"TEXT" AND "NETWORK", RECONSIDERED

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The close affiliation of networks and texts does not begin with telegraphy or the Internet. It already lies in the very notion of text, since the Latin word "textus" literally means "the web". And just like perceptions of the web tend be paranoid, as we know from Hollywood, "text" has triggered exuberant imagination. Written in 1941 and playing in the First World War, Jorge Luis Borges' short story "The Garden of the Forking Path" tells of a Chinese German spy who murders a British sinologist named Stephen Albert for seemingly no good reason. His hidden intention is to convey the location of a British artillery park, a French city called Albert, to the German secret service reading British newspapers, their crime section included. The murder, in other words, solely serves the inscription of the word "Albert", as if it were a combination of land art and body shock art, or a dark pun on Saussure's theory of the arbitrariness of the linguistic sign.

As typically for Borges' fiction, the compact linearity – or pulp drive – of the story is broken up by a fictitious text within the text. In "The Garden of the Forking Paths", this fictitious text is a "chaotic novel" likewise called "The Garden of the Forking Paths", but written not by Borges, but by a ficitious Chinese writer T'sui Pen. Similar to bifurcations in fractal geometry and quantum models of space and time, T'sui Pen's novel tells all possible turns of its story at the same time, creating "various futures, various times which start others that will in their turn branch out and bifurcate in other times".

This story was not only a prototype of post-structuralist text theory and later hypertext poetics, but its direct inspiration. In his 1963 essay "Le langage à l'infini", Michel Foucault refers to a narrative loop in the tales of the 1001 Nights: In one night, Scheherezade begins to tell the story of the 1001 Nights, thus getting caught in infinite recursion. Yet unlike Foucault believes, that loop exists in no known version of the One Thousand and One Nights, but only as a fake reference in Borges' short story of the "Garden of the Forking Paths". Foucault mistook Borges' philological fiction for face value, and that fiction took

up a life of its own when other scholars started quoting Foucault.[1] In 1991, Stuart Moulthrop adapted the "Garden of the Forking Paths" in an attempt of actually writing T'sui Pen's branching novel as hypertext fiction. Both appropriations, Foucault's and Moulthrop's, miss to grasp Borges' ironical sophistication whom novelist John Barth characterized in 1967 as a "Theseus in the Cretan labyrinth": someone who reflects contingency and non-linearity – or, to use Lyotard's later terminology, the postmodern sublime –, but ultimately conquers it in the closure of his own writing.

The paradox between dissemination and closure cannot only be found in Borges, but applies to all text. It is reflected in Saussure's and Jakobson's model of language as something constructed both vertically from a set of associative differences (paradigm) and horizontally as a linear sequence (syntagm). The meaning of "textus" as "the web" implies the same aporia of association and linearity.

[Borges reflects this in another short story, "The Library of Babel". Although he referred to the Renaissance ars combinatoria of Lull and Leibniz rather than to structuralist linguistics, it on the idea of writing as a set of differences within a total set of possible utterances. In the story, this system materializes as a library generated, according to the speculation of the first-person, by an exhaustive computational combinatorics of the alphabet. While the resulting text is given various and sometimes paranoid meanings by the humans who live inside the library, it is formally just data – data in a web of differences analogous to a set of patch files created with the Unix "diff" command. Links (a.k.a. cross-references) or meta tags (a.k.a. paratexts) aren't required to create those relations, but merely underline what is already related, given that any digital file can be can be diffed or data-mined against any other. Again, association and finality aren't contradictions, but paradoxical sides of the same coin.]

In that light, "hypertext" boils down to a pleonasm, since text contains "hyper"-structures by definition, or the World Wide Web can simply be seen as an update, perhaps even clarification of the term "text".

Conceptual clarity hasn't been the strong point of literary and cultural theories of text. Structuralist semiology greatly expanded the notion of text when Roland Barthes read all kinds of cultural phenomena including cars, beefsteaks and striptease dances as texts in his "Mythologies" and when Yury Lotman developed the concept of

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[1]*hart-nibbrig:spiegelschrift*

a text that encompassed all semiotic systems. While those readings were inspiring, they made the notion of "text" as fuzzy and undefined in the literal sense of having no boundaries and thus ultimately no meaning as, for example, the notion of "media". Traditional philology on the other hand had, and still has, a hard time differentiating text from literature, and thus the notion of text from paper, books and semantic intentionality.

Among other virtues, computer technology, Shannon's information theory and the Internet have one great benefit to the humanities: they have helped to get a better understanding of what a text is, how to separate text from meaning, and more generally what falls under the realm of "form" and what doesn't. For example, structuralism still believed that metaphors were formal, but everyone who is computer literate knows that they are not. In other words: Since Leibniz, Lovelace, Turing and Shannon, but ultimately through personal computing we have learned to define syntax as what is fully computable and semantics as that which is not – unless one models it as syntax, within the known drastic limitations of so-called "artificial intelligence". Informatics therfore provides no conclusive model of semantics, but a very clear one of text as everyone knows who is familiar with ASCII files and text streams over TCP/IP or Unix pipes. For computer-literates, it is trivial to abstract text as storage of symbols from semantics of writing. From this perspective, the question "what is text" is neither difficult, nor academic, but easy to answer with a simple formal definition: a an amount of discrete, in most cases alphanumeric symbols. [2]

[This means that the notion of text is not bound to meaningful writing. Literary theory has struggled to grasp this although it's been illustrated before, in Dadaist poetry for example like Man Ray's poem out of blocked-out words. Nelson Goodman, an analytic philosopher, pioneered an informatics model of text in the humanities when he used the notion of analog and digital information in his book "The Languages of Art", and formally defined writing as disjunct and discrete.] Since, to refer to Levi-Strauss, Barthes and Lotman, neither a culture, nor a striptease or a beefsteak is a file made up of unambiguously discrete information elements, neither of them can be read as a text without oversimplifying the matter. And – to jump at my own

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[2]Nothing more, nothing less, with no defined or implied materiality of paper or books. An example of a non-alphanumeric text would be a classical musical score, while performed music would not be a text when it is not performed as symbols, but as sound waves.

conclusion – just as the paradigm of text has its limitations, "web" and network conversely have their own.

Read as network theory, Borges' fiction juxtaposes network associations in its speculative imagination to network topology in its narrative closure. In other words, networks are characterized by the paradox of text extrapolated in Borges' fiction: that network topologies are never networks in themselves. Any network, whether a network in mathematic graph theory or a communication network, can be mapped as and flattened to a linear structure. The complexity of any web can be broken down, in Borges' terms, to a number of letters that spell a stinking corpse. (For the Internet, one might cite the five letters "ICANN".) "To break down" is the literal meaning of analytics and deconstruction; so we're not talking about reductionism, but critical theory. From such a critical and analytical perspective, networks are no counter-epistemology, but not that terribly different from hierarchical structures.

But there seems a more important lesson to be learned from text theory, its initial trouble to understand text syntactically, its later excesses of applying text to anything and a computer-literate understanding of text as data. The political issue is how terms become magic bullets, getting mapped onto other phenomena, and out of hand in that process. If the linguistic turn led into a trap – a "prisonhouse of language", as Jameson calls it –, the same could be said about media theory, especially where it follows cybernetic paradigms without being aware of it.

The earliest modern theory of networks can be found in Ludwig von Bertalanffy's General Systems Theory of the late 1940s. It was part of his grand project of interfacing hard sciences, social sciences and humanities, technology and art through a common set of descriptive notions, such as system, network, metabolism, openness and closure. Despite Bertalanffy's humanist agenda, his project had a dialectical flip-side: mapping physics and biology onto culture, it conceived of the human world as an organism, a questionable concept passed on to Maturana's and Varela's radical constructivism and to chaos theory. Just as cybernetics is closely related to General Systems Theory, so are its issues. Focusing more specifically on human-machine interaction than on systems as a whole, cybernetics applied engineering concepts to humans and culture. That arts and humanities adopted

McLuhan's concept of media more enthusiastically than Wiener's cybernetics may be rooted just in the latter's blatant behaviorism. However, with the assumption that the medium is the message, that machines had their own agenda, media theory was hardly less problematic, and by the early 1990s had developed into a rehash of cybernetics.[3]

For sure, the approaches to media studies discussed here at this conference differ from older schools of media studies in that they are more skeptical about classical two-way models of feedback, stimulus and response and sender and receiver. Instead, they search for both more complex and less dogmatic models of communication and interaction. But they make the network their very emblem of that complexity and undogmatism, this is just another rehash of 1940s general systems theory which had defined networks as, quote, "organized complexity" – a continuity that should raise some eyebrows.

Not only can the supposed openness of networks be questioned if one breaks them down, like Borges' fiction does, to its very linear bones. The network is just another cybernetic metaphor that seduces to conflate phenomena that any critical theory should rather differentiate: telecommunication switches from social networking, machine feedback from human interaction, computation from cognition, storage from memory, data from knowledge, syntax from semantics, and so on. The seemingly more critical, "rhizomatic" paradigm of the network does not change this logic, but merely its costume. (All the more, since the "rhizome" is a blatant biologism and vitalist figure of thought in itself.)

There's no doubt that machine logic and human practices do intersect, and that the Internet is a rich zone of their ambiguity; an ambiguity that continues to be highly productive for the fantastic imagination of Science Fiction novels, David Cronenberg movies, chat bots, net.art and codeworks, to name a few examples. But why is it a problematic figure of thought for critical theory? C.P. Snow's claim of the two cultures, humanities versus sciences, should be given a second thought as a sensible tool of differentiation; and indeed I would like to argue in favor of a network theory that clearly locates itself in

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[3]As Claus Pias' recent research has shown.

the humanities and cultural studies rather than faking scientific formalisms, simulating scientific interdisciplinarity and ultimately ending up as history of science and technology.[4] If semantic interpretation remains out of reach for computation and formal logic, it means the humanities are needed just as what Wilhelm Dilthey defined them in 1883: hermeneutic disciplines. Such humanities theory fashions as structuralism, analytic philosophy, cybernetic aesthetics and technical media theory never produced more than pretensions of hard scientific methods, adapting the latter's rhetoric without actually adopting their methods of formal proofs and quod erat demonstranda. So they ultimately produced what they had been opposed to, hermeneutic interpretations.

Failing to acknowledge crucial methodological differences to hard sciences, and suffering from a lingering inferiority complex or just buying into the hipness of technology, cultural studies often enough given up resistance to techno-positivist figures of thought. For example, a media studies scholar and cultural critic might consider it intellectually inspiring and provocative to reason about the "signal-noise ratio" of a mailing list. But for information theory and cybernetics, this terminology is neither a provocation, nor a metaphorical word play at all, but a no-nonsense superimposition of statistical formalisms onto cultural semantics. In the design of content filters for example, with all their problematic implications, this formalism is applied every day. If the role of critical humanities should be to critically take apart mappings of technological formalisms onto culture rather than indulge in them, then most media theory and criticism has been a blatant failure. Whatever media theory one takes, it continues to buy into all kinds of hypes and problematic cybernetic identifications; no matter whether they're more questionably called "artificial life" or go under cozier terms like "networking".

Literary studies tended to glorify the notion of text once they had turned into text theory. Art history tends to worship the image now that it has turned into visual studies. Both defend texts, respectively pictures, as inherently "good" and try to make each of them the master trope of all cultural theory. As a simultaneous outgrowth of media theory and Internet culture, Network studies runs similar inherent risks. A new network theory therefore needs to be a critical network theory, be built on the insight that networks – and the Internet – are

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[4]A problem of the contemporary German and continental European humanities and media studies in particular.

neither good or bad per se, nor universal models and descriptors of culture.

Feedback is not interaction, computation is not cognition, storage is not memory, data is not knowledge, telecommunication switches are not social networking. The cybernetic mapping is not the cultural territory. But this mapping is blatantly political and ideological in itself. We need a new network theory indeed: one that takes apart those identifications. Rather than taking all phenomena that get marketed as "networks" for face value, it would have to analyze and criticize the terminological webs and networks that are spun in between them.