive exploration. Matrix creates spaces from a system of lighting, colour and aperture typologies, which can be read as private interior rooms and can be personalised within the constraints of the coded architectural syntax.
{x*{ y*{node_proc}}

3. The missing Language

It is obvious that the Internet community is waiting for the promises of William Gibson's "Neuromancer" or Neil Stephenson's "Snow Crash" to finally materialise. But for a number of reasons, the evolution of Cyberspace is not following the footprints of the World Wide Web as predicted. For one, browsers are still too slow to allow for high resolution, complex worlds being displayed in real time on average machines, a problem that will be solved by time and the advances of computer graphics subsystems. Further and more seriously, the inventors of cyberspace have overlooked the fact, that there is no common language for content description in interactive 3D scenes, as there is for web

pages. The web is still essentially based on the syntax of the Gutenberg galaxy, which was developed over the last 2000 years: text, image and diagram.

The usual claim that 3D must be better than 2D, simply because it offers an extra dimension, does not hold up under critical inspection. On the contrary, one can argue that 2D media have been developed to inject meaningful CONTENT into abstract SHAPE and 31) is actually one step backwards. With its physical presence stripped from its shape, an object in Cyberspace is literally asking of the user "What does it look like?', while at the same time, what should be communicated is "What does it mean?", which is precisely, what most existing VRML scenes fail to answer. These questions of semantics are especially important in communication networks, because most files on the Net are consciously created as communication signals by somebody or somebody's software and thus only makes sense in terms of their relations to other signals by other authors.

To establish these new codes of interaction, the semantics of Cyberspace, will be a major task for the CAAD community in the near future, as it demands a thorough understanding of spacial systems, interlace design and the mechanics of code. Until now, most of the research work in this area has been done by game designers, where the genre of interactive first-person 3D game has already established a new code of spacial interaction. Millions of juvenile garners, playing endless hours of "Wolfenstein 3D", "Doom" or "Descent" and now "Quake" have already evolved a semantic system of spacial environment interaction, tuned to the needs of the gaming industry, whose evolution is comparable to the progress from line input terminals to the present graphical user interlace with windows and icons.

In his abstract to "Aquamicans", one of the advanced works in VRML done at the Architectural Space Laboratory at the chair in 1996, its author etoy writes: "One has to realise that precisely now, when the simulation of the material world in 31) browsers seems to be most obvious, the development of new archetypes of form symbolic, that are closely related to Internet culture will generate a new form of sense in Cyberspace. This must be a privilege of architecture, if one sees its main task in discovering relations and improving the legibility of the world, even if this means that we have to redefine our formal understanding of architecture."(7)

4. Babylon S M L XL

To develop this missing language of cyberspace and to generate concepts and principles for networked immaterial architecture, a series of experiments was initiated at the Architectural Space Laboratory in fall 1995. The term "Babylon" refers to the myth of Babel and the ancient City of BAB-ILU , which dates back almost 2000 years before AD. Almost 2000 years after AD the western culture is again facing similar issues of identity in a massively connected and complex environment. The Babylon Series "S M L XL" points to a research mode, that has to follow the highly accelerated networked evolution of this platform in rapid prototypes from small and simple (5) to large and complex (XL). It is also important to note, that the substantial body of work that is connected to the Babylon Series was created by a large number of students and junior faculty in the spirit of the Internet, where collective intelligence is at the basis of individual achievement. The author wishes to acknowledge the substantial contributions of the following individuals and multiples: etoy, Patrick Sibenaler, Tristan Kobler, Tom Sperlich, Urs Hirschberg, Christian Waldvogel, Claudia Weinmann, Urs Kuehni, Peter Mackes and all the participants of !hello-world? and "Real Fiction - Virtual Realities".

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(4) Tim Bemers-Lee. 'An Introduction to WWW'. CERN, 1991.

(5) Mark D, Pesce et al. 'Final Amputation: Pathogenic Ontology in Cyberspace', CERN, Third International Conference on Cyberspace, Texas 1993.

(6) Black Sun Interactive, 'The Black Sun Community 2.0', http://www.blacksun.de/launch/index2.html, 1997

(7) etoy. 'Die Architektur und Cyberspace', CAAD and Architecture, ETHZ, http://caad.arch.ethz.ch/projects/aquanicans/html/page4.html, 1995.

Online

Babylon S M L XL: http://caad.arch.ethz.ch/~wenz/babylon

TRACE: http://caad.arch.ethz.ch/trace

Aquamicans: http://caad.arch.ethz.ch/projects/aquamicans

!hello_world?: http://caad.arch.ethz.ch/hello_world