

Anti-Media

STUDIES IN NETWORK CULTURES

Geert Lovink, Series Editor

This series of books investigates concepts and practices special to network cultures. Exploring the spectrum of new media and society, we see network cultures as a strategic term to enlist in diagnosing political and aesthetic developments in user-driven communications. Network cultures can be understood as social-technical formations under construction. They rapidly assemble, and can just as quickly disappear, creating a sense of spontaneity, transience and even uncertainty. Yet they are here to stay. However self-evident it is, collaboration is a foundation of network cultures. Working with others frequently brings about tensions that have no recourse to modern protocols of conflict resolution. Networks are not parliaments. How to conduct research within such a shifting environment is a key interest to this series.

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Anti-Media

Ephemera on Speculative Arts

Florian Cramer

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Institute of Network Cultures

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Introduction

Anti

While this book was in the making, an article in the online arts journal *Triple Canopy* almost destroyed it. ‘Speculative’ turned out to be one of most fashionable buzzwords in what authors Alix Rule and David Levine call ‘International Art English’ (‘IAE’).¹ Rule and Levine analyse the lingo of ‘the art-world press release’, particularly on the e-flux mailing list, and reconstruct how in the 1970s, French structuralist and German Frankfurt school jargon was imported into the canonical American arts journal *October*. From there, it mutated into today’s globalized, pseudo-scholarly contemporary art English. Rule and Levine predict the ‘implosion’ of this ‘decadent period of IAE’ along with art biennials and the globalized ‘curatorial’ art discourse. I hope that their prediction will be correct, although a renaissance of some naive or reactionary expressionist art could be the collateral damage.



Brad Troemel, What Relational Aesthetics Can Learn From 4Chan, 2010
Reproduced with the artist's kind permission

Rule's and Levine's paper is illustrated with a photograph of Liam Gillick's 2008 installation *Rescinded Production* (whose title is a great example of IAE). Artist Brad Troemel took a picture of the same work and superimposed the lettering: 'ART PRODUCED FROM THE SOCIAL INTERACTIONS OF A NETWORK OF PARTICIPANTS – YOU'RE DOING IT WRONG.' The first part of the sentence is a quote from Nicolas Bourriaud's *Relational Aesthetics*, the book that canonized the diffuse art practices that had risen, along with the curator as the new central figure of contemporary art, in the aftermath of *October's* discourse since the 1990s. People familiar with popular Internet culture will instantly recognize the format and typography of Troemel's image/text montage: it is one of the countless 'macros', or 'memes', that are produced every day (if not every minute) on 'imageboards' like 4chan.org, the breeding ground of the Internet's most vibrant popular culture, a culture best known for having created the Anonymous movement.

Beyond the Internet, imageboard memes and the Anonymous movement have arguably become the most vital popular visual culture phenomena of this time. This shows the relative powerlessness of 'curatorial' contemporary art concerning almost anything outside its own discourse. It was not always like that. 1960s and 1970s counterculture drew on audiovisual and performative forms of expression from happenings, Fluxus, underground experimental film, avant-garde electronic music and free jazz; punk aesthetics drew on Dada, lettrism and body art. The Guy Fawkes masks of the Anonymous movement, however, came from the Hollywood-adapted comic strip *V for Vendetta*, and most memes refer – in semantics that are often no less complex than Renaissance emblems and allegories – to mass cultural pop music, films or TV shows, while imageboards themselves originated in Japanese manga culture.

Next to 4chan, the rampant popularity of street art is another example that outside its own small universe, contemporary visual art has lost its edge for the larger contemporary culture. Which is a shame; because there is much to be criticized in the often simplistic and visually conventional notions of subversion both in imageboard memes and street art. In comparison to other arts – music and film, for example – the visual arts are an odd exception to the general convergence of former avant-garde and former popular culture, and former Western and for-

mer non-Western arts. Any issue of music magazine *Wire*, any critical film journal since *Cahiers du Cinéma* in the late 1950s, prove this, but no contemporary art journal.

The arts of the twentieth century could be read as the execution of the programmes that had been put down in nineteenth-century aesthetic philosophy, from Kant to Hegel, from the autonomy of art to the end of art. Before the eighteenth and nineteenth centuries, the notion of art or arts was much broader and more inclusive. The ‘liberal arts’, in the medieval and Renaissance meaning of the word – grammar/linguistics, logic, rhetoric, arithmetic, geometry, music, astronomy – would nowadays be called sciences (including music if one considers that in those times, music composition was considered applied mathematics). The lower, ‘mechanic’ arts included weaving, blacksmithing, war, navigation, agriculture, hunting, medicine and performing arts.

Velimir Chlebnikov’s poetry – which Roman Jakobson fused with francophone structuralist linguistics – was one of the first revisions of the eighteenth/nineteenth century rule of the aesthetic (and aestheticism) from Burke to Nietzsche; a revision from *aisthesis* to *poesis*, or from the principle of perception to the principle of making. Along with earlier tendencies such as the Arts and Crafts movement, this laid the ground for various DIY movements, from 1960s and 1980s counterculture to contemporary hack labs and the maker movement. If Duchamp took nineteenth-century philosophical aesthetics as a script to explore its extremes, including the end of art, then socially experimental avant-garde art groups of the twentieth century sought to go beyond that. Constructivism, Bauhaus, Fluxus and the situationists attempted to revise the notion of art by abandoning its autonomy.² Being against art, or practicing ‘anti-art’, first of all meant to be against autonomous, high art.

This meant to abandon, as in constructivism and the Fluxus promoted by George Maciunas and Henry Flynt, the difference between fine art and applied art, the difference between high and popular arts, ultimately the difference between activities conventionally considered art and activities conventionally considered non-art. Too often, the latter has been misunderstood as just another version of Friedrich Schlegel’s programme of a romanticist universal poetry that would ‘sometimes mix, sometimes fuse art and nature, make poetry social and alive and

make life and society poetic'. (Bourriaud's pompously named 'relational aesthetics' boils down to something quite similar.) The misunderstanding, even by many protagonists of these avant-garde groups in the 1920s and 1960s, was to simply have 'non-art' invade art spaces, a gesture repeated at the 2012 Berlin Biennial with its Occupy camp in the white cube; or conversely have 'art' invade 'everyday life', for example in street actions. In all these cases, the difference between art and non-art remained dialectically in place, never mind that radical programmes sought to abandon it. Joseph Beuys, a highly problematic figure with his left-nationalist missionary aspirations, summed it up in his formula that everyone was an artist, and accepted – among others – cooks and nurses into his Düsseldorf academy class.

To abandon autonomous art also meant to abolish a key difference between Western art and arts practice in non-Western countries where the concept of fine art (as opposed to applied art) traditionally doesn't exist. For Maciunas, the Western arts legacy was a major reason to leave Europe frustrated. He found it easier to collaborate with Japanese Fluxus members in New York.³ Ironically, the pre-eighteenth-century Western concept of 'arts' – in its broad sense of craft and science – was closer both to non-Western cultures and to what the twentieth-century avant-garde struggled to achieve. Arts and Crafts, the Black Mountain school and Fluxus ended up where Chinese Taoist philosopher Chuang Tzu had left off in the third century BC:

Cook Ting was cutting up an ox for Lord Wen-hui. As every touch of his hand, every heave of his shoulder, every move of his feet, every thrust of his knee – zip! zoop! He slithered the knife along with a zing, and all was in perfect rhythm, as though he were performing the dance of the Mulberry Grove or keeping time to the Ching-shou music.

'Ah, this is marvelous!' said Lord Wen-hui. 'Imagine skill reaching such heights!'

Cook Ting laid down his knife and replied, 'What I care about is the Way, which goes beyond skill. When I first began cutting up oxen, all I could see was the ox itself. After three years I no longer saw the whole ox. And now – now I go at it by spirit and don't look with my eyes. Perception and understanding have come to a stop

and spirit moves where it wants. I go along with the natural makeup, strike in the big hollows, guide the knife through the big openings, and following things as they are. So I never touch the smallest ligament or tendon, much less a main joint.

‘A good cook changes his knife once a year – because he cuts. A mediocre cook changes his knife once a month – because he hacks. I’ve had this knife of mine for nineteen years and I’ve cut up thousands of oxen with it, and yet the blade is as good as though it had just come from the grindstone. There are spaces between the joints, and the blade of the knife has really no thickness. If you insert what has no thickness into such spaces, then there’s plenty of room – more than enough for the blade to play about it. That’s why after nineteen years the blade of my knife is still as good as when it first came from the grindstone.

‘However, whenever I come to a complicated place, I size up the difficulties, tell myself to watch out and be careful, keep my eyes on what I’m doing, work very slowly, and move the knife with the greatest subtlety, until – flop! the whole thing comes apart like a clod of earth crumbling to the ground. I stand there holding the knife and look all around me, completely satisfied and reluctant to move on, and then I wipe off the knife and put it away.’

‘Excellent!’ said Lord Wen-hui. ‘I have heard the words of Cook Ting and learned how to care for life!’⁴

Within the New York Fluxus group, this concept of art seems to reverberate in minimal actions and event scripts like La Monte Young’s score card *Draw a Straight Line and Follow It*. On closer inspection, however, this piece ultimately privileges the aesthetics of the straight line over the activity (which, in Chuang Tzu, doesn’t follow any abstract ideal but finds it way organically), and thus in a Platonist-late romanticist tradition, idea over being and metaphysics over ontology. Western conceptual art, from its profound manifestations in artists like La Monte Young to its most dreadful ones like Gillick, has remained trapped in an idealism that begins with its very name. Its affinity to critical theory is often superficial if one considers that most Western philosophy, whether in the continental or in the analytic tradition, broke with idealism around the turn of the nineteenth and twentieth century.

Conceptual art is at the end point of an endeavour that artists began in the Renaissance when they sought to set themselves apart from the lower mechanical arts – the crafts – in order to be accepted into the ranks of the liberal arts, that is, the sciences. Consequently, they radicalized ‘concept’ as aesthetics, from Leonardo’s anatomical geometry to Sol LeWitt’s painting instructions – instructions that ultimately cemented a Platonist division between idea and matter, and intellectual and material labour, in the arts. Since Nietzsche and Heidegger, philosophers and cultural theorists had privileged the arts for the opposite reason – because they wanted to embrace and re-establish physical, material practices as philosophical, just like Chuang Tzu in his appreciation of the art of Cook Ting. In other words: artists strove to become artistic researchers because they no longer wanted to be considered the likes of cooks; and where they did cook – for example on the cover of Bourriaud’s *Relational Aesthetics* – then they did so not as a pure exercise of craftsmanship, but as its transcendence in a socioconceptual work. (Which is why the example of *Relational Aesthetics* is the very opposite of Food, the restaurant operated by Gordon Matta-Clark and other artists in 1971.) Scholars, on the other hand, strove to affiliate themselves with artists because they saw the work of cook Ting as underappreciated philosophies and their rescue from Platonist academia.

Media

From Marshall McLuhan to Friedrich Kittler, media theory has insisted on ‘media’ as the primal condition of all communication, art and thinking. Its similarity to anti-idealist philosophy is not coincidental; Heidegger’s post-war philosophy of technology as second nature and condition of being ever since the atom bomb has been an important point of departure for this school of thought. It’s somewhat ironic, in this light, that Jack Burnham’s 1970 exhibition ‘Software’ was both one of the first concept art and one of the first media art shows. It resolved this contradiction by insisting on the dematerialization of both contemporary art and information technology. (Similar ideas were advocated, around the same time, by art critics Lucy Lippard and Sidney Youngblood.)⁵

The very notion of ‘medium’, however, is loaded with too much idealist legacy to lend itself for onto-technological materialism. There are

two almost unrelated notions of 'media' that clash in art theory today: the notion of medium as a means of artistic expression, such as painting or sculpture, that has existed in English literature since the eighteenth century and continues to structure the study disciplines of most art academies in the world; and the notion of medium as a carrier of information that has its roots in nineteenth-century physics. The latter is closely related, as Raymond Williams notes, to the concept of the ether and even older physical concepts such as 'phlogiston' and 'caloric'.⁶ (In words like 'Ethernet' or the synonymous use of 'ether' and 'radio waves', this legacy remains alive today.)

The evasive concept of ether has been abandoned in modern physics. Likewise, 'medium' is hard to define. What, for example, is the medium in radio? The radio waves, or the air carrying them, or its molecules? This choice of definitions is still rather manageable because each of them relies on a narrow understanding of 'medium' as something in between a sender and a receiver. But when radio as a whole is called a 'medium', as is common even in media theory, then this differentiation is void. 'Medium' then also encompasses the sender, the receiver and even the editorial staff of a radio station. Aside from radios, TV sets and record players are also called 'media', although technically they are receivers; and electronic devices connected to the Internet are called 'media' although they are senders and receivers at once – let alone that the contents received and played back by them, such as music or video, are called 'media', too.

The tumorous expansion of 'media' from something in between senders and receivers to something that includes them all perfectly exemplifies what is called a metonymic shift of meaning in literary studies: when a word, instead of referring to only one particular object, also refers to things that are close to this object (such as 'paper' referring not just to the material but to a newspaper, or to an academic essay). In McLuhan's definition of media as 'the extension of man', 'media' even grows into a synonym of any technology. The knife of Chuang Tzu's cook would be, no doubt, a medium according to this definition; a Taoist might perhaps consider cook, knife and oxen one medium to the way (Tao) pursued in the cutting.

With their metonymies, terminological foggy and mix-up of technology and editorial institution, 'medium' and 'media' become latently paranoid figures of thought – all the more when media theory

glorifies them as a speaking subject that fills the void of the philosophically abandoned human subject. It's tempting to conversely abandon the notion of 'media' because of its pomp and fuzziness, but doing so, one would just swing to the opposite extreme. We can't rid ourselves of the word 'media' simply because of its wide use and great impact on contemporary culture and politics; an impact that has become even greater than that of 'art'. (For the same pragmatic reason, Henry Flynt's philosophical debunking of 'art' doesn't solve the problem either.)

A 1985 issue of *SMILE* – a zine that could be published by anyone, thus anticipating the shared identity of 'Anonymous' – contained an aphorism that is quoted elsewhere in this book:

Anti-art is art because it has entered into a dialectical dialogue with art, re-exposing contradictions that art has tried to conceal. To think that anti-art raises everything to the level of art is quite wrong. Anti-art exists only within the boundaries of art. Outside these boundaries it exists not as anti-art but as madness, bottle-racks and urinals.

A book called 'anti-media' can't help being about 'media' for the same reasons. The only difference is that 'media' lack boundaries where 'art' – in the sense of contemporary visual art rather than art in the broadest sense – has to draw them out of its own systemic and economic necessity. In both anti-art and anti-media, a love/hate relationship is undeniably at work. And both perhaps signify twentieth-century nostalgia, since the notion of creative industries may be about to make both terms obsolete.

Ephemera

1. In a near future, all paper publications may go the route of zines or artists' books – as publications that structurally rely on the tangibility and materiality of paper. In these and other non-electronic publication forms, from vinyl records to Super 8 films, the focus is shifting from the symbolic (words and numbers) to the indexical: the material as trace, and thus as information by itself, instead of being a bland carrier of information.

2. Zines are ephemeral and speculative by definition, and by their history that started with *The Comet* in 1930. They thus seem to affirm

the media theory truism that the medium defines the message it conveys (iconified in Nam June Paik's *TV Buddha*); but thinking of them as accumulated indexicality (traces making up a zine, a zine becoming a trace) yields a more complex picture.

3. Print books like this one have become odd in-betweens of e-books (no-frills medium for plain text publications) – and zines (indulgence in paper aesthetics).

4. The text of this book is a glorified zine, as an object it sorely lacks indexical quality. An indexical aesthetics needs to be written next.

5. In the 1980s and 1990s, I started as a zine writer/maker, by the second half of the 1990s, the Internet had become the new zine. Lately I've reverted to writing for print zines like Wilhelm Hein's and Annette Frick's *Jenseits der Trampelpfade*.

6. This book here suffers from its 2000s-ness and will not appeal to the people who are today's speculative arts/indexical media practitioners.

7. The oldest piece in this book is a computer-generated poem programmed on a Sinclair ZX81 home computer and printed in a self-published zine in 1985.

Speculative

In their research on International Art English, Rule and Levine note that: 'Usage of the word speculative spiked unaccountably in 2009; 2011 saw a sudden rage for rupture; transversal now seems poised to have its best year ever.'⁷ It was too late to change the subtitle of this book as it had already been announced by the publisher. In philosophy, speculative thinking is considered the opposite of empirical thinking; its reasoning is not purely based on down-to-earth facts. This applies just as much to speculative economics and investments. In literature, 'speculative' is often used as an attribute of philosophical science fiction and fantastic literature – from Borges to J.G. Ballard and Samuel Delany. Drawing on this tradition, Matthew Fuller proposed the term 'speculative software' as an alternative to 'software art'; he referred to 'software whose work is partly to reflexively investigate itself as software, software as science fiction, as mutant epistemology'.⁸ In Germany, the word 'speculative' had also been used for pulp novels and exploitation movies, particularly Jess Franco-style sexploitation, porn and Mondo flicks



*Dirk Paesmans from the artist duo jodi wearing an 'Anonymous' mask, 2010
Photo: Florian Cramer*

that 'speculate' on the voyeurism of their audience (in order to charge the same ticket price for a nearly-no budget film as for a big budget movie).

In this book, 'speculative arts' is meant to have all of the above connotations, and even more. The opposition between empirical and speculative thinking has often been reduced to the difference between Anglo-American analytic and continental European philosophy, with the philosophy movement of speculative realism continuing the latter tradition in the twenty-first century. Yet the Western notion of speculative philosophy had been much richer before the eighteenth century, just like the notion of art. In its most radical manifestations, in the medieval, Renaissance and seventeenth-century works of hermetic thinkers Ramon Llull, Giordano Bruno, Johann Valentin Andreae, Robert Fludd, Athanasius Kircher, Jan Amos Comenius and ultimately Quirinus Kuhlmann, speculative philosophy defied modern disciplinary distinctions between philosophy and poetics, mysticism and science, utopian fiction and even computing. In later centuries, the castrated (yet autonomous) arts provided the last resort for such comprehensively speculative practices, whether they were branded fiction (as in Jorge Luis Borges' *Ficciones*) or, for example, Net.art (as in the *mezangelle* of *mez breeze*).

Arts

In the subtitle of this book, 'arts' is meant to refer to the arts in the richer meaning they had before their confinement; the meaning they

had before the eighteenth century and after Fluxus. ‘Speculative’ preserves, with Borges and Fuller, the particular tradition of thinking that had been submerged into the more narrowly defined arts in the eighteenth century (even ruling it out of mainstream continental philosophy). This concept of speculative arts is by no means original or new, but has been straightforwardly stolen from, among others, philologists Gustav René Hocke and his 1957 book *Die Welt als Labyrinth. Manier und Manie in der europäischen Kunst* (*The World as Labyrinth. Mannerism and Mania in European Art*), who in turn followed the footsteps of philologists Benedetto Croce and Ernst Robert Curtius. When I was a teenager, Hocke inspired me to study literature and art history; his (admittedly romantic) impact is similar to that of Frances A. Yates’ speculative cultural histories of hermetic philosophy on the psychogeographical associations in the UK of the 1990s and on the Italian Luther Blissett project, another precursor of the Anonymous movement.

Whether or not it has been worn out by International Art English and speculative realism – a philosophy that seems to be strangely out of touch with the politics of speculation – ‘speculative’ was still preferable to its obvious alternatives: ‘experimental’ is firmly associated with empirical science, ‘utopian’ (used by my on-and-off collaborator Stewart Home in the subtitle of his 1988 book *The Assault on Culture*) is tainted with its Platonist heritage, ‘heterotopian’ (despite the fact that Michael Foucault coined it in an analysis of Borges) no less by the e-flux prose of International Art English.

The arts described in this book, from seventeenth century word permutation poetry to electroacoustic composition to anti-copyright subcultures to netporn, are ‘speculative’ in all meanings of the word, and will hopefully be understood as in the previous section, via eclectic accumulation rather than definition. ‘Speculative arts’ means more than just speculative thinking: speculative ways of making and being that transcend the traditional dichotomy of ‘theory’ and ‘practice’. This is also true of this book, which grew out of close participant observation of all of these phenomena, as criticism that gets its hands dirty.

I. ANTI

1. The Foul Promises of 'Interactivity' and 'Openness' Rereading 'Art, Power and Communication' in 2008

One ought to think that it's a waste of time to give 'interactive media' and 'interactive art' any more serious thought; that there's a broad consensus that these were false promises and sunken big budget ships of late 1980s and early 1990s institutional laboratory art founded on such wacky ideas as – in the case of the German ZKM – 'the Bauhaus of Second Modernism'. We should be only a couple of years away from a time where these monstrosities will be turned into pop culture and celebrated as period kitsch, with the installations of Jeffrey Shaw and company representing 1990s retro kitsch next to *Star Trek* props for the 1960s, flokati rugs for the 1970s and Commodore home computers for the 1980s. Still, the discourse of 'interactive' media and art doesn't go away – not only from my Dutch perspective, in a country where respective projects and discussions still abound, but as any survey of the terminology used on the home pages of art school media programmes and electronic arts institutions does confirm.

It not only means that we're still stuck in the 1990s, but even worse, still in the late 1940s. In a media context, 'interactivity' is synonymous with what was called feedback in cybernetics. This is all the less surprising when taking into account that, after the collapse of cybernetics as an academic and institutional discipline around 1970, media studies became its stealth successor in the field of arts, humanities and social research, working with the same paradigms yet new terminology. Cybernetic feedback is based on an ultimately behaviourist proposition: that the interplays of humans and machines – among themselves and between each other – can be described using one stimulus/response model.

A good example would be the feedback regulation loop between a room, a person and a heater: if it's too cold in the room, the person will turn up the heater, if it subsequently becomes too hot, the person will turn it down again. In this setting, the person could be replaced with a thermostat because it performs the same action. The interaction model of electronic media is structurally the same: it is a stimulus/response chain predetermined by the functional range (that is: possible states) of the machine. In simpler terms, a glorified remote control if – as Lev Manovich points out – the user has no privilege of programming the

system. But even if he or she could, the 'interaction' would be limited to the possible, predefined states of the machine that the programming may evoke. It is pseudo-interaction at the lowest common denominator of machine functions. Unless one still believes, as in the 1940s, in true artificial intelligence, it is a blatant reductionism of the broad anthropological notion of interaction to primitive stimulus-response formalisms, in utter ignorance of the actual scope and complexity of human interaction. There is, in other words, no such thing as true interaction in a technical device. In computer programming, the term is used rather sloppily and colloquially for software that requires user input (such as a web form, or a word processor) versus software that runs without questions asked (such as a print spooler or web server).

While there is, in other words, no such thing as 'interactive media' or 'interactive technology' if one doesn't reduce the notion of interaction to machine feedback, interaction technology and interaction design can and do exist – that is, technology and media that enable and constrain particular human interactions. Language might be the first and most important technology to be named here, architecture is a close second: the possibilities opened up and constraints imposed upon human interaction and communication by language, the constraints and options of human interaction created by the architecture of buildings, cities and landscapes. Nowadays, this also includes information protocols and information architectures, such as the famous 1990s example of AOL chat rooms being limited to 12 participants and banning conversations on AOL. In other words, information technology is 'interactive' only to the degree that it defines platforms of interaction – making it, just like architecture, both powerful and limited.

While it seems long overdue to bash people for bottling old cybernetic wine in new 'interactive' media wineskins and clinging to outmoded mechanistic and behaviourist models of culture, this critique is not new. It is the very critique with which Net.art put itself on the map more than a decade ago. In his 1996 manifesto 'Art, Power and Communication', net artist Alexei Shulgin writes:

Looking at very popular media art form such as 'interactive installation' I always wonder how people (viewers) are excited about this new way of manipulation on them. It seems that manipulation is

the only form of communication they know and can appreciate. They are happily following very few options given to them by artists: press left or right button, jump or sit. Their manipulators artists feel that and are using seduces of newest technologies (future now!) to involve people in their pseudo-interactive games obviously based on banal will for power. [sic]¹

Shulgin hits where it hurts when he points out: 'But what nice words you can hear around it: interaction, interface for self-expression, artificial intelligence, communication even. So, emergence of media art is characterised by transition from representation to manipulation.'²

What he describes, in hands-on terms, is a postmodern common-sense loosely adopted from Deleuze/Guattari that shuns representation only in order to replace it with organic figures of thought and 'alternative' cybernetics based on the same paradigms of identification, non-differentiation and control. The early Net.art of Shulgin, jodi, Vuc Cosic and others could conversely be characterized as turning manipulation back into representations of manipulation and control, as in exposure of errors, codes and the 'constructedness' of information technology.

Nevertheless, it seems as if the sharp opposition to the institutional establishment of 'interactive' art and media has mellowed and become fuzzy over the decade. The controversies and discussions have ebbed, sharp distinctions no longer exist, and for non-insiders, 'media art' exhibitions and festivals look like one solid block that still perpetuates the old false technological promises. While 'interactivity' remains the radioactive cadaver and zombie that never seems to die, its rhetoric has been largely replaced by that of 'openness', in notions such as Open Source, Open Content, Open Access, open technology and even open society. 'Openness' is the biggest red herring of the IT industry. Software like OpenVMS, HP OpenCall, Apple OpenFirmware, Novell OpenDOS, SCO OpenServer, file formats like Microsoft Office Open XML and websites like OpenBC and OpenID demonstrate how the word 'open' is the standard newspeak for a product not being open. But ultimately, the ideology that equates technological openness with social openness is based on cybernetic thinking just as much as on the ideology of interactivity, since it flatly conflates society and technology. In the field of media studies the word 'network', often used as a positive political token

with Deleuze/Guattari's 'rhizome' as its philosophical underpinning, is another such unquestioned cybernetic, mechanistic dispositive.

Karl Popper's *Open Society and Its Enemies* (1945) provides a blueprint for the technopolitical notion of openness even though it only gives a negative definition of open, democratic society as not being based on the terror of grand philosophical ideas, but trial and error. His model is a cybernetics in itself because it applies the observations he made in his earlier book *Logic of Scientific Discovery* (1934), which observes a principle of falsification of established principles in experimental science and applies this to society. Although more rigorous and less deceptive, the computer industry's use of the attributes 'open', 'freedom' and 'openness' in Free Software and Open Source are founded on an exactly equivalent negative philosophy: the openness and freedom of not to having to accept someone else's control over a product and technology and being able to modify it into something different if necessary.

In the same years, Austrian-American biologist Karl Ludwig von Bertalanffy developed his theory of 'open systems' which, by the end of the 1940s, he had put into a framework of a General Systems Theory that – as a school of cybernetics – encompassed both nature and culture, and science and politics, stating that both in a biological and a political sense, closed systems were not sustainable because they would die of entropy. Austrian-American economist F.A. Hayek, a mentor of Milton Friedman and the later Chicago School of Economics, was close friends with both Popper and Bertalanffy. They all provide strong clues for the historical foundations of the equation of 'open technology = open society' within a larger field of post-1945 Cold War liberal politics. George Soros's Open Society Institute, the major sponsor of early Net.art and network cultural conferences and publications in the 1990s,³ pays homage to Popper in its very name.

Largely excluded in discussions of openness or the higher-level model of a programmer's interaction with technology, according to Manovich, is the issue of hardware; hardware not in Heideggerian ontological terms as in Friedrich Kittler's media theory, but from the perspective of material production. Nowhere are the limitations and ugly flipside of the technological notion of 'openness' more visible than in 'One Laptop per Child' (OLPC), the project of outfitting schoolchildren in poor regions of the world with an inexpensive computer built using only free software

and open hardware designs. Just like the Internet and ultimately free software itself, it wouldn't exist as a mass product without the slave labour in Chinese special economic zones that made electronic hardware cheap.⁴ In other words – and as my colleague Calum Selkirk pointed out – the OLPC project is ultimately cynical in meeting its objective through the slave labour of the very people it pretends to serve.

Is it okay to be a Luddite? This question was famously asked by Thomas Pynchon in 1985.⁵ His optimism that '[i]f our world survives, the next great challenge to watch out for will come – you heard it here first – when the curves of research and development in artificial intelligence, molecular biology and robotics all converge', resulting in something 'amazing and unpredictable', seems quite dated given that we're still dealing with the same structural limitations of computer technology as in the 1940s, and that primitive cybernetic feedback logic has just been scantily masked by coating it with user-interface sugar. Shulgin concludes with good advice: 'Don't be dependent on the medium you are working with – this will help you to easily give it up. Don't become a Master.'

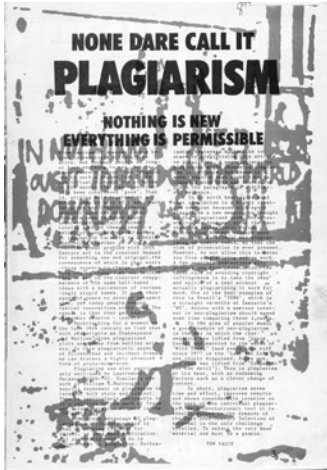
2. Anti-Copyright in Artistic Subcultures 'From Lautréamont Onwards ...'

The term 'open content' was coined in 1998 by university professor David Wiley, in the same year in which 'Open Source' became a popular moniker for the world of GNU, Linux and BSD software. It took a few more years until, with Wikipedia and *Creative Commons*, this application of software licensing principles to traditional media gained momentum. Yet the underlying idea of allowing works to be more freely used than under default copyright provisions wasn't new at all. In the 1930s, American folk singer Woodie Guthrie printed his songbooks with the following remark:

This song is Copyrighted in the U.S. under Seal of Copyright #154085, for a period of 28 years, and anybody caught singin it without our permission will be mighty good friends of ours, cause we don't give a dern. Publish it. Write it. Sing it. Swing to it. Yodel it. We wrote it, that's all we wanted to do.¹

Between 1958 and 1969, the Paris-based journal of the Situationist International, an artistic and political avant-garde group, appeared with the following, more formal imprint: 'All texts published in *Internationale Situationniste* may be freely reproduced, translated or edited, even without mention of origin.'²

By lifting restrictions on copying, performing, editing and even publishing an edited work, Guthrie's and the situationist policies meet all criteria of a free or Open Source license given by the Free Software Foundation, in the *Debian Free Software Guidelines* and the *Open Source Definition*. But Guthrie is closer in spirit to contemporary Open Source and Free Software culture because he still maintains his copyright while permitting free use. Likewise, the 'copyleft' of the GNU General Public License (GPL) is not anti-copyright. Its policy that works derived from a GNU-licensed work may only be published under the same GNU license tactically uses copyright in order to ensure a non-proprietary circulation of code. The notion of plagiarism and law-breaking copyright infringement also exists in GNU culture, for example, when copylefted code is used in non-free software, or when the copyright notice of a GNU program has been removed.³



Tom Vague, 'None Dare Call It Plagiarism', published in: *VAGUE* #18/19, *Control Data Manual*, London, 1987, p. 3

There is thus a difference between a Guthrie-style, generous exercise of one's copyright and an outright refusal of copyright and 'intellectual property'. This contradiction is as easy to overlook as it is characteristic for artistic and activist subcultures, their internal misunderstandings and ill-forged alliances.

With articles on situationism, terrorism, William S. Burroughs and political conspiracies, the zine *VAGUE* played a seminal role in defining London's radical chic of the late 1980s. Besides editor Tom Vague, a major force behind the paper was Jamie Reid, previously the graphic designer for the *Sex Pistols* and publisher of the situationist-influenced political underground magazine

Suburban Press. With the slogan ‘No Copyrights. No Rights Reserved’ and authorial credits to ‘the poor plagiarised souls that didn’t know’, *VAGUE*’s imprint radicalized situationist non-copyright into polemical anti-copyright. Under the headline ‘None dare call it plagiarism’, the editorial of issue 18/19 reasons that:

From Lautréamont onwards it has become increasingly difficult to write. Not because people no longer have anything to say, but because Western society has fragmented to such a degree that it is now virtually impossible to write in the manner that has traditionally been considered ‘good’.⁴

The text concludes: ‘In short, plagiarism saves time and effort, improves results and shows considerable initiative on the part of the individual plagiarist.’

While the text is signed with the name of editor Tom Vague, the passages quoted above were copied literally and without attribution from an issue of *SMILE*, an underground magazine published by multiple editors independently of each other. In turn, a later *SMILE* issue lifted the cover illustration of *VAGUE* #18/19, a photograph of two Molotov cocktails.

The name *SMILE* is a travesty of *FILE*, a paper published by Canadian artist group General Idea that originally imitated the graphic design of *LIFE* magazine. *FILE* in turn had been parodied by Anna Banana’s mail art periodical *VILE* and Bradley Lastname’s fanzine *BILE* in the early 1980s. *SMILE* mutated, among other things, into *MILES*, *SLIME*, *LIMES*, *LISME*, *EMILS*, *C-NILE* and *iMmortal LIES*. As an ‘international magazine of multiple origins’, it appeared in more than 100 known issues published by different editors in Europe, America and Australia, many of whom adopted the collective pseudonyms Karen Eliot and Monty Cantsin. Implicitly criticizing the ‘From Lautréamont onwards ...’ manifesto, a US-American *SMILE* issue from 1986 attacks ‘reactionaries’ who:

... will always mistake this refusal to participate in the artificial separation between the ‘rational’ and ‘irrational’ for an inversion

of the control structure of social relations, strengthen[ing] this misconception by attempting to show a historical line running from Lautréamont onwards, and by this linear method avoiding the central paradox of such criticisms.⁵

Slightly abridged and attributed to Luther Blissett, the *SMILE* manifesto 'From Lautréamont onwards . . .' reappears in the book *Mind Invaders* in 1997.⁶ The very first version of the text was most likely written by *SMILE*'s initiator Stewart Home and inspired by at least three concepts and currents: the situationist method of *détournement*, itself an adaptation of Lautréamont's notion of plagiarism, the 1980s American appropriation art of Sherry Levine and Richard Prince, and Kathy Acker's postmodern poetics of plagiarism in her own pop novels. Neither Home, nor other editors of *SMILE* and *VAGUE*, were aware of the manifesto *Imagination as Playgiarism* written by American experimental novelist Raymond Federman in 1976, a point of reference for Acker. According to Federman:

Imagination does not invent the SOMETHING-NEW we too often attribute to it, but rather . . . (consciously or unconsciously) it merely imitates, copies, repeats, proliferates – plagiarizes in other words – what has always been there. For indeed, as it was once said: Plagiarism is the basis for all works of art, except, of course, the first one, which is unknown.⁷

Luther Blissett is another multiple-use identity, modelled after *SMILE*'s Monty Cantsin and Karen Eliot. It was launched as a mass media phantom in 1994 in Italy; in 1999, the initiators declared his 'seppuku', ritual suicide. Still under the Blissett moniker, the group published *Q*, a historical novel that tells the history of Italian counterculture in the disguise of the reformation age. The book became an international bestseller while its imprint permits copying and redistribution for non-commercial purposes. Not only is this clause closer to Guthrie than to anti-copyright, written in conventional narrative prose, the book disagrees – implicitly, but clearly enough – with the statement that writing had become more difficult after Lautréamont.

There are yet more variants of the latter manifest. One of them is

signed by American Plunderphonics band The Tape-beatles and attempts to shift the argument to music:

From Stockhausen onwards it has become increasingly difficult to create new music. Not because people no longer have anything to say, but because Western society has fragmented to such a degree that it is now virtually impossible to write in the style of classical, coherent compositions.⁸

The final sentence of the text, 'plagiarism saves time and effort . . .', can also be found in an Internet essay 'Plagiarism and Why You Should Use It'⁹ signed Luther Blissett and published on the (nowadays defunct) website of the *phutile international*, a movement that advocates 'Phutilitarianism' as an 'open source philosophy' and has links to the fanzine *Semtext*, a parody of *Semiotext(e)*.¹⁰

In special issue 'Copy Culture' of art journal *New Observations*, edited in 1994 by Lloyd Dunn and other anti-copyright activists from the periphery of The Tape-beatles, it is claimed that 'Homer was the first Karen Eliot'. Similar arguments can be found both in contemporary Open Source debates and in those published by Dunn in the late 1980s and early 1990s in his small-press magazines *Photostatic/Retrofuturism* and *YAWN*.¹¹ Their most annoying variants recur to categories of natural justice or even laws of and freedoms given by nature. The agrarian rhetoric of 'the creative commons' has a questionable implication of culture as something organically grown rather than socially constructed. 'The commons', based on natural right, and anti-copyright, based on rethinking culture, represent these two opposite schools of thought.

The following statement on anti-art, published in *SMILE* 8 in 1985, applies to anti-copyright as well:

Anti-art is art because it has entered into a dialectical dialogue with art, re-exposing contradictions that art has tried to conceal. To think that anti-art raises everything to the level of art is quite wrong. Anti-art exists only within the boundaries of art. Outside these boundaries it exists not as anti-art but as madness, bottle-racks and urinals.

Anti-copyright likewise exists only in its dialectics to copyright, whose contradictions it exposes. Therefore, Homer is not the first Karen Eliot or Luther Blissett. Artists from other eras and cultures that don't have strong notions and politics of intellectual ownership can't be either. Most conceptions of God-given 'commons' don't have more solid ground than wishful romantic thinking. The Situationist International – and its predecessor, the Lettrist International – and Open Source culture even have a common reference for their philosophies of sharing, Marcel Mauss's anthropological study *The Gift* from 1924. Based, among other things, on Bronislaw Malinowski's field research, Mauss's text describes the 'gift economy' of Native American potlatch celebrations.¹² 'Potlatch' was adopted as the name of the bulletin of the Lettrist International, edited by Guy Debord. 'Gift economy' was the key term used in 1998 both by rightwing libertarian Open Source evangelist Eric S. Raymond and leftwing media scholar Richard Barbrook to describe the free exchange of software and information on the Internet¹³ – with Raymond mixing it with crudest behaviourist, Darwinist and home-brew-anthropological theories.

Both the situationists and Barbrook, but also Raymond, omit the fact that there is nothing romantic about Mauss's gift economies. They simply are capitalist economies with a reversed business model, forcing their subjects to spend rather than to sell – much like global consumer economics today. Nevertheless, 'gift cultures' lent themselves to perfect utopian-exotic projection, with the dialectical implication that the culture of 'intellectual property' was a purely Western and, to bring Homer back into game, fairly recent construction; in other words, a cultural and historical degeneration from which one had to go back to nature. Provisions against the free use and reuse of works, however, can be found in almost any time and at almost any place where the concept of artistic individuality existed. The notion of plagiarism was coined by Latin poet Martial, who accused a competitor of *plagium*, the kidnapping of his verse.¹⁴ In the European Middle Ages, individual troubadours insisted on the exclusiveness not of the contents, but the verse forms of their poetry.

Not only does Internet culture step into the mud with its popular agrarian metaphors of the 'commons' and the 'rhizome'. The well-known theories of literary intertextuality and the death of the author,

with their footprints in Federman, Acker and finally *SMILE* and *VAGUE*, historically date back to the way Russian critic Michail Bakhtin was perceived in the late 1960s by the structuralists in the Parisian Tel Quel group, most notably Julia Kristeva. They thoroughly misread Bakhtin as a Russian formalist and his theory of literary 'dialogism' as structuralist, a myth still alive today. In the late 1920s, Bakhtin had observed in Dostoevsky's novels that their text masks itself by speaking the language of its characters. Later, he identified masks and parody as the distinctive quality of the novel per se. Taking Rabelais' grotesque novels as an example, 'novelism' thus has its root in popular comic culture and the carnivalesque parody of official discourse and high art.

With this theory, Bakhtin was not a formalist or structuralist. In his advocacy of folk culture, he neither fully contradicted the cultural politics of the 1930s¹⁵ nor nineteenth-century romanticist philology with its praise of folk songs, folk tales and popular epics. The concepts of 'collective intelligence' and 'wisdom of crowds' in contemporary Internet culture follow the same tradition. Wikipedia's forced-upon editorial consensus and the prevailing mainstream aesthetics of open-licensed 'user-generated content' reveal the dark flipside of the 'commons' as a liberal variant of 'popular instinct' ideologies – *gesundes Volksempfinden* in German.

But upon close inspection, humorist and parodist appropriation strategies can't easily be compared to anti-copyright. A few years after launching *SMILE*, Stewart Home conceded that, from a plagiarist standpoint, it would have been better to name the magazine *FILE*, like General Idea's.¹⁶ Keenly reflecting the difference between plagiarism and parody, Raymond Federman called his own poetics 'playgiarism' with a 'y'. A Bakhtinian literary counter-canon, with the novels of Rabelais, Cervantes and Jean Paul, would fit its bill, likewise the use and reuse of themes and motives in seventeenth-century music or Caravaggio's and Rubens' workshop painting.

Plagiarism's simulated novelty reciprocally corresponds to the simulated historicity of fakes. Most religions and Gnostic schools of thought have been founded on backdated pseudoepigrapha,¹⁷ and names of prophets and evangelists collectively used over generations. Rather than Homer, Hermes Trismegistus and Christian Rosenkreutz could be called Monty Cantsin's and Luther Blissett's ancestors. And indeed,

these connections have been made by the Cantsin and Blissett activists themselves, for example in the early *SMILE* issues of English Neoist Pete Scott:

The concept of plagiarism, after all, is implicit in the concept of writing, and Thoth must therefore be regarded as the god of plagiarism, Lord of the plagiaristic process. It is for this reason that all future *SMILE* editions should be consecrated to his name.¹⁸

In the same issue, Scott rephrases the early seventeenth-century history of the original Rosicrucian manifestos, 'Fama', 'Confessio' and 'The Chymical Wedding of Christian Rosenkreutz':

The Neoists first made themselves known to the world in the early 1970s when a document was circulated throughout the United States. This manuscript, known as the Fama, declared to the world the existence of an international brotherhood known as the Neoist Conspiracy, whose purpose was to bring about a new age of enlightenment. . . . Later in the 1970s a second Neoist document appeared in the States and was widely circulated throughout Canada and Europe. Once again the anonymous authors urged the same response. The third and final document in this initial series was published in Quebec in 1980. It was known as The Chemical Wedding of Monty Cantsin.

Scott anticipated the later attempt of, among others, the subcultural London Psychogeographical Association to reinterpret situationist psychogeography and other countercultural practices in terms of hermetic philosophy. In another text, he calls Monty Cantsin, along the lines of Trismegistus and Rosenkreutz, 'something between an enigma and an institution'.¹⁹ But just as anti-copyright dialectically mirrors copyright, this describes only one side of Cantsin, Eliot and Blissett. As open-use identities, they also destroy enigma and institutions. In the end, they neither resolve in hermetic philosophy nor in folk culture.

In other words: all attempts of dating back anti-copyright or identifying it with popular culture fail upon closer scrutiny. As said in the phrase 'From Lautréamont onwards', no explicit poetics of plagiarism can be found before the late nineteenth century. Lautréamont's *Poésies*



THE FESTIVAL OF
PLAGIARISM Transmission
Galerie, Glasgow, Scotland, August,
1989. Photograph by Lloyd Dain.

insular and not directly engaged in culture as a whole, although it seems quite adept at creating its own "culture". Plagiarism nearly fills the bill by making use of pre-existing information, changing it, and then putting it back out to circulate again, a glitch in the video of constructed reality. Personally, I am something of a waltz-bazee. This

phrase the anti-copyright recipe for *VAGUE*, *SMILE* and company: 'Plagiarism is necessary. It is implied in the idea of progress. It clasps the author's sentence tight, uses his expressions, eliminates a false idea, replaces it with the right idea.'²⁰

Throughout the twentieth century, this quote has been perpetuated and mutated again and again. First, the situationists appropriated Lautréamont's 'plagiarism' and renamed it *détournement*. The Hegelian notion of progress in Lautréamont's text, somewhat paradoxically linked to plagiarism, caters to the Situationist International and its self-perception as, on the one hand, an avant-garde in a time where artistic and political avant-gardes have become historical, while on the other still pursuing Marxist political utopias. Along these lines, the situationist *détournement* combines Lautréamont's 'plagiarism' with Brecht's *Verfremdungseffekt* (estrangement effect). An early situationist text honours Brecht's Berlin-based *Theater am Schiffbauerdamm*, nowadays *Berliner Ensemble*: 'In the workers states only the experimentation carried out by Brecht in Berlin, insofar as it puts into question the classic spectacle notion, is close to the constructions that matter for us today.'²¹ Thirty years later, *SMILE* and its allies translated *détournement* back into 'plagiarism'. Through the 'ism' suffix in the English word, differing from *plagiat* in French and other European languages, the denotation of a method – plagiarizing – could be given the connotation of an artistic movement.

Plagiarism

Aside from its theory on Homer as Karen Eliot, the 'Copy Culture' issue of *New Observations* contained a report of the Festival of Plagiarism Glasgow, 1989, the fifth and last of a series of events that began in London in 1988 and continued in San Francisco, Madison and Braunschweig. The form of small, self-organized festivals had been adapted from the earlier Neoist Apartment Festivals (APTs). The APTs, in turn, borrowed from the Fluxus festivals of the 1960s. The eleventh issue of *SMILE*, published for the Glasgow festival, exemplifies these borrowings. The cover headline, 'Demolish Serious Culture', is plagiarized from a banner from Henry Flynt's picketing of a Stockhausen concert in New York's Lincoln Center. The *SMILE* issue even includes an interview with Flynt, a philosopher and anti-art theoretician originally associated with Fluxus. Five years later, in 1994, the London-based

Neoist Alliance plagiarized Flynt's complete intervention during a Stockhausen concert in Brighton.

A photograph above the headline appropriates the *Drip Music* of Fluxus artist George Brecht, an early 'Fluxus event' score. It shows Stewart Home in almost the same pose as George Maciunas performing the piece in 1962 at the first Fluxus festival in Wiesbaden. In a perfect match, plagiarized Fluxus performances had been scheduled for the sixth day of the Glasgow festival.

All these examples represent marginal plagiarism of art that was marginal itself. This contradicts the Festival of Plagiarism in its claims of challenging the contemporary art system as a whole and questioning the notion of art. For sure, Fluxus already had become part of the 'serious culture' canon in the 1980s. Its plagiarism in Glasgow and, four years earlier, on the Fluxus day of the ninth Neoist Apartment Festival in Ponte Nossa, however, didn't provoke any art establishment, but ended up rather as a historical homage.

A photograph included in the festival report of *New Observations* is telling about the institutional conditions and choice of material at the Festivals of Plagiarism. It shows the interior of an alternative art space. In the foreground, there is a photocopier machine, the rest of the room is filled with photocopied pamphlets, self-made T-shirts and collage work on the walls. Not visible in this picture are other materials used at the festival, such as VHS video and audio cassettes. All media are analog. Nevertheless, most printed matter was already designed using desktop publishing software. Anti-copyright activists hadn't yet realized the plagiarist potential of digital information processing in 1989, although BBS culture and a computer underground already existed. The single exception at the festival was a computer game programmed by Graham Harwood and shown in the exhibition. Otherwise, computers were merely used as an authoring tool for analog text, image and sound media. With its gallery space and its use of media, the festival clearly puts itself into a contemporary art context. At the same time, the media are emblematic for subculture and amateur art practices:

- The photocopier is the production device of fanzine culture;
 - Collages and photocopies were the primary media of mail art.
- With its origins in Ray Johnson's *New York Correspondence School*,

mail art mainly served the role of networking amateur artists whose work was modelled on Dada and Fluxus;²²

- Audio cassettes were, in the 1980s, the medium of a subculture of self-produced and home-recorded underground music.

These media and their aesthetic shaped both the Festivals of Plagiarism and related anti-copyright publications. Lloyd Dunn's small-press magazine *PhotoStatic/Retrofuturism* became, within the confines of its distribution, an international debate and theory forum of the Plagiarism campaign. As its name makes obvious, *PhotoStatic*'s origins were in mail art and photocopy art, too. Starting with issue 29 in 1988, it incorporated the supplement *Retrofuturism*. Edited by the Plunderphonics band Tape-beatles, it injected the Plagiarism campaign into its parent magazine. *Retrofuturism* first occupied the lower quarter of every *PhotoStatic* page, later half, until it merged with *PhotoStatic* into a periodical which, next to *VAGUE* and *SMILE*, substantially contributed to the renaissance of situationist theory in artistic subcultures from the late 1980s on.

Unlike its British cousins, which to a large extent were about their own radical chic and subcultural brand, *PhotoStatic/Retrofuturism* was more interested in gathering as many different and diverse voices in the plagiarism debate as possible. Editor Lloyd Dunn took advantage of the fact that self-published zines were a subcultural mass phenomenon in late 1980s and early 1990s North America. Before the popular breakthrough of the Internet, zine publishing amounted to a vital net culture. Around 1990, the meta zine *Factsheet Five* reviewed more than 1,300 different zines in each of its own issues. As part of this net culture, *SMILE*, *VAGUE*, *PhotoStatic/Retrofuturism* and the Festivals of Plagiarism could inject their discourse into mail art and related subcultures like underground cassette music, tactically disturbing and thus involving them.

Since its beginnings, the mail art network had an implicit humanist ethic of democratic, open participation art. Habermas's discourse ethics provides a good blueprint for describing the ideal of egalitarian communication in mail art. That also goes for its flipside, seeking consensus and avoiding conflict. In 1991, American anarchist Bob Black characterized mail art as an art system whose relation to the official system of contemporary art was equivalent to the Paralympics versus the Olympics. Mail art, according to Black, is not truly egalitarian, but just

uses different criteria of reward. Like cliques, mail art wouldn't honour the quality, but the quantity of participation and base its covert internal star system on that criterion.

Studying mail art archives and anthologies, one indeed gets a quick grasp of how its bulk boils down to poor copies of Dada, Fluxus and conceptual art, copies whose poverty is, above all, not reflected or turned into an artistic strategy; in other words: naive experimental art. Disturbing its belief in creativity, the *Plagiarism* campaign thus brought up a painful subject. But the Festivals of Plagiarism, *SMILE*, *VAGUE*, *PhotoStatic/Retrofuturism* and the campaign for an art strike between 1990 and 1993 almost completely failed to reach the institutional contemporary art system – although historical conditions had provided a good opportunity. In the late 1980s, the contemporary art market overheated and went through a crisis soon after. In some countries, like France, it never fully recovered. But the art strike campaign lacked the competence, language and networks for infiltrating the official art system.

Even the provocation of subcultural credos of communication and creativity lost its edge fast. The Plagiarism campaigns required an aesthetic, communication platforms and participants. For lack of alternatives, they were all taken from mail art. Mail artists stood by as contributors because they were used to more or less arbitrarily providing subcultural exhibitions, festivals and publication with their rubber stamp and Xerox art work. They quickly took over the Festivals of Plagiarism. A good example is the two print publications by American artist duo *Xexoxial Endarchy* (Liz Was and Miekal And) made in 1988 for the first Festival of Plagiarism in London: a fake Lewis Carroll book and a fake Maya codex passed off as the oldest manifesto of artistic plagiarism. While both works sound interesting, they were executed with little artistic effort, as quick collages of blown-up text and image fragments. The photocopied covers, with their amateur typography, leave no doubt that this is typical mail art and not a believable fake. This is all the more ironic given that the aesthetic and technological constraints of Xerox copying could have been perfectly used for forging a samizdat copy of a supposedly lost or shut-away manuscript; needless to mention how that would have been an incomparably more radical reflection of artistic authorship, intellectual property and institutional authority.

The mail art aesthetics of the Festivals of Plagiarism was soon criticized from within the anti-copyright movement, most fiercely in two pamphlets anonymously published in Baltimore. In the leaflet *History Begins Where Life Ends*, a rebuttal to Stewart Home's 1993 talk 'Assessing the Art Strike' at the ICA London, the Neoist tENTATIVELY, a cONVENIENCE writes:

No matter that the Festivals of Plagiarism were mainly art shows for collages & copy art & paintings & other such banal pictorial forms. No matter that Festivals of Recycling might have been more accurate descriptions. The important thing is that by virtue of calling the act of reusing & changing previously existing material (not even always with the intention of critiquing said material) 'Plagiarism', the appearance of being 'radical' could be given to people whose work was otherwise straight out of art school teachings. If the process of reusing had been called something so uncontroversial as 'recycling' the festivals would have seemed more like the product of 'outmoded hippie liberals' & wouldn't have sold nearly as well.²³

The second pamphlet, written by the Neoist, experimental musician and subcultural activist John Berndt, appeared in a *SMILE* issue where it was put next to a photographic re-enactment of the cover picture of the Glasgow *SMILE* issue. The plagiarism of the plagiarism of George Brecht's 'Drip Music', its caption falsely claims that Brecht himself (and not Berndt) was to be seen on it. Having participated in the London Festival of Plagiarism organized by Stewart Home and Graham Harwood in 1988, Berndt found that

a repetitive critique of 'ownership' and 'originality' in culture was juxtaposed with collective events, in which a majority of participants did not explicitly agree with the polemics. Many of the participants simply wanted to have their 'aesthetic' and vaguely political artwork exposed, and found the festival a receptive vehicle for doing so. Throughout much of these ideas loomed 'abstract' questions of power, even at the level of event organization. In a very obvious way, 'activists' were structuring events and language to give weight to a programmatic agenda of ideas. At the same time, there was considerable dissent as to what those ideas consisted of.²⁴

Berndt concludes with a call for a Festival of Censorship, arguing that freedom of plagiarizing can only exist if monopolies of censorship have been abolished. Censorship, he writes, is more populist than plagiarism because it doesn't require previous knowledge of sources. The duality of plagiarism and censorship can indeed be backed up with linguistics and semiotics: every plagiarist selection and duplication of a sign implies a decision against selecting a different sign. Naive mail art, the recycling of the Festivals of Plagiarism and, one decade later, debates on free Internet culture systematically ignored this negativity. They exemplify how anti-censorship rhetoric is censored in itself, as if to prove Lautréamont's original statement about plagiarism which 'eliminates a false idea' and 'replaces it with the right idea' with its dialectic of multiplication and repression.

Critique of Plagiarism

Pretending to disrupt the contemporary art system while a lack of competence and rigour kept them stuck in subcultural marginality, the anti-copyright and Art Strike campaigns of the Festivals of Plagiarism quickly collapsed. For a real provocation and disruption, they would have had to plagiarize established contemporary art and its social orchestrations rather than their own ghetto aesthetic. On top of that, American appropriation art had already played that game in the early 1980s. While it never aimed for more than success within the art sys-



THE FESTIVAL OF
PLAGIARISM Transmission
Gallery, Glasgow, Scotland, August,
1989. Photograph by Lloyd Dunn.

insular and not directly engaged in culture as a whole, although it seems quite adept at creating its own "culture". Plagiarism neatly fills the bill by making use of pre-existing information, changing it, and then putting it back out to circulate again, a glitch in the video of constructed reality.

Personally, I am something of a gallery-hater. This

Mark Pawson at the Festival of Plagiarism, Glasgow, 1989
Photo: Lloyd Dunn, reprinted with kind permission

tem, it shows that plagiarism can only work in the same discourse, on the same level as the plagiarized objects. A plagiarized Warhol *Brillo Box* will cease to be a plagiarized Warhol *Brillo Box* once it is put into an apartment or supermarket. At a countercultural Festival of Plagiarism, a counterfeit Duchamp *Readymade* boils down to an homage or just 'bottle-racks and urinals'. With their physical and cultural locations alone, the Festivals of Plagiarism failed their own standard of breaking through subcultural self-assurance. Above all, they lacked the rigour and aplomb of admitting it. Instead, spurious arguments were brought up against more established artistic and academic competitors. To this end, the invitation text to the Glasgow Festival of Plagiarism resorted to blatant vitalism: 'the "appropriations" of postmodern ideologists are individualistic and alienated. Plagiarism is for life, post-modernism is fixated on death.'

Even as purely conceptual art, the plagiarism discourse had its shortcomings. Its theoretical horizon remained limited to the twentieth-century art avant-gardes including the Situationist International. More radical concepts of appropriation can be found, for example, in the short stories of Jorge Luis Borges which the plagiarist subcultures weren't aware of. In retrospect, it also seems as if the anti-copyright activists of the late 1980s were tilting at windmills, now that the art system is coping with a massive loss of relevance outside the narrow circles of curators and collectors. Both the Plagiarism and the Art Strike campaign credited the art system with a canonical power that it had already lost back then. In the 1990s, the Luther Blissett project derived much of its success from giving up fixations on art and installing plagiarism, prank and anti-copyright tactics on a broader cultural basis.

With the Pirate Bay and the European Pirate Parties, this activism has now arrived in Hollywood. It challenges the culture industries more radically than Neoists and Art Strike activists would ever have dared to dream. At the same time, anti-copyright became a victim of its own success. From Lautréamont and the Neoist Apartment Festivals via recycling-infested Festivals of Plagiarism to the bestseller prose of Q and Bittorrent downloads, aesthetics have become gradually less radical, and activists have deferred contestation of not just the culture industry, but culture as a whole.

3. The Fiction of the Creative Industries

German artist Gerhard Merz said in 1991 that ‘creativity is something for hairdressers’.¹ Professional artists and designers never had a high opinion of the word ‘creative’ and the people bearing it on their business cards, from creative directors to creative consultants and creativity trainers. An exception perhaps was Merz’s colleague at the Düsseldorf Academy of Fine Art, Joseph Beuys. Anticipating much of today’s community art, he embraced the notion of creativity in its broadest sense and sanctioned any type of socially constructive work as art. And Merz, while making a sound point against romanticized artistic subjectivity and the overall stupidity of the word ‘creative’, was a highbrow art snob dismissing the lower crafts.



*Hairdresser's 'Creativ' in Berlin-Wedding
Photo: Florian Cramer, 2011*

To the uninitiated, the notion of the ‘creative industries’ sounds like a corporate version of Beuys, but it isn’t because it doesn’t include the hairdresser, cook or childcare worker either. It is a term whose normative political power is in blatant contrast to its almost arbitrary definition. Linguists might call it a rift between the performativity and the

semantics of the word. Therefore, almost every position paper on the creative industries starts with impressive economic figures. In the Netherlands, the most recent of these is *Creatieve industrie in topvorm*, a report of the Topteam Creatieve Industrie chaired by Victor van der Chijs, managing director of Rem Koolhaas's bureau OMA. This paper was commissioned by the Dutch government. Secretary of Culture Halbe Zijlstra has factually made it a government agenda and will follow its advice to move all previous public funding for design and fashion, new media arts and architecture into a new sector institute for the creative industries.

On the first pages we learn that the Dutch creative industries consist of 172,000 professionals and an annual turnover of 7.1 billion euros, amounting to 2 per cent of the country's GDP.² The authors adopt a government definition of 'creative industries' as the arts, media and entertainment and creative business services (essentially architecture, design, fashion and advertising).³ According to this definition, media include publishing houses, film, TV and radio, gaming, mobiles and photography. Which makes one ask: Does a political journalist from *NRC Handelsblad* or BNR Nieuwsradio know that he or she works in the 'creative industries'? A publishing giant like Elsevier: creative industries? Is a mobile phone carrier like Vodafone part of the definition and business numbers? H&M store personnel? Why them and not hairdressers, cooks or Tattoo Bob in Rotterdam?

On the remaining 60 pages of *Creatieve industrie in topvorm*, there is nothing more to be read on the publishing industries, television or radio, never mind the fact that economically they amount to a large part if not the bulk of the 'creative industries' as defined there. With such arbitrary inclusions and exclusions, and inflated business figures, the 'creative industries' – a term invented by Tony Blair's political advisors in the 1990s – are reminiscent of other economic bubbles from the same era: the dotcom industry and the financial sector.

Industries are normally defined by their products: the food industry produces food, the computer industry produces computers, the construction industry buildings, the health care industry health. But with the exception of the creativity trainers mentioned earlier, the so-called creative industries do not produce creativity. An architect, for example, does not work for the creative industries but as the creative-artistic part

of the construction industry. A fashion designer is the artistic part of the textile industry, a graphic designer the visual artist for the publishing and media industry, and so on.

Often, 'creative industries' have been an illusion created by globalization: Nike and Apple, for example, were able to be seen as 'creative companies' because the manufacturing of their products had been outsourced to China. This does not mean that there is no computer industry or a fashion industry anymore, but simply that these industries have turned into networks where labour is shared across continents instead of adjacent buildings. (Moreover, it is questionable whether this mode of globalized production will be sustainable, given the social, macro-economic and environmental damage it has done; aside from that, countries like China strive to also design and market the products they manufacture in the near future.⁴)

The only 'creative industries' that actually work as industries in their own right are the ones originally – but disparagingly – called 'the culture industry' by Theodor Adorno and Max Horkheimer in the 1940s: the film and the music industry. Their products are, according to Pierre Bourdieu's sharp revision of the term, 'autonomous art' in the sense that they are not produced for an external commissioning party (nor as part of another industry's production), but have to find their own market after they have been produced.⁵ In Tony Blair's Britain, the coinage of 'creative industries' coincided with the boom of Britpop and the British music industry. *The Independent* wrote in 2003 that 'New Labour ill-advisedly prolonged its Britpop period. Alan McGee [owner of the Britpop music label Creation], along with Paul Smith, Richard Branson [owner of Virgin Records] and [television producer] Waheed Ali were appointed to a short-lived and long-forgotten body called the Creative Industries Task Force'.⁶

Today, there exist no genuine – large-scale, divided-labour, economically self-sustaining – film industries anymore outside of Hollywood and Bollywood. The music industry nearly collapsed and radically shrunk in the early 2000s. In all developed countries, TV and radio audiences are becoming smaller and older. The newspaper and book publishing industry is in a deep crisis, the golden years of advertising are now celebrated as nostalgia in the TV series *Mad Men*. For media, communication design and performing arts professions, the 'industries' model is one of the past, not the future.

In all cases, the Internet and new media played a crucial role. For young people, TV has been killed by YouTube, the music industry by mp3, DVD profits by bittorrent, newspapers by the Web. But even more significant than these shifts of consumer technology was the digital revolution of production. Most musicians no longer need a record label, but can master their music on a laptop. Thanks to the last generation of inexpensive digital cameras, cinematic films can now be shot and edited at home by freelancers. Writers no longer need publishers, but often are better off self-publishing via print-on-demand and e-books. In all these areas, 'creatives' become all-rounders. Division of labour is decreasing, not increasing, with many industries, big agencies and highly staffed bureaus becoming dinosaurs of the past.

This development first began in graphic design, with the revolution from traditional typesetting to Macintosh- and PC-based Desktop Publishing in the 1980s and 1990s. Since then, large-scale graphic design firms like Total Design, which defined Dutch Design in the 1960s and 1970s, have disappeared. Innovative corporate graphic designers today operate like Buro Petr van Blokland + Claudia Mens, a two-person company that – with its expertise in computer-programmed typography – has designed house style and multilingual documents of big customers like Rabobank.

From a business organization perspective, van Blokland + Mens operate like Tattoo Bob. The Dutch government seem to suggest that they should go back to becoming Total Design. Among others, the Topteam Creatieve Industrie praises Frog Design as a role model for the future Dutch creative industries⁷ – a company once famous for its design of Sony TVs in the 1970s and Apple computers in the 1980s. When it's about macro-economic numbers, the advice report inflates the 'creative industries', but as soon as visions and policies are proposed, the focus narrows down on design companies that fit the industrial paradigm.

These and other 'creative industries' visions read like a retro trip into *Mad Men*. On top of that, it is bizarre how a free market-advocating government acts like a central committee here. Business development master plans are being made like in China, public arts money is repurposed for a commercial sector that, if it lives up to its own name, should pay taxes instead of taking them.

If one looks at the ‘creative industries’ meme globally, then one encounters the same story again and again: the fiction of an industry based on arbitrary definition criteria and blown-up business figures, made to persuade governments into funnelling public money (and increasing public debt) into large-scale infrastructures; infrastructures that more often than not end up failing to meet the real needs of an ‘industry’ that, because of new technologies and globalization, really is a post-industrial patchwork of Tattoo Bobs.

4. Rhizomatic Blitzkrieg

I

By 1958, methods of ‘recycling’ and ‘sampling’ – or rather: collage – were already considered stale. At the time, avant-garde theorists Guy Debord and Gil Wolman saw Duchamp’s ‘drawing of a mustache on the *Mona Lisa*’ to be ‘no more interesting than the original version of that painting’. Since then, artistic practices have continued to be recycled, but so has theory; Debord and Wolman’s concept of *détournement* was followed in the late 1960s by radical literary theories of intertextuality and a critique of the notion of the work and the idea of the author by such thinkers as Julia Kristeva, Roland Barthes and Michel Foucault. In the 1970s, these ideas were taken up by postmodern writers like Raymond Federman, handed over to punk authors like Kathy Acker and Stewart Home, and eventually found their way into the Plunderphonics music scene and early net art. Within theory – so it seems – all the essentials were already covered in the 1960s and later reissued in neologisms like ‘sampling’, ‘remixing’, and ‘culture jamming’ (at least within Western cultural practices). The art system has learned to integrate these supposed provocations into its economic foundation while nevertheless continuing to hold onto the pre-modern concept of the unique object. In all other modern art forms after Gutenberg, Edison, Lumière and Turing, on the other hand, reproduction is not simply a representation of the work, but is the work *itself*. The radical systemic provocations recycling poses for the art and media markets are no longer negotiated within the Academies of Art, but rather in places like Stockholm: at the trial against the Pirate Bay.

This text could end with that statement, yet there is another significant question or claim in the room that needs to be addressed: namely, whether the mere act of sampling, recycling and culture jamming (or, to use a somewhat more classical terminology: intertextuality, pastiche and appropriation) is in and of itself semiotically and aesthetically subversive. Without a doubt it is, if one looks at the definition of 'subversion' as an inversion or reversal. The question that needs to be asked, however, is who or what subverts or is subverted, for which purpose, and what ontological quality does subversion itself contain. If subversion, in the literal sense of the inversion of relationships, follows the familiar agitprop logic of appropriating 'dominant' codes for the purposes of counterculture, it is merely tactical and does not have ontological or epistemological substance. This also means that every subversive manipulation can again be reversed and set against itself. In an epistemological, subversive thinking – the kind Julia Kristeva, following Bakhtin, demands for transgressive literature – this is not the case, because such thinking is based on 'a relationship of nonexclusive opposites' instead of a binary opposition to the dominant order.

Yet doesn't the example of the carnival discussed by both Kristeva and Bakhtin – much like Robert Filliou's Fluxus utopia of the *Fête Permanente* and Hakim Bey's subcultural vision of a *Temporary Autonomous Zone* – have a certain dialectical undertone of petty bourgeois escapism? What sorts of things come about when orderly life is inverted, besides niche idylls of counter-cultural trailer parks and swingers clubs? And how do the dialectics of sampling, recycling and culture jamming strike back? In other words: What happens when opposites are nonexclusive without having knowledge of the strategists, tacticians and practitioners of semiotic subversion?

- The *Red Wedge* is still in use today by the German Left Party

DIE LINKE.

*Die Linke, party logo of the German left party
Design: bureau DIG / Trialon, Berlin, 2007*

- In the late 1980s, the Keilson/Gebhard logo undergoes a revival in the Autonomen scene: the red flag is replaced with the black and red Anarchist or Anarcho-syndicalist flag. It is 'sampled', 'recycled': its meaning shifts from a Leninist to an anarchist sign



*Antifaschistische Aktion, anonymous
logo design, 1980s*

- Autonomous Nationalists: use of the same symbols in various mutations



Autonome Nationalisten, anonymous logo design, c. 2010



*Autonome Nationalisten,
anonymous logo design, c. 2010*



*Autonome Nationalisten, anonymous logo
design, c. 2010*

Irrespective of their appearance, the political message of the Autonome Nationalisten (Autonomous Nationalists) is nothing new: it is the same old neo-Nazi ideology – ‘National Socialism’ in the *Kameradschaftsszene* (the rightwing ‘Comradeship scene’) – just packaged differently in terms of media. Their use of the so-called *Querfront* strategy, a tactic already employed in the Weimar Republic that entails adopting the political messages and identificatory signs of the enemy, is obvious. In this case, however, the material is appropriated from the leftist Autonomen as opposed to the KPD. Here, a long-used strategy and ideology of neo-Nazism enters into plain sight. Back in the 1970s, neo-Nazi leader Michael Kühnen propagated a ‘national Socialism’ and a vision of a rightwing Autonomen movement. A strategic brief about Autonomous Nationalism by Michael Kühnen’s deputy at that time, Christian Worch, reflects back on the 1980s and 1990s:

Because the militant portion of the left at the time (including the antifascists) called themselves autonomous or were simply known as the *Autonomen*, it made sense to take over this term and to alter it in our favor. The working title of my concept is thus: Rightwing *Autonome* or the Autonomous Right.¹

Such rightwing extremist sampling, recycling and culture jamming exists within theory as well, often with recourse to the Italian Marxist Antonio Gramsci and his idea of ‘cultural hegemony’. This was first seen in the French Nouvelle Droite of the 1980s and later made its way into the German rightwing extremism of the 1990s. Both in terms of terminology and tactics, concepts like the ‘liberated zones’, later ‘nationally liberated zones’ propagated first in 1991 by the NHB, the student organization of the German right-extremist NPD, have a conspicuous correspondence with countercultural leftist concepts, such as Hakim Bey’s Temporary Autonomous Zones.² Both are concerned with the creation of spaces and situations in which prevailing laws and orders are temporarily suspended and replaced by a self-defined system. According to the NHB brief: ‘We need to create liberated spaces in which we effectively exercise power . . . We are inside, and the state stays outside.’³ In the same year, 1991, Bey defines the TAZ as being

... like an uprising which does not engage directly with the State, a guerrilla operation which liberates an area (of land, of time, of imagination) and then dissolves itself to re-form elsewhere/elsewhen, before the State can crush it... TAZ can 'occupy' these areas clandestinely and carry on its festal purposes for quite a while in relative peace.⁴

Bey imagines a 'nomadic war machine', drawing directly from terminology used by Gilles Deleuze and Félix Guattari. In their introduction to *A Thousand Plateaus*, Deleuze and Guattari equate 'rhizomatic' with 'Nomadology',⁵ which has since become programmatic for the self-conception of subcultures and countercultures. The notion of the rhizome, developed with reference to Spinoza and later taken as a model for the writing of Toni Negri and Michael Hardt, is coupled with the notion of multiplicities.⁶ Fascism is defined by Deleuze and Guattari as a 'dreadful multiplicity – defined through its lines and dimensions, and spread precisely over a plane of consistency'.⁷

Without a doubt, this also serves as an accurate description of the Autonome Nationalisten and their rhizomatic, nomadic fascism, in which the 'plane of consistency' is called the Fourth Reich. Yet how can such an equation of codes and thought figures even come to be, and how is it possible that both sides – even the Deleuzian subcultures in Bey's Temporary Autonomous Zones – are based on questionable geopolitical terminology revolving around the occupation of spatial zones of influence? If Deleuze and Guattari's equation is reversed such that Nomadology means Rhizomatic, then the concept is no longer just a geopolitical thought figure, but also a biological and organic one. In this way, Deleuze's philosophy explicitly picks up the thread of early twentieth-century *Lebensphilosophie* and vitalism. The apotheosis of the organic-nomadic and, later in Bey, the idea of the 'temporary', seamlessly connects with Bergson's philosophy of vitalism: time and movement in a continually flowing 'stream of life' or 'vital impetus' (*élan vital*).

With this we come full circle to the previously analysed imagery. The 'dynamism' in Italian Futurist painting made direct reference to Bergson, whose lectures in Paris were regularly attended by Umberto Boccioni, among others. This dynamism remains clearly perceptible in the symbols of leftwing and rightwing Autonomi, yet it is also their

anachronistic moment, harking back to a pre-war logic of militancy and organized political street fights that takes the Alliance of Red Front-Fighters or the SA (Brownshirts) as a model. The 'war machine' that Deleuze and Guattari not only describe but glorify in *A Thousand Plateaus* has both a concrete meaning and a symbolic, artistic one. Yet in both cases it always moves nomadically, outside of the state. Herein lies the condensed sense of the term *Autonome*, both within the left and within the right. To put it differently: the mere existence of a grassroots fascism demonstrates the error in the assumption that grassroots structures are qua definition antifascist. It also demonstrates the problematic around affirmative, identificatory thought figures – regardless of whether they are termed and romanticized as 'rhizome', 'zone', 'autonomy', 'nomad', 'guerrilla', 'multitudes' etcetera. Less diplomatically, one could call such concepts a pornography of resistance, and writers like Deleuze/Guattari, Bey and Negri/Hardt authors of postmodern, intellectually trimmed *Landser* magazines (post-war military pulp fiction). The autonomous rightwing 'widerstand.info' and 'Intifada' graffiti, on the other hand, put the hollowness of this entire rhetoric on display.

More nuanced subcultural narratives have already taken account of fascism as an element of the underground and of pop cultural codes. There have been countless examples in punk, post-punk and industrial music culture. Thomas Pynchon's novel *The Crying of Lot 49* (1966) is about an all-encompassing counterculture that is apparently connected through a secret communication network. This network is recycling in the literal sense, since its name is 'W.A.S.T.E'; and it is 'sampling' and 'culture jamming' in its identificatory symbol, a muted post horn. Besides experimental electronic musicians, real estate agents, theatre groups, electrical engineers and stamp collectors, the network includes the character Mike Fallopian from the 'Peter Pinguid Society,' a neo-fascist underground army. One passage from the novel seems to anticipate the *Querfront* rhetoric of the Autonome Nationalisten. In response to an objection that the historical Peter Pinguid was obviously opposed to industrial capitalism, Fallopian says: 'You think like a Bircher . . . Good guys and bad guys. You never get to any of the underlying truth. Sure he was against industrial capitalism. So are we.'⁸

The simple but significant conclusion that can be drawn from the mere existence of a fascist 'communication guerrilla' and fascist 'culture jamming' is that a variety of pop theorists, art critics and romanticists of subculture have to take a good look in the mirror. A revision of the rampant postmodern drivel about rhizomatic net cultures, multitudes, 'pirate utopias' and diverse guerrillas is long overdue. Not only is there nothing more to be gained from 'recycling, sampling, culture jamming'; these words as such only stand for hollow forms. As long as they exhaust themselves in tactics of appropriation, their supposed subversion is nothing more than hegemonial acquisition; the 'reclaiming' of codes in the name of some ambiguously defined mass, with which one is supposed to identify for some similarly ambiguous reason. 'Reclaim the streets' is another one of these hollow nomadic-geopolitical slogans that will probably soon find its way onto the flyposters of the Autonome Nationalisten.

The 'critical' tactics used in the art system represent a more temperate form of these political discourses. In the art system, much like in the garbage economy, the word 'recycling' describes the utter absence of topicality within these phenomena.

In 1982, Oskar Lafontaine, then the mayor of Saarbrücken – and now head of Die Linke; the party with the red wedge – sought to settle accounts with the bourgeois policy guidelines of the social-liberal German chancellor Helmut Schmidt. Schmidt's values of 'duty, predictability, practicality and steadfastness' were, for Lafontaine, 'secondary virtues' with which one could also 'operate a concentration camp'. Today, the Autonome Nationalisten show us that a reversal of these virtues, too – autonomy instead of duty, unpredictability instead of predictability, idealism instead of practicality, nomadic locational shifts instead of steadfastness – might form the basis for concentration camps in the future.

II. Media

5. Literature on the Internet

1999¹

Premises

In 1923, the Russian constructivist El Lissitzky published a manifesto on the future of the book arts called *Topography of Typography*. In the conclusion, he writes: 'The printed surface, the infinity of books, must be transcended. THE ELECTRO-LIBRARY.'²

As visionary and anticipatory as El Lissitzky's 'Electro-Library' may seem with regard to information networks, it remains a utopia. It is true that the Internet, and above all else the World Wide Web, has been used as a mass medium for over a half decade now. The idea that electronic hypertext spells the end of books, however – as claimed by American author Robert Coover in the *New York Book Review* in 1992³ – has not come true. On the contrary, books set the pace for today's e-commerce, for electronic mail-order businesses such as Amazon. Here, the World Wide Web is not a universal electro-library, but rather a sort of library catalogue. Electronic poetry on the Internet, especially when it attempts to experiment with Net-specific forms, is much less successful than Web formats cataloguing works in print. Public interest for such experimental texts has cooled off and big projects like ZEIT's Internet literature prize and the *Softmoderne* symposia have quietly been discontinued or carry on in scaled-down versions. At the same time, Net anthologies such as Thomas Hettche's *Null* (see 2.2.1) or the Literaturwerkstatt Berlin's *lyrikline* indicate a growing trend of professionalization, in which conventional forms of text on paper and conventional book writing methods are simply transferred to the net and labelled as 'Net literature'. This is 'poetry on the Net', as PR marketing for poetry readings and book presentations call it. If nothing else this trend is helped by the fact that although a lively, networked discourse about experimental, medium-specific Internet literature has grown over email, news forums, websites and symposia, singular works declared as Net poetry are comparatively few in number, and, with rare exceptions, are considered uninteresting to nonspecialist audiences outside of this discourse.⁴

Why, then, write about literature on the Internet? Even in cases where the Internet is merely used as a catalogue of books or a distribution medium, the terms of reception, mediation and production of literature are altered. We need to examine whether the Internet can be more

for literature than just a catalogue and sales channel. The questions that need to be asked are:

1. Is the Internet a literary medium?
2. What effects do computers and the Internet have on literature and the literary field?
3. Despite waning interest, is there such a thing as a formally advanced Net literature?

1. Is the Internet a Literary Medium?

1.1 The Net as Literature

Because the Internet is both a telegraph and a text storage device that carries out algorithms, it unifies the functions of the book, library, salon and poetry machine. 'Literature on the Internet' can therefore refer to the Internet as a whole: a structure of letter and number codes in space and time, a WORLD NOVEL IN REALTIME. The Internet is the first new medium of the twentieth century based on text. Its supposed multimediality rests on alphanumerical codes and written command sequences. This means that even an image or a sound is saved and copied as textual code on a computer, but only conventional text is searchable on the Internet. As easy as it might be to use a search engine to track the use of the word 'hand' throughout the entire World Wide Web or within a database, it is impossible – without the aid of tagging or artificial intelligence – to search through digital photos for images of hands.

If the entire Internet is understood as literature, as an entity made up of letters, the question of poetics and of poetry on the Net first turns to the reader. He or she is obliged to condense (*verdichten*) the stream of texts. Like the prototypes offered by futuristic and Dadaistic poetry from Joyce to Döblin, the only technical requirement for the montage of found language material is 'cut 'n' paste': a few mouse clicks between a Web browser and a text-editing program. And even these can be automated through the use of algorithms.

1.2 Literature on the Net

The opposite approach, putting conventional poetry onto the Internet or reading texts declared as poetry on the Net, is even more

problematic. The unwieldiness of the computer, low-resolution screen displays, equipment noise, slow network connections, system crashes and telephone costs create a hostile environment for the concentration required to read difficult texts. With added access fees and the costs associated with acquiring hardware, Net literature most likely costs the average reader more than a library of good paperback books would. The idea that content on the Web is free just because the computer and telecommunications industry makes a profit from it (as opposed to authors) is a widespread mistake. Texts on the Internet, particularly poetry, must be able to offer an added value vis-à-vis the printed book in order to compensate for these handicaps. Without such added value there is no convincing reason to publish a text on the Internet as opposed to paper.

When, then, is online publication worthwhile? There are four obvious cases:

1. The text is meant to be quickly and globally accessible to as many readers as possible – for example, the manifesto written by the ‘UNA-Bomber’, Theodore Kaczinsky. Or, the text does not appear in paper form because the author does not have a publisher, the publisher cannot afford print, or the publication of the book is not deemed financially profitable.

This concerns the Internet as a *distribution channel* for literature.

2. The text evolves, publically or privately, as part of a collaborative, networked writing process.

This concerns the Internet as a *writing platform*.

3. The text is meant to be researched through the use of a search engine.

This concerns the Internet as a literary *database*.

4. The text requires user interface software or is produced automatically according to programmed rules.

This is the only case of genuine *computer literature*. It can optionally be combined with the first three functions.

2. *What Effects Do Computers and the Internet Have on Literature and the Literary Field?*

Within the current literary system, the Internet's most important functions are to serve as a distribution channel, writing platform and database. Often, texts fulfilling only these three functions, or even just one, will be claimed as 'Net literature'.

2.1 *The Internet as Distribution Channel and Self-Publisher* Vanity Press

The majority of Internet texts identifying themselves as literary use the Net as a quick and inexpensive distribution channel. In German literature, the most well known example of this is Rainald Goetz's diary, *Abfall für Alle*, which appeared on the World Wide Web throughout 1998 and, through rapid updates, staged the act of writing as a performance. Political activists have used the World Wide Web to publish texts because print versions have been censored or halted by the courts (in Germany, an example of this is the extreme left journal *radikal*). Electronic publication could also become important for emerging economies with good network infrastructure, such as Eastern Europe, Asia and South America.

The Internet has become a site for self-publishing, which, depending on your perspective, either constitutes a global vanity press Samizdat distributor. In his book *Literarische Spaziergänge im Internet*, Reinhard Kaiser points out that the open forum *rec.arts.poetry*, which publishes thousands of poems each month, is by itself proof that the Internet has taken on the prominent role of the salon and the place of writing.⁵ Besides self-portrayal, electronic self-publishing serves two further functions:

1. The formation of interest groups made up of writers and readers. This is especially successful in Net literature's most popular genre: pornography. In the international forum *alt.sex.stories* and its subgroups, like *alt.sex.stories.gay*, an independent literary system asserts itself; one made up of anonymous authors, critics who systematically review narratives and readers who inquire after stories.

This forum does not just operate as a distribution channel; it is also a database, since it has developed a formula to notate the sexual practices central to the stories, so that readers are able to selectively filter their preferred subgenres.⁶

2. Texts appear on the Net as a way to find a publisher. An early German-language example is the novel *Die Quotenmaschine* by Norman Ohler, which originated on the Internet in the period of Net euphoria around 1996, and was later printed and marketed as the 'first Internet novel' by a major publishing house.

Though there may be many reasons to electronically self-publish a text, the Internet, as a distribution medium for conventional literature, is just a temporary stopover. When an electronic text is printed out and read on paper – as still occurs with the majority of text files – it gains legibility instead of losing it. Since numerous classics of world literature originally appeared in tiny publishing houses or were self-published, it is possible that works on the level of *Ulysses* or *Lolita* could potentially debut online. Yet for such literature, the Net would merely be a way station.

2.1.2 Commercial Publication

Data networks can also be used for the commercial distribution of literature. The keyword here is 'print-on-demand'. Instead of delivering editions to bookstores, an on-demand publisher uses a special laser printer to print each book according to individual orders. The technology underlying this has existed for years, but is just now becoming commercial on a systematic level.⁷ This process is particularly viable for short runs. It relieves publishers of costs associated with storage and even allows them to keep out-of-print books in stock. In the future, laser printers that produce ready-made books might move from the publishers to the bookstores; in the long term they might even move into the domestic space of the reader.

A case can be made that 'print-on-demand' is becoming a regular practice for poetry books and dissertations. In this form, the reader does not notice any difference between electronic publication and the conventional book: as before, 'publishing-on-demand' books are ordered through the book market and look just like common paperbacks.

2.2 *The Internet as Writing Platform*

Although, for the time being, the Internet is presented to readers as a vanity press and therefore appears to stand outside of the established literary system, it changes the working modes backstage. Authors, translators and editors can exchange text corrections via e-mail without the need of multiple manuscript copies. (As shockingly banal as this remark may sound in 1999, the German literary system is still dominated by the alphabetic fax machine as opposed to more literate technologies.) Software programmers and authors of technical handbooks are already using more sophisticated technologies, such as the Concurrent Versioning System (CVS), internet freeware that enables an asynchronous comparison between versions and variations of collectively written program code or text manuscripts.⁸ Furthermore, this program memorizes all revisions of a document and can restore any step in the editing process. Such a system offers practical advantages for publishing and editorial work, yet also enables collective writing experiments in the vein of the surrealist *cadavres exquis*.

2.2.1 *Null*

A current German example of one such writing experiment is the 'online anthology' *Null*, which is supervised by Thomas Hettche for the publishing house DuMont. Young German authors including Helmut Krausser, Steffen Kopetzky, Thomas Meinecke, Alban Nicolai Herbst and John von Dueffel write journal-like notes that are made into icons forming a starry sky on the project's start page. Texts written in response to other texts generate constellations, without, however, having the image-text complexities of combinatory baroque *Coelum* poems, Mallarmé's *Coup de Dés*, or the *Constellations* of concrete poetry in mind. The prose miniatures developed here are not dependent on the Internet and computers as reading mediums; their final versions will consequently appear in a printed anthology. Similar to Rainald Goetz's *Abfall*, the 'added value' justifying *Null*'s presence on the web as opposed to merely on paper has to do with process: a display of the performance of writing.

2.2.2 *Trace*

The project *Trace* describes itself as an 'online writing community'. Situated at a British university, it grants awards to online authors and

hosts literature competitions – most recently with the cooperation of Robert Coover.⁹ In this manner, *Trace* embodies the Anglo-American tradition of hypertext poetry or ‘hyperfiction’, which will be described more closely in 3.1.4.

2.3 *The Internet as Text Database*

The initial question regarding the effects of computers and the Internet on literature and the literary market has not yet fully been answered. We’ve already addressed the Internet as a medium for distribution and writing; it is no less significant, however, as a database of literature. Critics and philologists profit most from this. The migration of library catalogues from index cards to computer networks may simplify title and keyword searches, yet it also makes it overwhelmingly clear to users how satisfying it would be if the contents of entire books – not just their titles – could be called up by the computer, as El Lissitzky imagined. According to international copyright law, any book whose author who has been dead for over 70 years can be copied and put into a public information network. This type of full-text archiving would also make sense for new books that focus primarily on specialist or academic material and aren’t commercially profitable. In an era of dwindling university and library budgets, the skyrocketing costs of academic literature could soon force all scholarly writing to relocate from the book to data networks. In such a case, academic works would only appear in print if they could also attract audiences outside of their field. If traditional branches of the publishing industry wander to the Internet, a radical rethinking of copyright law and the notion of intellectual property will soon be necessary. For specialist literature, at least, this could mean the end of copyright law as we know it, which is oriented towards the requirements of print. Copyleft free software such as GNU/Linux serves as a model for a radical redefinition of copyright and intellectual property.¹⁰ It reflects the knowledge of a particular Net culture that has two decades’ more experience than authors and media artists, namely Unix hackers: the true avant-garde of writing within computer networks.¹¹

Irrespective of the legal problems, the digitalization of libraries would prove to be the cultural task of the century. If entire genres of writing shift to electronic publication, a fundamental change will also

have to occur in terms of the form in which texts are apprehended on the computer. Text editing programs such as *Microsoft Word* and *Word Perfect* imitate the functions of electronic typewriters and produce documents optically structured for print. They do not provide information regarding the internal structural logic of a file, for example making a quote recognizable as a quote and a chapter heading recognizable as a chapter heading through the use of standard generalized codes. Logically structured text formats based on SGML and XML code standards are already the norm today for critical electronic works and technical documents.

What implications might all of this have on contemporary fiction? Perhaps very little: the fact that text editing programs prioritize the free typography of texts over their database suitability answers precisely to the needs of poets. In his essay, *Database as Symbolic Form*, however, Russian-American media theorist Lev Manovich points out that database structures are characteristic of postmodern works of art, for example the films of Peter Greenaway.¹² One can also find such structures in serial music and novels like Georges Perec's *Life A User's Manual* or Italo Calvino's *Invisible Cities*. *ELEX*, an intermedia CD-ROM version of Austrian author Andreas Okopenko's *Lexikonroman* (1970), convincingly demonstrates that a database-like narrative can be carried over into electronic media.¹³ *Lexikonroman einer sentimental Reise zum Exporteurstreffen in Druden* (so the novel's full title) does not tell a story from beginning to end. Instead, it is organized into short, alphabetical chapters with headings like 'bunte Stühle' (colorful chairs), 'Hundstage' (dog days) and 'Ultraviolett' (ultraviolet) that are linked to one another through numerous cross-references.¹⁴ Complemented by composer Karlheinz Essl's computer-generated *Lexikon-Sonate*, *ELEX* mutates Okopenko's novel into an electronic compendium that can be explored both alphabetically and topographically.

Unfortunately, *ELEX* cannot be read on the Internet and only runs on Macintosh computers. Those who search online for interesting electronic literature quickly find that this is not an exception, but rather a rule.

3. *Is There Such a Thing as Formally Advanced Net Literature?*

A combinatorial salon and an avant-garde of Internet literature that engages the poetics of algorithms and networks to compose futuristic, emancipated words for the electro-library seems nowhere in sight. Net

art since the mid 1990s, on the other hand, has been playful and self-reflexive, and has recently been canonized and historicized in the framework of exhibitions such as documenta X, ZKM Karlsruhe's 'net.condition' and other shows. There seems, however, to be no current Internet literature that is able to play with text codes or the visual codes of user interfaces in as sophisticated a manner as Net artists like jodi and I/O/D. The more interesting digital poets from the *new media poetry* circle, such as Jim Rosenberg and John Cayley, rarely operate within the Internet, choosing instead to design works as proprietary software that only functions offline on specific types of computers.¹⁵ As far as my language skills are able to tell, the most comprehensive examples of electronic writing come from American and French-speaking countries, and these works often refer to their respective regional literary and linguistic traditions. Anglo-American Net writers place themselves within the lineage of Fluxus's intermedia poetry, concrete poetry and language poetry, whereas francophone authors take up the combinatorial wordplay of Oulipo. I would quickly like to outline these traditions and subsequently introduce a number of German, French and Anglo-American schools of Net literature.

3.1 History

3.1.1 Precursors

In the Western tradition, the history of algorithmic poetry goes back to the Hellenist poet Kastorion of Soloi, who, according to historical records, used a process of word exchange – permutation – to vary and multiply a sentence.¹⁶ This form was later canonized by Renaissance poetry scholar Julius Caesar Scaliger and termed 'Proteus verse'.¹⁷ It acquired popularity in German baroque poetry, where it was charged with kabbalistic combinatorial speculation. The seventeenth-century books *Mathematischen und philosophischen Erquickstunden*¹⁸ and *Frauenzimmer-Gesprächspiele*¹⁹ by Nuremberg poet Georg Philipp Harsdörffer draw connections between mathematics, poetry and parlour games, and serve as early prototypes for an algorithmic Net literature.

3.1.2 The French Tradition: Oulipo

Word combinatorial procedures underwent a sort of renaissance within modernity. Mallarmé conceived of his posthumous *Livre* as a

proteus book whose ten volumes can be read in 3,628,800 different sequences; Dadaists and surrealists concocted automatic language games. After 1961, the Oulipo group – founded by Raymond Queneau and mathematician Le Lionnais, and later joined by the likes of Marcel Duchamp, Georges Perec, Italo Calvino and Oskar Pastior – attempted to systematize combinatorial poetry procedures.²⁰ The group was established as a direct result of Queneau's *A Hundred Thousand Billion Poems*, a cycle of ten sonnets whose lines were printed on separate strips of paper and could be interchanged.²¹ The book version of the poem cites the influence of both Alan Turing and Harsdörffer's proteus verse. In 1977, Oulipo created a subgroup for computer literature that implemented Queneau's sonnet as a computer program, which was exhibited at the Centre Pompidou.²² The Oulipo group continues to exist today. In a wider context, there are public discussion forums and websites on which Oulipian language games can be performed, and the journal *Formules*, which examines the history of both Oulipo and combinatorial poetry.

3.1.3 *The German Tradition: Concrete Poetry*

The first German-language computer poems were written in the context of concrete poetry. In the late 1950s, the Stuttgart-based circle around Max Bense programmed poems on a Zuse Computer.²³ Also in Stuttgart, in 1962, cyberneticist Abraham A. Moles published a 'first manifesto of permutational art', which brings together German concrete poetry and French Oulipo techniques.²⁴ In 1972, Eugen Gomringer and visual artist Günther Uecker published a book containing a proteus poem calculated by a computer.

Today's German-language Net literature rarely refers to this tradition. Many computer authors, such as the winners of *ZEIT*'s first literature contests, formally base themselves on American *hyperfiction*. Established authors such as Thomas Hettche or Michael Rutschky write conventional stories on the Internet. From my perspective, the German online literature project that is most worth reading is also the oldest. As far back as the late 1980s, Heiko Idensen and Matthias Krohn laid the foundation for their *Imaginäre Bibliothek* (Imaginary Library). Schooled on Jorge Luis Borges and postmodernism, the *Imaginäre Bibliothek* describes the history of anti-linear text forms in a likewise anti-linear index of references, quotations, manifestos and poetological reflections.²⁵ The

project was built with the aid of a hypertext authoring system that was especially developed by Eastgate Systems to meet the demands of 'Hyperfiction'. Most Anglo-American computer literature has likewise taken shape within the possibilities and boundaries dictated by this software.

3.1.4 *The Anglo-American Tradition: Postmodernism and Language Poetry*

With the emphasis it places on 'hypertext', Robert Coover's manifesto 'The End of Books', quoted at the start of this essay, is still typical for American computer and Net literature.²⁶ At the centre of this discourse is Brown University and the literary scholar George Landow. With explicit reference to Jacques Derrida and Roland Barthes, Landow describes 'hypertext' as a decentred, nonlinear text model, thereby interpreting postructuralist text theories as techniques of production in a manner that is rather questionable.²⁷ 'Hyperfiction', which uses the computer's text interface to build narrative labyrinths of clickable cross-references, is based on the thought of Landow and Coover. A classic example of 'hyperfiction' is Michael Joyce's electronic novel *Afternoon*, which is sold as commercial software by Eastgate.²⁸ Eastgate also publishes work by Jim Rosenberg, a former member of a group of American writers known as the *language poets* who have experimented with inter-medial poetic forms since the 1960s and 1970s. Very few of Rosenberg's electronic poems are available to be read directly on the World Wide Web, because they were either written for the Macintosh program HyperCard, or because – like the majority of well-known 'hyperfiction' works – they are commercially sold by Eastgate. On Rosenberg's website, one can also find a number of theoretical essays addressing computer literature.

3.1.5 *A Short Digression about 'Hypertext'*

As I see it, the prototypical 'hyperfiction' *Afternoon* isn't convincing enough to deserve the praise it has garnered on its electronic blurb, which declares it to be 'already a postmodern classic'. I am also unable to find evidence in this novel and related works that 'hypertext' enables a decentred, nonlinear computer literature. In its original Latin sense, text means 'things woven'. The association between text and 'textile' or 'texture' is thus not random, and from a text-theoretical perspective its

expansion to 'hypertext' is a pleonasm. In computer science, 'hypertext' doesn't just stand for text, it is a model of data organization that competes with hierarchical and relational databases, among others. Any attentive reading leads to a fundamental realization that all texts – even epics and nineteenth-century bourgeois novels, those historical literary exceptions that are actually read in a linear manner from the first to the last page – are made up of cross-references and self-references. As Roman Jakobson's model of paradigmatic choice and syntagmatic arrangement of signifiers makes clear, texts can be neither truly 'linear' nor 'nonlinear'. Every reader selectively relates what he or she reads to memories of prior readings, and in this way a rhyme, a particular word order, or a metrical repetition is already a 'nonlinear' structure. Recognizing this implies that every act of reading is a process of permanent comparisons, mental leaps and a back and forth between the text itself and associations with other texts. If the quality of a literary text can be judged according to how densely it weaves its net of language and how complex the associations it evokes are, then Kafka's *The Trial*, for example, differs from Okopenko's *ELEX* merely in that it exposes the entanglements of its narrative web in a less obvious manner.

Conversely, every 'hypertextual' partitioning of a text generates narrative blocks that are in and of themselves 'linear', and every 'hypertext' is read within a linear stretch of time and in a particular sequence. If one, for example, compares hyperfiction with Diderot's *Encyclopédie* or a common bible containing cross-references and marginalia, it is clear that the computer merely gives 'hypertext' a different user interface. Compared with the bound book, which can be perused at will, this interface does not free the reading, as is often claimed. Instead, it constrains movement through paths that are predetermined by the author.

Vannevar Bush's memex concept, which forms the basis of 'hypertext', was designed for mechanical reading machines as opposed to computers. The fact that even today our understanding of 'hypertext' requires neither computer networks nor even computers, and that 'hypertext' is in no way synonymous with 'computer text', is persistently overlooked in essays about Net literature. 'Hypertext' in HTML or Storyspace formats may require a computer for random access memory, as a telecommunications device, and as a display apparatus; its algorithms, however, lie fallow.

3.1.6 Net Poetry

Net poetry is not the same thing as computer poetry, as Net poets themselves like to point out.²⁹ Net poetry can originate outside of computer networks, like Peter Faecke and Wolf Vostell's *Postversand-Roman* (Mail-order Novel) from the early 1970s³⁰ or, centuries earlier, epistolary novels and the poetry games of literary societies. This makes the expectation of a radically new literature arising from the Net appear misguided. A *poésie faite par tous*³¹ resulting from egalitarian mass communications may be interesting to its participants, but is less so for outside observers. This was also seen in the case of mail art, which anticipated many aspects – and problems – of digital Net arts within the analog network of the international postal system from the 1960s to the late 1980s.³² Its protagonists were (and are) mostly non-professional artists, who communicate with one another through neo-Dadaistic collages, stamps, small objects and booklets. Mail art established itself on the basis of a democratic, humanistic ethos that included anyone and everyone who wanted to participate. Yet the underside of this principle was an immanent hierarchy and an internal system that honoured group affiliation first and foremost and did not make evaluations based on quality, but rather on quantity and continuity. As is often the case with subcultures and clubs, this led to premature self-historizations and self-canonizations, quite similar to what is now taking place within the discourses of Net art and Net literature.

3.1.7 Computer Poetry

The extent to which computer and Net poetry get involved with their medium varies considerably. Literature can use the Internet as a brief transmitter before settling itself between the covers of a book, it can apply the interfaces of browsers, graphics and programs to take up a different form, or it can generate and transform its text algorithmically. Personally I find that computer network poetry is only truly interesting if it doesn't merely employ the computer as a telegraphic transmitter, storage device or layout tool for texts, but rather also transforms or generates its language according to programmed rules: multiplying and reshaping Turing-complete computer texts as autonomous text-automata (whose programming is described in terms of *recursive transition networks* in Gödel, Escher, Bach³³) or through filters that cut up the text.

In this respect, the permutational computer poetry composed by Bense, Brion Gysin and the Oulipo group in the 1950s and 1960s was far more advanced than most of today's so-called Internet literature.

3.2 *ASCII Art*

An interesting subdivision of Net art plays with alphabetical codes and alphanumerical text montage to make work that can be read as a fragmented mixture of command sequences, natural language and visual patterns, thus establishing a formal tie with technopaegnia, the classical and modern tradition of figure poems. Examples of what is called *ASCII Art* can be found at <http://www.7-11.org> and <http://mgndfukc.com/kinematek>. These experiments are both interesting and unsatisfying; their impressions are brief and they frustrate any desire for densification. Perhaps for this very reason they are the most suitable literary forms for the Internet and its apparatuses, which could be described as hostile towards reading. The asymmetric development and acceptance of Net literature on the one hand and Net art on the other can be seen as a measure of which codes function better on the computer screen.

4. *Conclusion*

Just because a technical medium is full of possibilities doesn't necessarily mean that textual forms drawing on these specific potentials will be popular. This thesis might be supported by my assertion that there is currently less interesting computer literature to be found online than there was at beginning of the World Wide Web in 1994. From antiquity until today, technopaegnia and combinatorial poems have been marginal literary forms, and the era of digital networks has done little to change this. Regardless of how revolutionary computer networks may be for writing and distribution systems, as long as books remain their central product, literature will be written on computers and the Internet only to end up on paper.

6. Digital Code and Literary Text

2001

Can notions of text that were developed without electronic texts in mind be applied to digital code, and how does literature play along?

Code

Computers, the Internet and all digital technologies are based on zeros and ones, so they are based on code. Zeros and ones are an alphabet that can be translated back and forth between other alphabets without information loss. In my point of view, it makes no sense to limit the definition of the alphabet in general to that of the Roman alphabet in particular when we can write one and the same textual information as Morse code, flag signs or zeros and ones. The Internet and computers run on alphabetic code, whereas, for example, images and sound can only be digitally stored when translating them into code, which – unlike the translation of conventional text into digital bits – is a lossy, that is, a not fully reversible and symmetric translation. Sounds and images are not code by themselves, but have to be turned into code in order to be computed; where as any written text already is code. Literature therefore is a privileged symbolic form in digital information systems. It is possible to automatically search a collection of text files for all occurrences of the word ‘bird’, but doing the same with birds in a collection of image files or bird songs in a collection of audio files is incomparably tricky and error-prone, relying on either artificial intelligence algorithms or manual indexing, both of which are methods to translate non-semantic writing (pixel code) into semantic writing (descriptions).

The reverse is true as well: we can perfectly translate digital data and algorithms into non-digital media like printed books, as long as we translate them into signs coded according to the logic of an alphabet. This is what is done, for example, in programming handbooks or in technical specification manuals for Internet standards. Today there are two notorious examples of a back and forth translation between print and computers:

- The source code of Phil Zimmerman’s cryptography program ‘Pretty Good Privacy’ (PGP). The PGP algorithms were legally con-

sidered a weapon and therefore became subject to US export restrictions. To circumvent this ban, Zimmerman published the PGP source code in a book. Unlike algorithms, literature is covered by the US First Amendment of free speech. So the book could be exported outside the USA and, by scanning and retyping it, translated back into an executable program;

- The DeCSS source code, a small program that breaks the cryptography scheme of DVD movies. Since US jurisdiction declared DeCSS an ‘illegal circumvention device’ according to the new Digital Millennium Copyright Act (DMCA), the ban equally affected booklets, fly posters and t-shirts on which the DeCSS source code was printed.

That code is speech is a fact stressed again and again by programmers and is also at the heart of Lawrence Lessig’s legal theory of the Internet.¹ It is, strictly speaking, sloppy terminology to speak of ‘digital media’. There actually is no such thing as digital media, but only digital information. Digital information becomes ‘media’ only by the virtue of analog output; computer screens, loudspeakers and printers are analog output devices interfaced to the computer via digital-to-analog conversion hardware like video and sound cards or serial interfaces.² An average contemporary personal computer uses magnetic disks (floppy and hard disks), optical disks (CD-ROM and DVD-ROM) and chip memory (RAM) as its storage media, and electricity or fibre optics as its transmission media. Theoretically, one could build a computer with a printer and a scanner that uses books and alphabetic text as its storage media.³ Alan Turing showed that no electronics are needed to build a computer; the Boston Computer Museum even features a mechanical computer built of wooden sticks.

Juxtapositions of ‘the book’ and ‘the computer’ are quite misleading, because they confuse the storage and analog output media (paper versus a variety of optical, magnetic and electronic technologies) with the information (alphabetical text versus binary code). They further ignore, by the way, the richness of storage and transmission media in traditional literature which, aside from the book, include oral transmission and mental storage, audio records and tapes, the radio and television, to name only a few.

If there are, strictly speaking, no such things as digital media, there also are, strictly speaking, no such things as digital images or digital sound. What we refer to as a 'digital image' is a piece of code containing the machine instructions to produce the flow of electricity with which an analog screen or an analog printer is made to display an image.⁴

Of course it is important whether a sequence of zeros and ones translates into, say, an image, because that defines its interpretation and semantics. The point of my (admittedly) formalistic argumentation is not to deny this, but to underline that

- when we speak of 'multimedia' or 'intermedia' in conjunction with computers, digital art and literature, we actually don't speak of digital systems as themselves, but about translations of digital information into analog output and vice versa;
- text and literature are highly privileged symbolic systems in these translation processes because a) they are already coded and b) computers run on a code.

Literature and computers meet first of all where alphabets and code, human language and machine language intersect, secondly in the interfacing of analog devices through digital control code. While of course we cannot think of code without media because we can't read it without them, the computer does not really extend literary media themselves. All those output media – electricity, electrical sound and image transmission, etcetera – existed before and without computers and digital information processing.

I therefore have to revise the position I took in several of my previous writings:⁵ if we speak of digital poetry, or computer network poetry, we don't have to speak of certain media, and we don't even have to speak of specific machines. If computers can be built of broomsticks – and networked via shoestrings; if any digital data, including executable algorithms, can be printed in books and from them read back into machines or, alternatively, executed in the mind of the reader, there is no reason why computer network poetry couldn't or shouldn't be printed as well in books.

Perhaps the term of digital 'multimedia' – or better: 'intermedia' – would be more helpful if we redefined it as the *the possibility to losslessly translate information from one sign system to the other, back and forth, so that*

the visible, audible or tactile representation of the information becomes arbitrary. A state that cannot be achieved unless the information is coded in some kind of alphabet, whether alphanumerical, binary, hexadecimal or, if you like, Morse code.

Literature

Synthesis: Putting Things Together

To observe the textual codedness of digital systems of course implies the danger of generalizing and projecting one's observations of digital code onto literature as a whole. Computers operate on machine language, which is syntactically far less complex than human language. The alphabet of both machine and human language is interchangeable, so that 'text' – if defined as a countable mass of alphabetical signifiers – remains a valid descriptor for both machine code sequences and human writing. In syntax and semantics, however, machine code and human writing are not interchangeable. Computer algorithms are, like logical statements, a formal language and thus only a restrained subset of language as a whole.

However, I believe it is a common mistake to claim that machine language would be only readable to machines and hence irrelevant for human art and literature and, vice versa, literature and art would be unrelated to formal languages. It is important to keep in mind that computer code, and computer programs, are not machine creations and machines talking to themselves, but writings by humans.⁶ Programmer-artist Adrian Ward suggests that we put the assumption of the machine controlling the language upside down:

I would rather suggest we should be thinking about embedding our own creative subjectivity into automated systems, rather than naively trying to get a robot to have its 'own' creative agenda. A lot of us do this day in, day out. We call it programming.⁷

Perhaps one could also call it composing scores, and it does not seem accidental to me that musical artists have picked up and grasped computers much more thoroughly than literary writers. Western music is an outstanding example of an art that relies upon written formal instruction code. Self-reflexive insider jokes such as 'B-A-C-H' in Johann

Sebastian Bach's music, the visual figurations in the score of Erik Satie's *Sports et divertissements* and finally the experimental score drawings of John Cage shows that, beyond merely serving the work of art, formal instruction code has an aesthetic dimension and intellectual complexity of its own. In many works, musical composers have shifted instruction code from classical score notation to natural human language. A seminal piece is La Monte Young's *Composition No.1 1961*, which simply consists of the instruction 'Draw a straight line and follow it.'⁸ Most Fluxus performance pieces were written in the same notation style. Later in 1969, American composer Alvin Lucier wrote his famous 'I Am Sitting in a Room' as a brief spoken instruction that very precisely tells how to perform the piece by playing itself back and modulating the speech through the room's echoes.

In literature, formal instructions is the necessary prerequisite of all permutational and combinatorial poetry.⁹ Kabbalah and magical spells are important examples as well. But even in a conventional narrative, there is an implicit formal instruction of how – that is in which sequence – to read the text (which may be followed or not, as opposed to hypertext which offers alternative sequence on the one hand, but enforces its implicit instruction on the other). Grammar itself is an implicit, and very pervasive formal instruction code. Although formal instruction code is only a subset of language, it is still at work in all speech and writing.

It is particularly remarkable about computing that the namespace of executable instruction code and nonexecutable code is flat. One cannot tell from a snippet of digital code whether it is executable or not. This property does not stand out in the alphabet of zeros and ones, but is solely dependent on how another piece of code – a compiler, a runtime interpreter or the embedded logic of a microprocessor – processes it. Computer code is highly recursive and highly architectural, building on layers upon layers of code.

Analysis: Taking Things Apart

The fact that one cannot tell from any piece of code whether it is machine-executable or not provides the principle condition of all e-mail viruses on the one hand, and of the codeworks of jodi, antiorp/Netochka Nezvanova, mez, Ted Warnell, Alan Sondheim, Kenji Siratori – to name

only a few – on the other; work that, unlike the actual viruses, is fictional in that it aesthetically pretends to be potentially viral machine code.¹⁰

The codeworks, to use a term coined by Alan Sondheim, of these writers and programmer-artists are prime examples of a digital poetry that reflects the intrinsic textuality of the computer. But they do so not by being, to quote Alan Turing via Raymond Queneau, computer poetry to be read by computers,¹¹ but by playing with the confusions and thresholds of machine language and human language, and by reflecting the cultural implications of these overlaps. The ‘mezangelle’ poetry of mez/Mary Ann Breeze, which mixes programming/network protocol code and non-computer language to a portmanteau-word hybrid, is an outstanding example of such a poetics.

Compared to earlier poetics of formal instruction, like in La Monte Young’s *Composition 1961*, in Fluxus pieces and in permutational poetry, an important difference can be observed in the codeworks: the Internet code poets and artists do not construct or synthesize code, but use code or code grammars they found and take them apart. I agree with Friedrich Block and his ‘Eight Digits of Digital Poetics’ that digital poetry should be read in the history and context of experimental poetry. A poetics of synthesis was characteristic of combinatory and instruction-based poetry, a poetics of analysis characterized Dada and its successors. But one hardly finds poetry with an analytical approach to formal instruction code in the classical twentieth-century avant-garde.¹³ Internet code poetry is being written in a new – if one likes, postmodernist – condition of machine code abundance and overload.

The hypothesis that there are no such things as digital media, but only digital code that can be stored in and put out on any analog medium, is perfectly verified by codework poetry. Unlike hypertext and multimedia poets, most of the artists mentioned here write plain ASCII text. The contradiction between a complex techno-poetical reflection and low-tech communication is only a seeming one; quite on the contrary, the low-tech is crucial to the critical implication of the codework poetics.

The development of hyperfiction and multimedia poetry practically paralleled the construction of the World Wide Web; hyperfiction authors rightfully saw themselves as its pioneers. In the course of the 1990s, they continued to push the technical limits of both the Internet

and multimedia computer technology. But since much digital art and literature became test-bed applications for new browser features and multimedia plug-ins, it simultaneously locked itself into non-open, industry-controlled code formats.¹⁴ Whether intentional or not, digital art thus strongly participated in the reformatting of the World Wide Web from an open, operating system- and browser-agnostic information network to a platform dependent on proprietary technology.

By readjusting the reader's attention from software surfaces that pretended not to be code back to the code itself, codeworks have apparent aesthetic and political affinities to hacker cultures. While hacker cultures are far more diverse than the singular term 'hacker' suggests,¹⁵ hackers could also be distinguished as those who put things together – like Free Software and demo programmers – and those who take things apart – like crackers of serial numbers and communication network hackers from YIPL/TAP, Phrack, 2600 and Chaos Computer Club schools. Code poets have factually adopted many poetical forms that were originally developed by various hacker subcultures from the 1970s to the early 1990s, including ASCII Art, code slang (like '7331 wAr3z dood' for 'leet [=elite] wares dood [=dude]') and poetry in programming languages (such as Perl poetry), or they even belong to both the 'hacker' and the 'art' camp.

From its beginning, conceptualist Net art engaged in a critical politics of the Internet and its code, and continues to be closely affiliated with critical discourse on Net politics in such forums as the 'Nettime' mailing list. In its aesthetics, poetics and politics, codework poetry departs from Net art rather than from hyperfiction and its historical roots in the Brown University literature programme.

How does digital code relate to literary text? If one discusses the poetics of digital code in terms of the poetics of literary text – instead of discussing literary text in terms of digital code – one may consider both of them interrelated without having to subscribe, as John Cayley suggested in his abstract to the German 'poes1s' conference,¹⁶ to Friedrich Kittler's techno-determinist media theory; a theory that, despite all of its intellectual freshness, seems to fall into the metaphysical trap Derrida described in *L'écriture et la différence*: by replacing one metaphysical centre – in Kittler's case: *Geist* (spirit), *Geistesgeschichte* (intellectual history) and *Geisteswissenschaft* (humanities) – with another one – technology,

history of technology and technological discourse analysis – it writes on metaphysics under a different label, contrary to its own claim to have rid itself of it.

The subtitle of this text is an open question: ‘Can notions of text which were developed without electronic texts in mind be applied to digital code, and how does literature come into play here?’ For the time being, I would like to answer this question at best provisionally: while all literature should teach us to read and deal with the textuality of computers and digital poetry, computers and digital poetry might teach us to pay more attention to codes and control structures coded into all language. In more general terms, program code contaminates in itself two concepts that are traditionally juxtaposed and unresolved in modern linguistics: the structure, as conceived of in formalism and structuralism, and the performative, as developed by speech act theory.

7. Ctrl > Alt > Delete

On the Rapid Decline of New Literature: Why Net Poetry Today is Even Less Interesting Than It Was a Decade Ago
2010

The greater the technological dependencies of an electronic text on other layers of (software, hardware, networking) technology, the higher the probability that one or more layers will break and make the piece unreadable, and even unpreservable. In the past two decades of electronic poetry, this has happened more often than not. Even with sensible choices of file formats, electronic publication is radically more unstable than print. A common understanding of electronic literature as an expansion of simple text has sped up its slide into technical obsolescence, for better or worse, an inbred academic poetics, multimedia ideology and rather uncritical choices of technology have contributed to the status quo. More sustainable types and cultures of online writing do exist, but suffer from the little technological excitement they offer to new media scholars.

Despite numerous breaks and crises, electronic literature in the various senses in which it has been discussed since the 1960s – first in the context of concrete poetry, Oulipo and generative art, later as ‘hyper-

fiction' and 'e-poetry' and finally as a culture of Internet writing – has remained an academic art form. What began as a product of university computer labs and later migrated to American creative writing seminars has been dominated in the last decade by American and European literary scholars who alternate between the roles of poet and theorist, mutually canonizing each other while simultaneously supplying a fresh stock of material for study.¹ This text, its author and the book in which it appears are no exception. Indeed, all of postmodern American literature, from language poetry to the prose of John Barth, has been written by professors, printed by university publishing houses and read primarily by students of literature. 'Electronic literature' may well end up going down in literary history as an operation of academic navel-gazing whose products are, above all else, historical documents of interest only in regards to media technology and the sociology of literature.² Now that almost all prominent academic media arts (and electronic literature) programmes in Europe have either been discontinued or re-structured,³ the end of the 'media arts' discourse and its subdivision, Net literature, seems imminent.

This situation has unintentionally solved the issue of archiving such literature: similar to pre-Socratic and Gnostic writings, these will need to be passed down through secondary rather than firsthand sources. The neo-futuristic belief that a Net culture decade equals a conventional century proves to be true within electronic poetry: once such works grow to be any older than about half a decade, they are historical and in most cases already lost. Computer poetry and narrative generators written on lab machines in Fortran, Cobol and Algol between the 1950s and 1970s,⁴ Hypercard poetry from the late 1980s, and hypertext or multimedia literature written in Storyspace and Macromedia Director/Shockwave can only be read through elaborate, dissipative data conversions or emulations of old operating systems.

Even the majority of Net literature and art made for the World Wide Web since the 1990s is missing or arcane. These works require browser functions, plug-ins or data formats that no longer exist, their web addresses have disappeared, or their pages link to online documents and resources that have been erased.⁵ What Jochen Hörisch and Hubert Winkels (metaphorically) referred to as the 'the quick aging of new literature'⁶ in the 1980s now takes literal effect. These problems

have not diminished over the 20 years or so of the World Wide Web's existence. Ever since 'Web 1.0's' idea of the 'docuverse' and the global electronic library⁷ was supplanted by 'Web 2.0' – a constantly updated universal operating system for online software applications – these difficulties have, instead, increased and escalated. To add to this, there is no cultural lobby for the Web. In the eyes of media management and politics – at least in Europe – Net works are not part of our cultural heritage. They are, instead, a menace to it.⁸ The Internet Archive,⁹ which allows rudimentary access to Internet documents from the past, is financed through private donations, has a smaller annual budget than a European municipal theatre and, in light of what it is and does, is in violation of copyright law.¹⁰ Though the artistic, technological, economic and political designers of the Web have very different interests, they have all contributed to the fact that the Internet has become the world's first ephemeral mass medium of writing. The 600-page *Kleine Enzyklopädie der digitalen Langzeitarchivierung* (*Small Encyclopedia of Long-Term Archiving*), produced by the research project Nestor,¹¹ explains why so-called digital media are barely archivable for the long term. Provided that it is not available as a classic ASCII text document, electronic literature, it seems, is practically not archivable at all.¹²

Instead, Net poetry and art has primarily been conserved in secondary literature taking the form of printed books. The early Net art of Jodi, Olia Lialina, Heath Bunting, Vuk Cosic and Alexei Shulgin, for example, migrated from the World Wide Web into books about Net art by Tilman Baumgärtel (1999), Rachel Greene (2004), Mark Tribe (2006) and Edward Shanken (2009). The German Net literature discourse of the 1990s and early 2000s can only be reconstructed through printed anthologies and monographs from that period.¹³ In this respect, Net art is similar to other ephemeral art manifestations, such as Fluxus in the 1960s, performance in the 1970s, and the 'relational aesthetics' of the 1990s. The difference is that the system of literature, as opposed to that of modern and contemporary art, still has to adjust to the idea of an ephemeral writing with an uncalculable expiration date. The triad of stabilization that traditional literary publishing is committed to – a process that leads from fragile manuscript, through editorial treatment, to a 'safe' body of work – is exactly reversed in Net literature. Net literature begins with the gesture of saving, passes over into entropy through shifts in the

technical environment, and ends with the loss of the work: Control -> Alt -> Delete.¹⁴

The so-called digital media are thus only so-called because although their information may be digital their carrier medium is always analog: the magnetized metal platters of computer hard drives, laser cut CDs, plastic DVD and BluRay discs, the overheating silicon of RAM and ROM chips, copper network and data cables, the air oscillations of radio waves.¹⁵ The instability of computer data doesn't just have physical hardware to thank. Besides the malfunctions and general wear and tear of these material supports, the layered software abstractions of data storage also contribute. Even the most simple HTML document can only be read through the display software of the browser, which conversely relies on a stack of the input routines, the data format for programs executable by the operating system, and the main processor's burnt chip command. The file system software of the computer's operating system in turn abstracts from the formatting of the file system (which is why an HTML document appears to stay the same regardless of whether it is saved on a DOS or an ISO system, for example). This, in turn, abstracts from the physical storage medium (CD-ROM or hard drive). If just one element is removed from this stacked system, the whole house of cards collapses.

In contrast to this, classical analog print carriers like the book are self-supporting: the physical storage and haptic, visual display of their symbolic information clump together to form a stable, unified hardware that can be used independently of other technical components. In analog film this dependency is restricted to one element: the projector. Since this has remained constant for over 100 years, the film industry continues to use 35mm celluloid prints for long-term archiving, even when it comes to digitally produced films. The World Wide Web additionally suffers from a structural weakness stemming from the fact that it does not save information in a redundant and dispersed manner; instead, web servers and their URL addresses create single points of failure. If a library's copy of a book goes missing, an extra copy can almost always be found in another library. Yet, in most cases, if a web server disappears from the Internet, a domain name expires, or a file is erased or overwritten, it is lost. Peer-to-peer data exchange networks like 'BitTorrent', 'Soulseek' and, above all, the radically decentralized,

redundantly distributed 'Freenet' – which is based on stable check sums of files as opposed to ephemeral server addresses – solve many of these problems only in theory. In practice, they are even more ephemeral than the World Wide Web, because they are built from an ad hoc group of private computers that happen to be temporarily connected to the Net. For literature and text publishing, a division of labour therefore comes about between the Internet as a rapid, short-term medium and the printed book as a long-term medium. This division settles the debates within media theory around the end of the book and the Gutenberg Galaxy.¹⁶ In terms of preserving the type of computer literature that can't simply be cast into a conventional text document or audio recording, perhaps the best method would be to record 35mm screen films of users reading and manipulating such texts;¹⁷ or at least, as is already quite common, have screenshots printed in catalogues and secondary texts.

Classic computational poetry machines, such as Georg Philipp Harsdörffer's *Fünffacher Denckring der teutschen Sprache*¹⁸ and Raymond Queneau's *Cent mille milliards de poèmes*,¹⁹ have survived for decades and centuries thanks to the self-supportive medium of the printed paper machine. The electronic computer adaptation of the *poèmes* produced by the Oulipo subgroup ALAMO in the 1970s, on the other hand, has already gone missing. My own World Wide Web adaptation of both works, produced in 1997, still exists and functions because – in contrast to later, more visually attractive *Shockwave* and *Flash* versions – it was conservatively built within the constraints of simple, standardized Web 1.0 and open source technology. It used HTML 2.0 without tables, frames, javascript and plug-ins and without the typographic misappropriation of semantic tags. It used the open source programming language Perl, which has remained rock-solid for over two decades. And it employed the standardized Common Gateway Interface (CGI) – used since the beginnings of the World Wide Web for server side web applications. This painstaking compliance to open technical standards and the aversion to Netscape, Microsoft, Macromedia and later Google-sponsored software (proprietary web design trends from 'DHTML' to Flash-based 'Rich Internet Applications' to 'AJAX') was a product of the Linux and free software activism that came about in the 1990s. It extended the functioning of my website from the usual few years to

more than a decade. Since Perl is already being dubbed the ‘Fortran of the Web’ – referring to a programming language and technology that was once ubiquitous and is now archaic – and since most Web programming languages are now no longer called up via CGI, but are rather integrated directly in the web server software to increase efficiency, it looks as if the website’s days are numbered too.²⁰

In the fourth and final section of her essay ‘Electronic Literature: What Is It?’,²¹ N. Katherine Hayles discusses the archivability of computer poetry in great detail, without leaving any problems aside. And yet, her text – which refers to the *Born Again Bits* campaign by the X-Literature Initiative as well as the *Acid-Free Bits* initiative organized by the *Preservation, Archiving, and Dissemination (PAD)* project she co-founded under the umbrella of the Electronic Literature Organization – is much more optimistic than this one. The recommendations of both groups, whose members consist of prominent American media scholars such as Nick Montfort and Alan Liu, are surprisingly few. Already in 2004, the PAD-Initiative²² suggested that museums start storing old hardware and software emulators for works that cannot be preserved by other means. The initiative also made an appeal to authors to write in open rather than closed systems, to use non-industrially developed data formats (markup languages instead of Flash and PDF, for example), text instead of binary files, cross-platform software as opposed to software that is operating-system specific, and to document their source code. Their suggestions are a manifesto for writers to retreat from the world of commercial media design tools and platforms offered by Adobe-Macromedia, Eastgate, Apple and Microsoft and to dedicate themselves to open source and open Internet standards. In the same year, the X-Literature Initiative²³ called for the development of an open source software that would be able to play hypertext and multimedia literature written in Hypercard, Storyspace and Macromedia Director. The initiative also called for the creation of ‘X-Lit,’ a new, open multimedia file format for electronic poetry based on XML. Almost a decade later, at the time of this book’s publication, none of X-Literature’s demands have been fruitful, however. The open source reprogramming of Storyspace, Hypercard and Director would be a Herculean task, similar in scale to Mozilla’s free Internet programs, Firefox and Thunderbird, the development of which at present costs approximately 8 million dollars per year.

Besides, an open source Hypercard or Director would be doomed to fail because of the numerous industry patents on audiovisual encodings that would have to be compatibly integrated. Not surprisingly, the X-Lit file format²⁴ has also come to nothing. A structured, universal file format for rich, multimedia, networked, programmed texts in addition to the design of a corresponding authoring and playback software would be even more elaborate to develop than an open source Director or Hypercard. Besides all of this, the paradigm of the integrated multimedia publication file comes from the era prior to the World Wide Web. It is based on a surprisingly conventional notion of the literary work that is evidence of electronic literature's background within creative writing seminar assignments as opposed to the non-academic writing cultures of Web communities. The hypothetical X-Lit file format could only represent texts from today's Web writing platforms, such as Wikis and social networks, with dislocations and contortions – if at all.

This again demonstrates that not all computer problems can be solved through computer technology. When software problems are fixed through ever more software, as Microsoft tends to demonstrate, the increased complexity generally ushers in new, larger problems. Even the more pragmatic health guide offered by *Acid Free Bits* doesn't lend my old Perl text automatons any technical durability in a conventional 'medium-term' or 'long-term' sense, although the project complies with all of their open source, open format and commentary recommendations.

The most permanent texts have proven to be those written in the most simple ASCII format. The website www.textfiles.com contains nearly 60,000 text files: from technical instructions for hacks and ASCII typograms to science fiction and porno short stories. Most of these texts derive from subcultural home computer modem networks dating back to the early 1980s. The codeworks that circulated on Net art e-mail forums in the 1990s to mid-2000s²⁵ have also remained lossless and legible on a technical level, provided they were saved somewhere on a personal computer or on the Internet. Deliberately referencing the older hacker subculture, such works created a vocabulary that drew from programming and markup languages, network protocols and error codes, all of which were used poetically and semantically as opposed to technically.

As a medium, text seems to be evolving in a similar manner as images, music and films on the Net. For such media, conventional yet unobtrusive and universally exchangeable, playable, editable and saveable formats (JPEG, MP3 and MPEG) have come to prevail. This shows once more that the bourgeois multimedia ideology that developed out of the exploded book pages, pianos and film reels of the avant-gardes – from Marinetti's liberated words through Higgins' *Intermedia*²⁶ all the way to Manovich's *New Media*²⁷ – will no longer be able to maintain its discursive hegemony over electronic literature with respect to the Net.

8. The Creative Commons Misunderstanding

2006

The growing popularity of the Creative Commons licenses has been accompanied by a growing amount of criticism. The objections are substantial and boil down to the following points: that the Creative Commons licenses are fragmented, do not define a common minimum standard of freedoms and rights granted to users or even fail to meet the criteria of free licenses altogether, and that unlike the free software and open source movements, they follow a philosophy of reserving rights of copyright owners rather than granting them to audiences. Yet it would be too simple to only blame the Creative Commons organization for those issues. Having failed to set their own agenda and competently voice what they want, artists, critics and activists have their own share in the mess.

In his paper 'Towards a Standard of Freedom: Creative Commons and the Free Software Movement', free software activist Benjamin Mako Hill analyses that:

Despite CC's stated desire to learn from and build upon the example of the free software movement, CC sets no defined limits and promises no freedoms, no rights, and no fixed qualities. Free software's success is built upon an ethical position. CC sets no such standard.¹

In other words, the Creative Commons licenses lack an underlying ethical code, political constitution or philosophical manifesto such as the Free Software Foundation's 'Free Software Definition' or Debian's 'Social

Contract' and the Open Source Initiative's 'Open Source Definition'.² Derived from each other, these three documents all define free and open source software as computer programs that may be freely copied, used for any purpose, studied and modified on source code level and distributed in modified form. The concrete free software licenses, such as the GNU General Public License (GPL), the BSD license and the Perl Artistic License, are not ends in themselves, but only express individual implementations of those constitutions in legal terms; they translate politics into policies.

Such politics are absent from the Creative Commons. As Mako Hill points out, the 'non-commercial' CC licenses prohibit use for any purpose, the 'no-derivatives' licenses prohibit modification, and the CC 'Sampling License' and 'Developing Nations License' even disallow verbatim copying. As a result, none of the user rights granted by free and open source software are ensured by the mere fact that a work has been released under a Creative Commons license. To say that something is available under a CC license is meaningless in practice. Not only does the CC symbol look like a fashion logo, it also isn't more than one. Richard Stallman, founder of the GNU project and author of the Free Software Definition, finds that 'all these licenses have in common is a label, but people regularly mistake that common label for something substantial'.³ Yet some if only vague programmatic substance is expressed in CC's motto 'Some rights reserved'. Beyond being, to quote Mako Hill, a 'relatively hollow call', this slogan factually reverses the free software and open source philosophy of reserving rights to *users*, not copyright owners, in order to allow the former to become producers themselves.

While Mako Hill embraces at least a few of the CC licenses, such as the ShareAlike License under which his own essay is available, Stallman finds it a 'self-delusion to try to endorse just some of the Creative Commons licenses, because people lump them together; they will misconstrue any endorsement of some as a blanket endorsement of all'.⁴ According to an entry on his weblog, Stallman had 'asked the leaders of Creative Commons privately to change their policies, but they declined, so we had to part ways'.⁵ The Debian project even considers all CC licenses non-free and recommended, in 2004, that 'authors who wish to create works compatible with the Debian Free Software Guidelines should not

use any of the licenses in the Creative Commons license suite',⁶ mostly because their attribution clause limits modifications, because of restrictions on the Creative Commons trademark and ambiguously worded anti-'Digital Rights Management' (DRM) provisions that could be interpreted as prohibiting distribution over any encrypted channel, including for example PGP-encoded e-mail and anonymizing proxy servers.

Whatever stance one may adopt, the name 'Creative Commons' is misleading because it doesn't create a commons at all. A picture released, for example, under the Attribution-ShareAlike license cannot legally be integrated into a video released under the Attribution-NonCommercial license. Such incompatible license terms put what is supposed to be 'free content' or 'free information' back to square one, that is, the default restrictions of copyright – hardly that what Lawrence Lessig, founder of the Creative Commons, could have meant with 'free culture' and 'read-write culture' as opposed to 'read-only culture'. In his blog entry 'Creative Commons Is Broken', Alex Bosworth, programme manager at the open source company SourceLabs, points out that 'of eight million photos' posted under a CC license on Flickr.com: 'Less than a fifth allow free remixing of content under terms similar to an open source license. More than a third don't allow any modifications at all.' The 'principle problem with Creative Commons,' he writes, 'is that most of the creative commons content is not actually reusable at all.'

While these problems may at least hypothetically be solved through improvements of the CC license texts – with the license compatibility clauses in the draft of the GNU GPL version 3 as a possible model – there are farther-reaching issues on the level of politics as opposed to merely policies. CC's self-definition that 'our licenses help you keep your copyright while inviting certain uses of your work – a "some rights reserved" copyright', translates into what software developer and Neoist Dmytri Kleiner phrases as follows: 'The Creative Commons, is to help "you" (the "Producer") to keep control of "your" work.' Kleiner concludes that:

The right of the 'consumer' is not mentioned, neither is the division of 'producer' and 'consumer' disputed. The Creative 'Commons' is thus really an Anti-Commons, serving to legitimise, rather than deny, Producer-control and serving to enforce, rather than do away with, the distinction between producer and consumer.⁸

Citing Lessig's examples of DJ Dangermouse's 'Grey Album' and Javier Prato's 'Jesus Christ: The Musical' – 'projects torpedoed by the legal owners of the music used in the production of the works' – Kleiner sharply observes that: 'The legal representatives of the Beatles and Gloria Gaynor could just as easily have used Creative Commons licences to enforce their control over the use of their work.'

The distinction between 'consumers' and 'producers' couldn't be more bluntly stated than on CC's home page. It displays, at its very top, two large clickable buttons, one labelled 'FIND Music, photos and more', the other 'PUBLISH Your Stuff, safely and legally', the former with a down arrow, the latter with an up arrow in its logo.⁹ The small letters are no less remarkable than the capitals. Upon first glance, the adverbs 'safely and legally' sound odd and like material for a future cultural history museum of post-Napster and post-9/11 paranoia. But above all, they name and perpetuate the fundamental misunderstanding artists seem to have of the Creative Commons: free licenses were not meant to be, and aren't, a liability insurance against getting sued for use of third-party copyrighted or trademarked material. Whoever expects to gain this from putting work under a Creative Commons license is completely mistaken.

Artists are desperately looking for a solution to a problem that ultimately resulted from their own efforts of redefining art. When art was granted, in Western cultures at least, an autonomous status, artists were – to a moderate degree – exempt from a number of legal norms. Kurt Schwitters was not sued for collaging the logo of German Commerzbank into his *Merz* painting which yielded his *Merz* art. Neither did Andy Warhol receive injunctions for using Coca Cola's and Campbell's trademarks. As long as these symbols remained inside the art world, they did not raise corporate eyebrows. Experimental artists embraced the Internet just because it did away with the separation of white cubes – in which logos and trademarks were safe from being mixed up with the original ones – and the outside world. Mainly thanks to the Internet, artistic simulations of corporate entities were believable for the first time. The Yes Men could pose as the World Trade Organisation and get invited to the World Economic Forum as WTO representatives, 01001011101010101.org could tactically disguise themselves as the Nike company. Older artistic simulations like Res Ingold's

'Ingold Airlines' were not only transparent and clumsy in comparison, but also on the safe grounds of an art system with little or no interference of corporate lawyers. But ever since the World Wide Web, file sharing and cheap or free authoring software tore down walls between art and non-art practice, producers and consumers, former consumers were held liable as producers, and artistic production became subject to non-art world norms, as obvious in the FBI investigations of Steve Kurtz and ubermorgen.com for bioterrorism, respectively tampering with the US presidential elections.

Misunderstandings abound between radical copyleft activists and artists who just seek to legitimize their use of third-party material. When Lawrence Lessig characterizes the Creative Commons as "fair use"-plus: a promise that any freedoms given are always in addition to the freedoms guaranteed by the law',¹⁰ this is technically correct, but nevertheless easy to misunderstand, especially for people who aren't legal experts. Putting a work under a CC license – or even a non-ambiguously free GNU or BSD license – means to *grant* rather than to *gain* uses in addition to standard fair use. The Creative Commons do not solve the problem of how not to get sued by Coca Cola or Campbell's at all. Non-free copyrighted material cannot be freely incorporated into one's work no matter what license one chooses. Even worse, the opposite is true: copyright owners are most likely to categorically refuse clearance for anything that will be put into free circulation because the license of the work incorporating theirs would effectively relicense the latter. If, for example, the Corbis corporation would permit the photograph of Einstein sticking out his tongue – for which it holds the rights – to be reproduced in a freely licensed book, it would free the picture for anyone else's use as well. Since this can hardly be expected from the Bill Gates-owned company, free licensing often restrains rather than expands one's possibilities of using third-party material.

This example reveals a crucial difference between software development and artistic practice: programming can sustain itself on its own, self-built library of reusable work, art hardly so. The GNU copyleft works on the premise that modifications are also contributions. If, for example, a company like IBM chooses to modify the Linux kernel to run on its own servers, the GNU license forces it to give back the added code to the development community. And the more code that is avail-

able as free software, the higher the incentive for others to simply build on existing free code libraries and give back changes rather than build a new program from scratch. This explains why even for computer companies, free software development can make more economic sense than the close source commercial model. In addition, free software development profits from a difference between source code and perceivable appearance that doesn't have an exact equivalent in most artistic work: programs can be written that look and behave similarly or identically to proprietary counterparts as long as they don't use proprietary code and do not infringe on patents and trademarks. This way, AT&T's Unix could be rewritten as BSD and GNU/Linux, and Microsoft Office could be cloned as OpenOffice. Even patents that could spoil such borrowings aren't as internationally universal and not remotely as long-lasting as copyright. In other words, free software development could be an 'appropriation art' without copyright infringement.

The same isn't possible for most artists, however. It makes little sense for them to restrict their uses to material whose copyright has either expired or that has been released under sufficiently free terms. The Coca Cola logo can't be cloned as a copylefted 'FreeCola' logo, and it would be pointless for the Yes Men to pose as an 'OpenWTO' or for 0100101110101101.org to have run as 'GNUke' instead of Nike. If even harmless collaging, sampling and quoting becomes risky because of media industrial Internet copyright paranoia and entire business models based on injunctions and lawsuits, this is a political matter of fair use, not of free licenses. In the worst case, free licenses, all the more fluffy and pseudo-free ones like the Creative Commons, could be used to legitimize new restrictions of fair use legislation, or even its abolition altogether, with the alibi that the so-called 'ecosystem', or ghetto, of more or less freely licensed work provides enough fair use for those who bother to care.¹¹

It is not hard to bash the Creative Commons for being an organization run with little understanding of the arts, and not even a good understanding of open source and free software philosophy. On the other hand, artists themselves have failed to voice what they want. The exceptions are few and rather marginal: the anti-copyright philosophies and politics of Lautréamont, Woody Guthrie (who, according to Dmytri Kleiner, released his songbook with the license that 'anybody caught

singin' it without our permission, will be mighty good friends of ours, cause we don't give a dern. Publish it. Write it. Sing it. Swing to it. Yodel it'), Lettrists, Situationists, Neoists, Plunderphonics musicians and some Internet artists including the French artlibre.org collective whose 'Free Art License' predates the Creative Commons by two years.¹²

A team of lawyers whose work consists of creating, as Bosworth puts it, 'low cost legal templates', the Creative Commons organization has simply listened to all kinds of artists and activists, trying to do justice to diverse and sometimes contradictory needs and expectations, with licenses 'designed to give artists choice' (Mako Hill) rather than prioritizing free use and reuse of information. In contrast, free software and open source are, like any human and civil rights effort, universalist at their core, with principles that are neither negotiable, nor may be culturally relativized.

If someone is to blame for the fact that artists, political activists and academics from the humanities have largely failed to recognize those essentials, then it is Eric S. Raymond, founder of the 'Open Source Initiative',¹³ the group that coined the term 'Open Source' in 1998. The main advantage of the term 'Open Source' over 'Free Software' is that it doesn't merely refer to computer programs, but evokes broader cultural connotations.¹⁴ For most people with artistic backgrounds, GNU's 'Free Software' sounded too confusingly similar to (close-source) 'freeware' and 'shareware'. 'Open Source' sparked an all the richer imagination as Raymond didn't simply pitch it as an alternative to proprietary 'intellectual property' regimes, but as a 'Bazaar' model of open, networked collaboration. Yet this is not at all what the Open Source Initiative's own 'Open Source Definition' says or is about. Derived from Debian's 'Free Software Guidelines', it simply lists criteria licenses have to meet in order to be considered free, respectively open source. The fact that a work is available under such a license might enable collaborative work on it, but it doesn't have to by definition. Much free software – the GNU utilities and the free BSDs for example – is developed by rather closed groups and committees of programmers in what Raymond calls a 'Cathedral' methodology. Conversely, proprietary software companies such as Microsoft may develop their code in distributed 'Bazaar' style. Nevertheless, the homepage of <http://www.opensource.org> states that the 'basic idea behind open source' is about how 'software evolves . . . at a speed that, if one is used to the slow pace of conventional software

development, seems astonishing', thus producing 'better software than the traditional closed model'. Regardless of which position one takes in the philosophical and ideological dispute between 'Free Software' and 'Open Source', the self-characterization of open source as a development model mixes up cause and effect, being inconsistent with what the Open Source Definition, on the same website, qualifies as open source, that is software whose licenses fulfil its criteria of openness.

Given how 'Open Source' has been propagated as a model of networked collaboration instead of user rights or free infrastructures, the gap between the lip-service paid to it in the arts and humanities and the factual use of free software and copyleft comes as little surprise. 'Cultural' free software conferences whose organizers and speakers run Windows or the Mac OS on their laptops continue to be the norm. With few exceptions, art education hardly ever involves free software, but is tied to proprietary software tool chains. Yet – often vague or ill-informed – open source references abound in media studies and electronic arts writing.

The problem is not so much that people do not use free operating systems, but that software-political correctness anxiety prevents a more honest critical discourse. A debate on 'why free software doesn't work for us' would be more productive for free software development than the current hypocrisy. Recent discussions on why, for example, free software culture involves disproportionately few women – even in comparison to proprietary software development – have at least begun to tackle some of those issues.

Productive critique, after all, is needed. Eight years after the coinage of 'Open Source', Raymond's Hegelian claims of superior development methodologies sound increasingly hollow. Free software hasn't displaced proprietary software at all. Despite its success on servers and in embedded systems, it is unlikely to take over mainstream personal computing any time soon. Free software, it seems, has its strength in building software infrastructure: kernels, file systems, network stacks, compilers, scripting languages, libraries, web, file and mail servers, database engines. It lags behind proprietary offerings, for example, in conventional desktop publishing and video editing, and, as a rule of thumb, in anything that isn't highly modularized or used a lot by its own developer community. The closer the software is to the daily needs and work methods of programmers and system administrators, the higher typically its quality.

Similar rules seem to apply to free information, respectively ‘Open Content’ development. The model works best for infrastructural, general, non-individualistic information resources, Wikipedia being a prime example. Similarly, the cultural logic of sounds and images circulating under CC licenses is largely that of stock music, stock photography and clip art, regardless of the fact that current CC licenses mostly fail to permit their ‘mashups’, boiling down to little more than ‘Web 2.0’ lifestyle logos. Beyond software, infrastructural information and publishing that waives reproduction rights, the value of free licensing is somewhat doubtful. Experimental, radical art and activism that does not play nice with third-party copyrights and trademarks can’t be legally released and used under whatever license anyway. Its work should rather – and explicitly – be released into the public domain with, quote jodi, ‘all wrongs reversed’ and, quote Kleiner, ‘all rights detoured under the terms of the Woody Guthrie General License Agreement’. For professional artists, this simply means to acknowledge the reality of contemporary art economics: that artists, with the exception of a handful of stars, no longer live from producing material goods (for which copyright granted lifetime monopolies, or at least the illusion of continuous revenue streams), but like seventeenth-century project entrepreneurs, from commissioned projects whose material products have little or no market value by themselves.

Copyright, having turned from regulation into subsidy of publishing industries, is the twenty-first-century equivalent of drug legislation. Everyone knows that it is obsolete, dysfunctional and depriving people of their rights; absurd wars are fought in its name. The simple fix is to abolish it.

9. Animals that Belong to the Emperor

Failing Universal Classification Schemes from Aristotle to the Semantic Web

2007

The weapon with which state-subsidized European search technology projects allegedly intend to beat Google is semantic information processing: pattern recognition in media files in the French Quaero project, Semantic Web technology in Theseus, its German offspring. Originally,

Quaero was a French-German collaboration, funded by both governments, until the German Theseus project split off to pursue its own vision of future ways to search the Web. This vision is twofold, involving a number of classic holy grails of computer science:

1. To provide ways to search the Web on the basis of Semantic Web meta tags;
2. To have software recognize the contents of web pages in order to automatically apply those tags.

While the second point is utopian enough and something that artificial intelligence research failed to achieve for decades, even the first point, the universal nomenclature of semantic tagging known as the Semantic Web, is doomed to fail by any critical standard of cultural reflection. The reason that the Theseus project nevertheless receives high public funding is economic and political, but, with its stated goals, hardly related to anything resembling a working Web search engine.

Founded and pursued by Tim Berners-Lee, the original architect of the World Wide Web, the 'Semantic Web' is a term and project that is not only prone to major confusion, but also emblematic of how the alienation between engineering and humanities goes both ways: shockingly naive and simplistic understandings of cultural concepts among the former, and a complete misunderstanding of the 'Semantic Web' among the latter because its terminology of 'semantics' and 'ontologies' is plainly weird or mystifying outside computer science. In 2004, prior to Quaero and Theseus, the German federal government subsidized research on the Semantic Web with 13.7 million euros, reasoning that as a 'semantic technology' it would allow people to phrase search terms as normal questions, thus giving computer illiterates easier access to the Internet. But the Semantic Web is actually not about this at all; the funding was, in another words, a 13.7-million-euro misunderstanding.¹

Natural language question parsing indeed is another holy grail of artificial intelligence research, parodied by Weizenbaum's 'Eliza', and tried by Web search engines from 'Ask Jeeves' – which renamed itself Ask.com after de-emphasizing its original concept – to 'Powerset', recently brought up by Geert Lovink on the Nettime mailing list.² Full semantic natural language understanding falls into the previously mentioned second

category, the nut that ‘hard’ artificial intelligence research has claimed over decades to have almost, but just not quite, cracked, while critical artificial intelligence researchers like Luc Steels claim that it cannot be reached with current computer architectures, regardless of their speed. In search engine reality, natural language search systems boil down to nothing more than inefficient interface wrappers around Boolean search expressions with their logical AND, OR and NOT operators.

The Semantic Web does not fall into this trap because it does not involve any automatic interpretation of meaning. Instead, Berners-Lee insists that his project ‘does not imply some magical artificial intelligence which allows machines to comprehend human mumblings’³ – in sharp contradiction to the stated goal of the Theseus project. Instead, he conceives of the Semantic Web as a universal, unified markup or ‘meta tagging’ system: ‘Instead of asking machines to understand people’s language, it involves asking people to make the extra effort.’

This effort, semantic tagging, is a well-established and popular device on sites like the photo sharing platform flickr.com, the news aggregator digg.com and the bookmarking site del.icio.us. It simply means that users attach keywords to texts, images and other resources, making the information searchable by keywords or particular keyword combinations. On Flickr, for example, the search keyword combination ‘birthday’, ‘children’ and ‘clown’ results in a list of pictures of clowns appearing at children’s birthday parties – not because of any Quaero-style computer recognition of the image contents and Theseus-style automatic keyword mapping, but because the keywords have been manually assigned to these images by Flickr users.

While such manual tagging also lies at the heart of the Semantic Web, systems like those of Flickr, digg and deli.icio.us are nevertheless flawed from its perspective because they involve no unified standard or nomenclature for tagging. If, for example, a user tagged an image with the word ‘kids’ instead of ‘children’, it will not turn up in the search result. On top of that, the tags lack abstraction and universality: children, for example, could be classified as a subset of humans, humans as a subset of mammals; birthdays as a subset of celebrations, and so forth. With such a classification, pictures marked up with ‘birthday’ and ‘children’ could also be found in a more general search for pictures of human celebrations. For this reason, unsystematic, ad-hoc, user-generated

and site-specific tagging systems like those on Flickr are referred to as ‘folksonomies’.⁴

The Semantic Web promises to overcome folksonomies with unified and standardized keyword tagging systems for any domain of knowledge. In other words, it is a universal classificatory description system and grand unified hierarchical meta tag tree. In line with computer science terminology, but sounding mysterious and idiosyncratic to anyone else, Berners-Lee calls this classificatory system an ‘ontology’, making the project particularly confusing for people with backgrounds in philosophy and humanities – because what he and computer science call ‘ontology’ is, outside such jargon and in a more commonsense language, not an ontology, but a cosmology.

Just as cosmologies are by no means new, so are universal classification and tagging systems of all things in the world. In his essay and short-story ‘The Analytical Language of John Wilkins’, Jorge Luis Borges writes about the English seventeenth-century scholar:

He divided the universe in forty categories or classes, these being further subdivided into differences, which was then subdivided into species. He assigned to each class a monosyllable of two letters; to each difference, a consonant; to each species, a vowel. For example: **de**, which means an element; **deb**, the first of the elements, fire; **deba**, a part of the element fire, a flame.

Similar classification schemes have been designed throughout the Middle Ages and Renaissance, among others by Ramon Llull, Giordano Bruno, encyclopaedist Johann Heinrich Alsted and theosophist Jan Amos Comenius, scholars in whose tradition Wilkins, a founding member of the ‘Invisible College’, works and thinks. Before Diderot’s and d’Alembert’s revolutionary, heretic device of arbitrarily structuring human knowledge by the alphabet, encyclopaedias developed increasingly complex tree-like classification systems of all things in the world they described.⁵ The cosmology-called-ontology of the Semantic Web is not only similar, but precisely the same.

Medieval and Renaissance classificatory cosmologies could only work on the basis of a stable assumption of what the world is and how it is structured: for example, by the four directions, the four seasons, the

four temperaments, the seven virtues and seven vices, etcetera. They were, in other words, still embedded in the paradigm of Medieval scholastic science that in turn had been derived from Aristotle's system of categories and its classification of beings into genres and species. The Semantic Web is, bluntly said, nothing but technocratic neo-scholasticism based on a naive if not dangerous belief that the world can be described according to a single and universally valid viewpoint; in other words, a blatant example of cybernetic control ideology and engineering blindness to ambiguity and cultural issues.

Although no Semantic Web existed in the 1940s, Borges' essay hits the nerve of the issue. One is tempted to replace the name John Wilkins with Tim Berners-Lee when Borges reviews the former's categories and finds that stones, for example, are absurdly classified as either common, or modic, precious, transparent and insoluble, or that beauty is assigned to a 'living brood fish'. He concludes that:

These ambiguities, redundancies and deficiencies remind us of those which doctor Franz Kuhn attributes to a certain Chinese encyclopaedia entitled 'Celestial Empire of benevolent Knowledge'. In its remote pages it is written that the animals are divided into: (a) belonging to the emperor, (b) embalmed, (c) tame, (d) sucking pigs, (e) sirens, (f) fabulous, (g) stray dogs, (h) included in the present classification, (i) frenzied, (j) innumerable, (k) drawn with a very fine camel-hair brush, (l) et cetera, (m) having just broken the water pitcher, (n) that from a long way off look like flies.

Although this is Borges' own fiction, it nevertheless reveals the arbitrariness of categories and classifications. It also had a thorough impact as a philosophical critique. Michel Foucault's *The Order of Things* begins with a discussion of the above list of animals, which, as he admitted elsewhere, 'shattered all the familiar landmarks' of his thought, opening his eyes to how the order of knowledge is culturally constructed and may be conceived differently. To understand Foucault's discourse theory, it practically suffices to read Borges' *Ficciones*.

The order of things, and unified classification schemes, do not just break down in fiction. Sticking to the example of animals, it is obvious how Aristotelian philosophy continues to exist today, in the notion of

gender and species, and even more questionably in the categorization of humans into biological races. But it does not even work in biology itself. The platypus, an Australian animal that is a breastfeeding mammal, but lays eggs, lives in the water and has a beak like a bird, famously defies the classifications that historically go back to Aristotle's *Zoology*. If the platypus breaks genre and species classification, where would it fit in the Semantic Web?

In his book *Kant and the Platypus*, Umberto Eco points out how the animal marks the difference between scholastic and empirical science.⁶ A bit confusingly, he differentiates 'cultural cases' – that means categorically defined phenomena – from 'empirical cases', that is phenomena that are observed instead of predefined. 'To be recognized as such,' Eco states, cultural cases 'need reference to a framework of cultural norms'.⁷ For Eco as a semiotician, this means that Being, or existence, is the frontier that systematic science cannot conquer – and this is what, in a philosophical sense, 'ontology' literally means.

The innovation of modern science since Galileo, Newton and Descartes is that it operates without referring to those norms. When Diderot and d'Alembert abandoned the old classificatory order of knowledge in encyclopaedias and replaced them with a non-classificatory, non-systematic alphabetic order, they precisely followed the empirical paradigm, taking phenomena as they occurred and not as they fit. In order to be a thoroughly critical investigation and abandon preconceptions, science gave up 'Semantic Web'-like schemes.

Returning to Internet folksonomies, a better example than the platypus was brought up in a Web forum of the German computer news site *heise.de*. Discussing the Semantic Web and its classification scheme, an anonymous poster brought up the hypothetical example 'A Muslim is a potential terrorist' in order to show that a unified semantic 'ontology'/cosmology cannot be built. This example scratches only the surface of the pending cultural problems, since not the empirical cases like the platypus, but cultural ones bear the real dynamite. It sheds a dubious light on computer linguists involved in the project if they don't even seem to have done their homework on Saussure and the arbitrariness, that is cultural dynamics, of the signifier in relation to the signified. The Semantic Web, and any search engine or database built upon it, rests on the illusion that an unambiguous assessment of the world would be

even theoretically possible. Beyond cosmology falsely named ontology, it is metaphysics disguised as physics.

On a more practical (but nonetheless cultural) level, the Semantic Web relies on a clean room illusion of a culture where semantic tags wouldn't simply be used for spamming and search engine manipulation which are already common enough for Google and other search engines to ignore meta tags embedded into web pages. Berners-Lee is a realist when he states that meta tagging cannot be done by bots like those dreamed up by the Theseus project. Nevertheless, his Semantic Web implies a complexity nightmare of meta information overtaking information, with each piece of information creating at least twice as much work for its semantic markup than for its creation proper, comparable to a library whose the catalogues outnumber the books they reference.

'Semantics' and 'ontology' are useful terms because they reference what computers, as purely syntactical machines, cannot process, and which can't be mapped into computer data structures except in subjective, diverse, culturally controversial and folksonomic ways. The creators of the so-called 'Semantic Web' and 'next-generation' search engines might learn from Borges who concludes:

I have registered the arbitrariness of Wilkins, [and] of the unknown (or false) Chinese encyclopaedia writer . . . it is clear that there is no classification of the Universe not being arbitrary and full of conjectures. The reason for this is very simple: we do not know what thing the universe is.

10. \$(echo echo) echo \$(echo): Command Line Poetics 2003/2007

1. *Design*

Most arguments in favour of command line versus graphical user interface computing are flawed by system administrator Platonism. A command like 'cp test.txt /mnt/disk' is, however, not a single bit closer to a hypothetic 'truth' of the machine than dragging an icon of the file. txt with a mouse pointer to the drive symbol of a mounted disk. Even if it were closer to the 'truth', what would be gained from it?

The command line is, by itself, just as much a user interface abstracted from the operating system kernel as the graphical user interface (GUI). While the 'desktop' look and feel of the GUI emulates real-life objects of an analog office environment, the Unix, BSD, Linux/GNU and Mac OS X command line emulates teletype machines that served as the user terminals to the first Unix computers in the early 1970s. This legacy lives on in the terminology of the 'virtual terminal' and the device file `/dev/tty` (for 'teletype') on Unix-compatible operating systems. Both graphical and command line computing are therefore media; mediating layers in the cybernetic feedback loop between humans and machines, and proofs of McLuhan's truism that the content of a new medium is always an old medium.

Both user interfaces were designed with different objectives: in the case of the TTY command line, minimization of typing effort and paper waste, in the case of the GUI, use of – ideally – self-explanatory analogies. Minimization of typing and paper waste meant to avoid redundancy, keeping command syntax and feedback as terse and efficient as possible. This is why 'cp' is not spelled 'copy', '`/usr/bin/`' not '`/Unix Special Resources/Binaries/`', why the successful completion of the copy command is answered with just a blank line, and why the command can be repeated just by pressing the arrow up and return keys, or retyping '`/mnt/disk`' can be avoided by just typing '! \$'.

The GUI conversely reinvents the paradigm of universal pictorial sign languages, first envisioned in Renaissance educational utopias from Tommaso Campanella's *City of the Sun* to Jan Amos Comenius illustrated school book *Orbis Pictus*. Their design goals were similar: 'usability', self-explanatory operation across different human languages and cultures, if necessary at the expense of complexity or efficiency. In the file copy operation, the action of dragging is, strictly seen, redundant. Signifying nothing more than the transfer from a to b, it accomplishes exactly the same as the space in between the words – or, in technical terms: arguments – '`test.txt`' and '`/mnt/disk`', but requiring a much more complicated tactile operation than pushing the space key. This complication is intended as the operation simulates the familiar operation of dragging a real life object to another place. But still, the analogy is not fully intuitive: in real life, dragging an object doesn't copy it. And with the evolution of GUIs from Xerox Parc via the first Macintosh to more

contemporary paradigms of task bars, desktop switchers, browser integration, one can no longer put computer-illiterate people in front of a GUI and tell them to think of it as a real-life desk. Never mind the accuracy of such analogies, GUI usage is as much a constructed and trained cultural technique as is typing commands.

Consequently, Platonic truth categories cannot be avoided altogether. While the command line interface is a simulation, too – namely that of a telegraphic conversation – its alphanumeric expressions translate more smoothly into the computer’s numeric operation, and vice versa. Written language can be more easily used to use computers for what they were constructed for, to automate formal tasks: the operation ‘cp *.txt /mnt/disk’ which copies not only one, but all text files from the source directory to a mounted disk, can only be replicated in a GUI by manually finding, selecting and copying all text files, or by using a search or scripting function as a bolted-on tool. The extension of the command ‘for file in *; do cp \$file \$file.bak; done’ cannot be replicated in a GUI unless this function has been hardcoded into it before. On the command line, ‘usage’ seamlessly extends into ‘programming’.

In a larger perspective, this means that GUI applications typically are direct simulations of an analog tool: word processing emulates typewriters, Photoshop a dark room, DTP software a layout table, video editors a video studio, and so on. The software remains hardwired to a traditional work flow. The equivalent command line tools – for example: sed, grep, awk, sort, wc for word processing, ImageMagick for image manipulation, groff, TeX or XML for typesetting, ffmpeg or MLT for video processing – rewire the traditional work process much like ‘cp *.txt’ rewires the concept of copying a document. The designer Michael Murtaugh, for example, employs command line tools to automatically extract images from a collection of video files in order to generate galleries or composites, a concept that simply exceeds the paradigm of a graphical video editor with its predefined concept of what video editing is.

The implications of this reach much farther than they might at first seem to. The command line user interface provides functions, not applications; methods, not solutions, or: nothing but a bunch of plug-ins to be promiscuously plugged into each other. The application can be built, and the solution invented, by users themselves. It is not a shrink-wrapped, or – borrowing from Roland Barthes – a ‘readerly’, but

a 'writerly' interface. According to Barthes' distinction of realist versus experimental literature, the readerly text presents itself as linear and smoothly composed, 'like a cupboard where meanings are shelved, stacked, safeguarded'.¹ Reflecting in contrast the 'plurality of entrances, the opening of networks, the infinity of languages',² the writerly text aims to make 'the reader no longer a consumer, but a producer of the text'.³ In addition to Umberto Eco's characterization of the command line as iconoclastically 'protestant' and the GUI as idolatrously 'catholic', the GUI might be called the Tolstoj or Toni Morrison, the command line the Gertrude Stein, Finnegans Wake or L.A.N.G.U.A.G.E poetry of computer user interfaces; alternatively, a Lego paradigm of a self-defined versus the Playmobil paradigm of the ready-made toy.

Ironically enough, the Lego paradigm was Alan Kay's original design objective for the graphical user interface at Xerox PARC in the 1970s. Based on the programming language Smalltalk, and leveraging object-oriented programming, the GUI should allow users to plug together their own applications from existing modules. In its popular forms on Mac OS, Windows and KDE/Gnome/XFCE, GUIs never delivered on this promise, but reinforced the division of users and developers. Even the fringe exceptions of Kay's own system – living on as the 'Squeak' project – and Miller Puckette's graphical multimedia programming environments 'MAX' and 'Pure Data' show the limitation of GUIs to also work as graphical programming interfaces, since they both continue to require textual coding on the core syntax level. In programmer's terms, the GUI enforces a separation of UI (user interface) and API (application programming interface), whereas on the command line, the UI is the API. Alan Kay concedes that:

It would not be surprising if the visual system were less able in this area [of programming] than the mechanism that solve noun phrases for natural language. Although it is not fair to say that 'iconic languages can't work' just because no one has been able to design a good one, it is likely that the above explanation is close to truth.⁴

2. *Mutant*

CORE CORE bash bash CORE bash

There are %d possibilities. Do you really wish to see them all? (y or n)

SECONDS

SECONDS

```
grep hurt mm grep terr mm grep these mm grep
eyes grep eyes mm grep hands
mm grep terr mm > zz grep hurt mm >> zz grep
nobody mm >> zz grep
important mm >> zz grep terror mm > z grep hurt
mm >> zz grep these mm >>
zz grep sexy mm >> zz grep eyes mm >> zz grep
terror mm > zz grep hurt mm
>> zz grep these mm >> zz grep sexy mm >> zz
grep eyes mm >> zz grep sexy
mm >> zz grep hurt mm >> zz grep eyes mm grep
hurt mm grep hands mm grep
terr mm > zz grep these mm >> zz grep nobody mm
>> zz prof!
```

```
if [ `x`tput kb`s` != `x` ]; then # We can't do
this with `dumb` terminal
  stty erase `tput kbs`
```

DYNAMIC LINKER BUG!!!⁵

In a terminal, commands and data become interchangeable. In ‘echo date’, ‘date’ is the text, or data, to be output by the ‘echo’ command. But if the output is sent back to the command line processor (aka shell) – ‘echo date|sh’ – ‘date’ is executed as a command of its own. That means: command lines can be constructed that wrangle input data, text, into new commands to be executed. Unlike in GUIs, there is recursion in user interfaces: commands can process themselves. Photoshop, on the

other hand, can Photoshop its own graphical dialogues, but not actually run those mutations afterwards. As the programmer and system administrator Thomas Scoville puts it in his 1998 paper 'The Elements Of Style: UNIX As Literature': 'UNIX system utilities are a sort of Lego construction set for word-smiths. Pipes and filters connect one utility to the next, text flows invisibly between. Working with a shell, awk/lex derivatives, or the utility set is literally a word dance.'⁶

In Net art, jodi's *OSS* comes closest to a hypothetic GUI that eats itself through Photoshopping its own dialogues. The Unix/Linux/GNU command line environment is just that: a giant word/text processor in which every single function – searching, replacing, counting words, sorting lines – has been outsourced into a small computer program of its own, each represented by a one-word command; words that can process words both as data (e-mail, text documents, web pages, configuration files, software manuals, program source code, for example) and themselves. And more culture shockingly for people not used to it: with SSH or Telnet, every command line is 'network transparent', that means it can be executed locally as well as remotely. 'echo date|ssh user@somewhere.org' builds the command on the local machine, runs it on the remote host somewhere.org, but spits the output back onto the local terminal. Not only do commands and data mutate into each other, but commands and data on local machines intermingle with those on remote ones. The fact that the ARPA– and later Internet were designed for distributed computing becomes tangible on the microscopic level of the space between single words, in a much more radical way than in such monolithic paradigms as 'uploading' or 'web applications'.

With its hybridization of local and remote code and data, the command line is an electronic poet's, codeworker's and ASCII Net artist's wet dream come true. Among the poetic 'constraints' invented by the Oulipo group, the purely syntactical ones can be easily reproduced on the command line. 'POE', a computer program designed in the early 1990s by Austrian experimental poets Franz Josef Czernin and Ferdinand Schmatz to aide poets in linguistic analysis and construction, ended up being an unintended Unix text tool clone for DOS. In 1997, American underground poet ficus strangulensis called for the creation of a 'text synthesizer' – which the Unix command line factually is. 'Netwurker' mez breeze consequently names as a major cultural influ-

ences of her net-poetical ‘mezangelle’ work ‘#unix [shelled + otherwise]’, next to ‘#LaTeX [+ LaTeX2e]’, ‘#perl’, ‘#python’ and ‘#the concept of ARGS [still unrealised in terms of potentiality]’.⁷ Conversely, obfuscated C programmers, Perl poets and hackers like jaromil have mutated their program codes into experimental Net poetry.

The mutations and recursions on the command line are neither coincidental nor security leaks, but a feature that system administrators rely on every day. As Richard Stallman, founder of the GNU project and initial developer of the GNU command line programs puts it:

It is sort of paradoxical that you can successfully define something in terms of itself, that the definition is actually meaningful. . . . The fact that . . . you can define something in terms of itself and have it be well defined, that’s a crucial part of computer programming.⁸

When, as Thomas Scoville observes, instruction vocabulary and syntax like that of Unix becomes ‘second nature’,⁹ it also becomes conversational language, and syntax turns into semantics not via any artificial intelligence, but in purely pop cultural ways, much like the mutant typewriters in David Cronenberg’s film adaption of *Naked Lunch*. These, literally: buggy, typewriters are perhaps the most powerful icon of the writerly text. While free software is by no means hardwired to terminals – the Unix userland was non-free software first – it is nevertheless this writerly quality, and break-down of user/consumer dichotomies, which makes free/open source software and the command line intimate bedfellows.

11. Peer-to-Peer Services: Transgressing the Archive (and Its Maladies?)

2002

At the peak of their popularity, and just before they were shut down by court orders, Napster and Audio Galaxy were probably the most extensive public music archives of all time. Napster, the first popular incarnation of peer-to-peer data exchange services on the Internet, was the first global archive consisting of nothing more than the sum total of

temporarily connected private archives without any sort of permanent existence, but rather one that changed by the second, its catalogue being synchronously revised and rewritten. While older Internet services such as the World Wide Web took shape according to the conventional topologies of the archive and the library as places (*sites*), each with their own organizational schemata and access codes, what was being realized in peer-to-peer services was something Jacques Derrida had predicted with prophetic accuracy as early as May 1994 in an essay, 'Archive Fever' ('Mal d'Archive'), which would make media theory blather about the Internet that followed seem outdated:

But the example of email is privileged in my opinion for a more important and more obvious reason: because electronic mail, and even more than the fax, is on the way to transforming the entire public and private space of humanity, and first of all the limit between the private, the secret (private or public), and the public or the phenomenal. This is not only a technique, in the ordinary and limited sense of the term: at an unprecedented rhythm, in quasi-instantaneous fashion, this instrumental possibility of production, of printing, of conservation, and of destruction of the archive must inevitably be accomplished by juridical and thus political transformations. These will effect nothing less than property rights, publishing and reproduction rights.¹

Even more than e-mail, peer-to-peer networks such as Napster, Gnutella, Kazaa and Freenet now show how radically the archive is being transformed by the digital transmission and storage of data. The fleeting and individual point-to-point data transfer of e-mail is bound to the voluminous and globally accessible data stored on FTP servers and the World Wide Web. This combination calls the traditional location and the traditional architecture of the archive into question more radically than in the case of any other information technology that has gone before, including Ted Nelson's ultimately centralized concept of *hypertext*.²

The archive is classically defined as a location at which artefacts and documents are selected from external sources according to institutionally defined criteria, arranged internally and placed in relation to one another. In other words: every archive first manages archived data and

then the metadata of the archiving, often in the form of a catalogue. Because data usually already contain metadata (or paratexts) – books, for example, have tables of contents and indices; paintings, signatures; digital texts, markup codes and headers – they reveal microstructures of archiving which in turn must be integrated into the metadata of the archive. So the metadata of archiving is potentially infinitely complex and can be taken in its order-within-order to an infinite degree as an endless chain of metadata of metadata of metadata in the form of comprehensive catalogues, concordances, search engines and meta search engines. As anyone who has ever programmed a database or a software interface knows, the complexity of metadata and its encoding grows exponentially the more perfect, scalable and supposedly more user-friendly access to the data becomes. It's in this way that archiving becomes a second text, threatening to write over what has been archived and potentially wiping out the difference between the data object and the metadata. Jorge Luis Borges's *Library of Babel* contains, according to the speculation of the first person narrator, within a combinatorial framework, all the books that ever were, and so, also all of their descriptions and catalogues, but also all counterarguments and antitheses of these descriptions and catalogues; even in its merely imaginary totality, the order of knowledge collapses. Borges' story is also referenced in Simon Biggs's software artwork *Babel*, a reprogramming of the Anglo-American Dewey decimal classification system as a cartographic Web browsing system so that, as the American Net art curator Steve Dietz writes, it becomes a 'conflation of cataloging and navigation – of meta data (the cataloging information) and data (the website itself)'.³ The poetics and aesthetics of self-realizing metadata is also a theme of the *Periodical Journal of Bibliography*, published in the early 1990s by Grant Covell in Cambridge, Massachusetts, which exclusively recorded fictitious books.

Besides its data and metadata, an archive must also establish its rules of operation. Access codes are written: opening hours, user identity cards and agreements, house rules, architectural borders and niches and, on the Internet, secure passwords, limits on bandwidth, licenses. With the migration of access to data networks, the coding of house rules and classical architecture is shifted to the machine-written control structures of software algorithms. Of course, the well-guarded, secret access to an archive is just as much a code of access as the radically open

one. The anti-copyright appropriation of the sequestered Net art server hell.com, for example, by the Net art plagiarists 0100101110101101.org did not erase the codes of access, but rather, replaced more visible barriers with less obvious ones.

So every archive is encoded at least three times over; first, in its archived data, second, in its metadata, and third, in its rules of access. Derrida questions the nature of the creator of these codes when he begins 'Mal d'Archive' with the assertion that the archive 'attains its meaning, its only meaning through the Greek *arkheion*: initially a house, a domicile, an address, the residence of the superior magistrates, the archons, those commanded'.⁴ So he thinks of the archive only as an official institution and overlooks its unofficial divisions: the private archive as the place where private obsessions are collected, but also borderline areas between the official and the private such as Harald Szeemann's Museum of Obsessions, which he claims is 'not an institution but a "life task"' while, on the other hand, it has already been institutionalized by his book of the same name, published by Merve.⁵ As opposed to Derrida's archont archive, first, the private archive hides its location and its discourse, and secondly, the Museum of Obsessions defines both location and discourse negatively and contradictorily with its discourse of its refusal of discourse.⁶ But what seems to apply to all kinds of archives is that, as Derrida asserts, documents in archives are only 'kept and classified by virtue of a privileged topology';⁷ that a private archive privileges its topology in the very sense that it keeps its data and metadata from the public and the Museum of Obsessions bears its privileged topology in the very title not because it collects obsessions but because it obsessively collects.

The history of the Internet can also be read as a history of archiving topologies and a relocation of privileges, constantly redefining the borders of the official, private and obsessive. First, all client-server architectures of the Internet are privileged topologies in the sense of Derrida's analysis of the classic archive. Their archonts are called system administrators and, on the level of the authorities, standardization committees such as the Internet Engineering Taskforce (IETF), the Internet Corporation for Assigned Names and Numbers (ICANN), the World Wide Web Consortium (W3C) and the Institute of Electrical and Electronics Engineers, Inc. (IEEE).⁸ The infrastructure of Internet

network protocols, particularly the fundamental protocol TCP/IP, could not function without the centralized assignment of and control over network addresses by ICANN and the administration of hierarchically organized databases like that of the Domain Name System (DNS), assigning, for example, names like www.google.com to the IP address 216.239.39.101. This makes the Internet itself its own primary archive. If one reads IP addresses and domain names as primary and secondary titles or call numbers, then these numbers serve well enough as their own object data and metadata. So the archiving system has a sort of pre-existence to the content that is presumed to be stored within it. It is agnostic as far as the stored data is concerned even as it allows any number of layers of transport and access topologies on top of its essential structure. Among these layers are e-mail, Telnet, FTP, the World Wide Web and, most recently, peer-to-peer services conceived for PCs.⁹

Telnet and FTP are among the oldest Internet services that allow one to use or download data from a server via a terminal.¹⁰ Both work according to the logic of the archont-controlled archive in that they are centrally supervised by a systems administrator, occupy, via their Net addresses, privileged spaces that can also be physically located, order data and metadata according to the hierarchical structure of file systems and utilize access codes in the form of user accounts, passwords and read-write permissions to data. By comparison, the World Wide Web isn't any differently structured than a FTP server is, but on the level of its (centrally standardized) document format and URL addressing scheme, it creates a third level of abstraction on top of the TCP/IP and server access protocol, suggesting to the reader a decentralized archive though, in fact, it creates only a meta-index within a self-enclosed archive space: *sites*. The World Wide Web also delineates a topological differentiation between privately held data and open data publication via the administratively controlled storage space of the server and the fact that its documents are usually only readable, not writeable. It is made manifest on the border between the PC and server hard drives. 0100101110101101.org, the artists of systematic exploration of archives and the borders between the private and the public on the Internet, draw attention to this limitation by turning matters inside out, particularly in their work *life_sharing* in which they store all their private data, including incoming e-mail, on their public Web server.

In theory, peer-to-peer networks are defined as contrary models to server architectures, but in fact, not only do all peer-to-peer services on the Internet rely on TCP/IP routing tables, the central archive of which is *Root Server A* run by ICANN, they are also often based on servers themselves. The oldest example is Usenet, offering discussion forums such as alt.artcom or de.comp.os.unix on its own layer of protocols since 1986 and, since 1988, the chat service IRC.¹¹ The data stored on both Usenet and IRC have no fixed storage location, but rather, wander from server to server in a chain-like handoff to handoff process. With their own client software – newsreaders and IRC programs – users connect to these servers but take part only indirectly in peer-to-peer data exchange. By the early 1990s, data was circulating on IRC and Usenet servers that would help give shape to the sort of data exchange via peer-to-peer clients: pornographic images and illegally copied software.¹² But the expansion of such private collections of obsessions out into public archives hampered the architecture of Usenet, decoupling the temporary data transmission from local storage and allowing systems administrators a wide range of control mechanisms, for example, the blocking of specific areas, restricted access codes for servers and the retroactive erasing of data fed into the networks by users.

Napster, the first peer-to-peer service on the Internet conceived for PCs with dial-up access, was also the first to change the rules. Napster made users aware of the fact that every home PC connected to the Net was not merely a terminal for surfing the Web or reading e-mail, but also a potential server. Downloading via Napster did not incur a detour via a server, but instead, occurred directly between two of its users' PCs. Brecht and Enzenberger's media utopias, envisioning receivers as broadcasters as well,¹³ became a reality with the advent of Napster. But Napster, too, was based on a client-server architecture. All the data sent out to the Net by user PCs was indexed on a central server. The Napster archive was indeed comprised only of temporarily connected private archives, but its data and metadata were decoupled and the catalogue remained symbolically and physically located at the institution known as napster.com. It was for this reason that the story of Napster is a prime example of why control over an archive lies not in the control of the data itself, but rather, in control of metadata and topologies. From the beginning, the array of downloads available via Napster was limited in

that, of all the data offered up by users, the catalogue server only recognized audio files in mp3 format. By artificially reducing its metadata to files ending with *.mp3*, the catalogue also in fact blocked out everything that it was not predetermined to recognize. The lawsuits that can be interpreted as changes to Napster's software code by resorting to an overreaching code of law¹⁴ were first used by the music and copyright industry to remove copyright-protected songs from Napster's index and, shortly afterwards, to shut down the catalogue itself, ultimately leading to the shutting down of Napster's Internet services altogether.

After Napster, Gnutella was the most successful peer-to-peer service based on the Internet, in no small part because it radically did away with the central server and the differentiation between client and server. Now it's not only data but metadata that circulates among connected PCs. Queries to the index, or catalogue, are handed along and answered by all connected computers, following the principle of a message passed along a list of telephone numbers. In this way, Gnutella doesn't recognize any one single point of failure and cannot be shut down in the way that Napster was. This tactical advantage of the Gnutella software architecture has its accompanying disadvantage, however, in the sheer volume of data that results when even a mere search query circulates among connected computers. Gnutella also does away with the limitation to the peer-to-peer data exchange to mp3 audio files. A brief, random glance at Gnutella queries in November 2002 turned up:

chasey lain fuck on the beach.mpeg it.mpeg all leisure suit larry
games.zip n64 emulator with 11 games.zip hiphop - dead prez - hip
hop.mp3 hiphop - das efx - real hip hop.mp3 cypress hill - insane in
the brain.mp3 addict mp3 neon genesis evangelion - episode 05 - 06
avi beach candy sextravaganza part 1.mpg kama_sutra_lesson_2.mpg
leann rimes - life goes on [1] perl 5 by example - ebook.pdf animal
passion avi jackass the movie avi formula51 - samuel l. jackson sex
pistols anarchy in the uk 1 mp3 harry potter 2 chamber of secrets avi

Even taking into account that this is a random sampling, it aligns itself rather well with the public image of Gnutella in that six of 18 queries are for pop songs in mp3 format, four are for porn videos, two for digitalized mainstream Hollywood fare, two for TV series, two for computer

games and one for a programmer's manual. If one were to rearrange the list alphabetically – *addict anarchy animal beach brain candy chamber dead evangelion formula51 fuck games genesis hiphop insane jackass kama_sutra leisure life neon passion pistols real secrets sex sextravaganza* – the result would be a dictionary of Gnutella mutual interests that would also serve as an everyday poetics of obsession. And this is how *minitasking*,¹⁵ a software program that visualizes Gnutella network nodes, queries and results on the computer screen, attains its (albeit unintentional) pataphysical irony from the real-time topography of obsessive search terms. The global museum of obsessions created by Gnutella by uniting private archives might seem trivial at first glance. But it's less what's on offer than the means of access that determines its triviality. In the summer of 2002, for example, combinations of Gnutella queries turned up pirated copies of Jorge Luis Borges' *Ficciones* and novels by Vladimir Nabokov and Thomas Pynchon, along with recordings of the music of Stockhausen and LaMonte Young that hadn't been commercially available for ages. But aside from highbrow culture on the one hand and mainstream pop, movies, video and porn on the other, other private archives of obsessions released via Gnutella turn up only when searching not for content, but rather, agnostically, for data formats. Combining the search queries *DSC [and] MVC [and] jpg*, for example, calls up data created by Sony cameras that has not been renamed and often leads to a surreal collective archive of digital amateur photography whose aesthetic range spreads from Walker Evans to Nobuyoshi Araki. The obscenities in particular are surprisingly neither dull nor pornographic when, for example, a body that has been optically blurred in the anonymously reproduced digital image *dsc010015.jpg* results in its being sexually focused. But when the total of small archives of obsessions is no longer determined by the individual collector and the topology of the collection, but is a snapshot of the moment, comprised of coincidental correspondences of search terms and data names, the filtering function of metadata is made especially clear for peer-to-peer archives.¹⁶

Accessing digital codes in these ways – whether they're presented later as text, audio or images or implemented as algorithms – can lead to unique artistic forms, as shown by the musical genre known as *bastard pop* in which mainstream pop songs are digitally (and usually anonymously) sliced and diced together. One characteristic of bastard pop

is an aesthetic of intentional dilution and juxtaposition of opposites, such as Girls on Top's *I Wanna Dance With Numbers*, a combination of Whitney Houston's vocals and the electro pop of Kraftwerk. That bastard pop arose along with Internet peer-to-peer services is hardly a coincidence; the anonymous remixers usually gather their musical material as well as their music software from Gnutella and Co. Bastard pop, then, is the first popular musical form to come about from the Internet and globalized private archives, reciprocating its origins in these archives in its aesthetic of plagiarism.

But the political dialectic of the switch from receiving to broadcasting apparatuses is also revealed in bastard pop. Because, from a legal perspective, peer-to-peer archivists are no longer private persons, but rather, publishers, and their collections of data are no longer private obsessions, but rather, a mass media distribution of copyright-protected content. It's not just legally but also technically that the difference between the act of storing and retrieving on the one hand and mass media transmission on the other collapses in networked computers unless one were to arbitrarily set limits based on the length of wires. Derrida also attests to the classic archive, which can be clearly located and is controlled by a clearly defined authority, an 'institutional transfer from the private to the public'¹⁷ that becomes quite a problem when it comes to peer-to-peer archives, one that is increasingly reflected even on the level of the algorithmic coding of software architectures and access topologies.

Perhaps the next evolutionary level of Internet-based peer-to-peer services, still in its experimental stage, will be anonymous architectures such as Freenet and GNUnet, which make users anonymous and encrypt data with powerful cryptography. What's more, they not only, like Gnutella, automatically transfer the metadata of search queries along all connected computers, but also the data itself. So it's not only the archive of data on offer and its self-generating metadata that flows as a unit but also the locations of the data's storage. Shutting out any sort of surveillance and control by third parties is the self-proclaimed goal of the developers. One reads on the Freenet homepage: 'Freenet is free software designed to ensure true freedom of communication over the Internet. It allows anybody to publish and read information with complete anonymity. Nobody controls Freenet, not even its creators, mean-

ing that the system is not vulnerable to manipulation or shutdown',¹⁸ while the GNUnet developers define their project as 'anonymous censorship-resistant file-sharing'.¹⁹ Local provider administrators can block these services by blocking their TCP/IP ports, but even this can be gotten around with a certain level of skill by steganographically *tunneling* Freenet or GNUnet data traffic through other Net protocols, such as requests for Web pages or e-mail transfers.

Does this spell the end of all privileged topologies of the archive? Certainly not. First, all peer-to-peer archives privilege certain information and usage by replacing the classic synchrony of the archive with a diachrony, that is, replacing its artefacts, temporarily caught up in ideally timeless spatialization, with a radical momentariness and instability of the archive. The unit of individual museums of obsessions evaporates in momentary states and in the proximity of the network's search terms. And newer peer-to-peer networks, too, don't change the privileging aspect of metadata – that is, file names – as the only, if unreliable access register of the archive. The attempts of the music and copyright industry to sabotage peer-to-peer archives with tactically false file names for trash data is a mere foretaste of problems to come. And finally, the architecture of the archive remains a privilege of programmer-archonts even when their free software falls under GNU-Copyleft (as in the cases of Freenet and GNUnet). Which is why claiming that *nobody controls Freenet, not even its creators* is just as naive as any assumption that an anonymity can be achieved merely through cryptographic *privacy*, undermining every private photo that accidentally leaks out onto the Net.

So the true borders between the private and the public end up migrating to the level of personal computer file systems, or more precisely: the border marked by the directory (folder) opened, freeing up its content, complete with all subdirectories, for peer-to-peer downloads. These borders become all the more precarious the more classical mnemotechnical systems the computer absorbs – from calendars and photo albums to correspondence – recoding and refining them as software, and the more records, thanks to the growth of storage capacity (which, as opposed to the growth of computation speed along the trajectory set out by Moore's Law, has not yet been given its fair amount of attention), may be united within a storage media. So the PC is not only increasingly becoming a warehouse of biographical traces, it's also becoming

a biography in and of itself in the literal sense of the writing of a life. Hard disks are becoming identity protocols, their data, intimate stories. The lyrics of Roberta Flack's soul hit of 1973, *Telling my whole life with his words*, / *Killing me softly with his song*, would be no less persuasive, if not quite as lovely, if they were rewritten as, *Telling my whole life with my files* / *Killing me softly with my hard disk*. It's quite conceivable that no artist's complete works and biography will be able to be written without a hard disk *dump*, a bit-by-bit copy of its contents if, in the meantime, storage technologies haven't become defective, back-up copies haven't been destroyed and partial biographies haven't been killed off softly. Word that such a *headcrash* is a mnemotechnical meltdown and often an economical one as well may well have gotten around; less widely known is that it is also becoming a cultural meltdown. But wherever systems of data security fail, file-sharing networks, due to their unsystematic means of data transfer, could well become the future back-up media and the underground of cultural memory.

(For Gert Mattenklott)

12. What Is Interface Aesthetics, or What Could It Be (Not)?

Interface aesthetics is a textbook example of a term seemingly easy to grasp but turning into a can of worms when taken literally, and examined more thoroughly. Its two constituent nouns, interface and aesthetics, are subject to whole libraries of philosophical, technological and artistic debate.¹ Should interface be most generally defined as 'a surface forming a common boundary of two bodies, spaces, phases', as in *Webster's Ninth Collegiate Dictionary*, thus including chemical, biological and sociological notions of interface and interfacing? Or should the term, in a media studies context, more narrowly refer to computer respectively machine interfaces? Does aesthetics refer to judgments of perception, as first defined by Baumgarten in the eighteenth century and still maintained by Lyotard?² Do we mean aesthetics as the philosophy of art, from Hegel to Adorno, even in the context of interface research?³ Or should the latter use a combination of both, like in the contemporary aesthetic theory of Jacques Rancière?⁴ Or does aesthetics,

in a computer interface context, boil down to the colloquial notion of the 'look-and-feel' of software and hardware controls?

Historical-critical studies of, for example, the evolution of look-and-feel from the Xerox Star to the contemporary iterations Windows, Mac and various Linux/Unix graphical user interfaces, or that of web browser software from Mosaic to Firefox, and web pages from HTML 1.0 to XHTML+CSS,⁵ would be useful and overdue, especially if they would reflect the relation of computer interfaces to their contemporary audiovisual cultures: How, for example, did web and browser design, pop cultural flyer aesthetics and the information design of TV news stations interfere in the 1990s? What is the link between the early use of vintage user interface and game aesthetics in Net art, 8-bit music and the contemporary renaissance of analog media? However, none of these examples could represent the whole of 'interface aesthetics' without oversimplifying both the notion of aesthetics and that of computer interface. As Wendy Chun points out: 'Analyses of digital media that concentrate on the *appearance* of user interfaces or on high-level software miss what is fundamentally different about so-called computer-mediated communications: the fact that they are arguably human-mediated communications.'⁶

In computing, interfaces could be technically defined as anything acting as a common boundary or link between machine components – whether on software or hardware level – or between human operators and the human-designed machines. Still, it would be rather problematic to also include common social links between humans as 'interfaces' since that would either imply a cybernetic-behaviourist explanation of human behaviour through machine functions, or exhaust itself in superficially sexy, yet vague and ultimately unsatisfying analogies of social and machine-connecting devices. As Søren Pold points out in the introduction to the volume *Interface Criticism*, there is the risk of inflating 'interface' into yet another humanities hype word, like 'text', 'performativity' and, last but not least, 'media'.⁷

What could, however, be gained from comparing computer and social interfaces would be insight into epistemological limitations of computer interfaces stemming from the fact that computers are deterministic, purely syntactical and thus cognitively very limited machines.⁸ This also allows critical perspectives on the superimposition

of formalisms onto society and culture. Still, the word 'interface' itself may be too technologically laden to save such social interface research from technodeterminism. It is, in the end, as problematic as other 1990s cyber metaphors such as 'virtual reality' or 'the operating system art'.⁹

If computer interfaces link machine components to each other and with human operators, then a systematics of computer interfaces would include hardware-to-hardware interfaces (CPU sockets, buses like PCI and USB; modems and network cards), hardware-to-software interfaces (modern CPU instruction sets that no longer correspond to the physical hardware design; hardware controllers for software functions such as joysticks or remote controls for software players); software-to-hardware interfaces (classically: operating system kernels and hardware drivers); software-to-software interfaces (plug-in interfaces, file formats, protocols, most generally: application programming interfaces [APIs]), human-to-hardware interfaces (keyboards, mice, screen and audio feedback, all controller and feedback devices), human-to-software interfaces (user interfaces). With the exception of audiovisual displays and medical devices, advanced computer hardware-to-human interfaces are mostly science fiction, while it would be plausible to think, for example, of computer-generated bank and insurance statements and reminders as software-to-human interfaces.

Out of these eight possible interfacing, media studies have historically privileged one, the human-to-software user interface, using it often enough as a synonym of 'interface' per se. The trend was set with Brenda Laurel's – terminologically still precise – anthology *The Art of Human-Computer Interface Design*.¹⁰ Lev Manovich's essay 'The Interface as a New Aesthetic Category' from 2000 uses both terms, interface and human-computer interface (in the sense of human-software interface) interchangeably.¹¹ Interface, in that definition, becomes a synonym of a perceptive 'medium', much like optical devices in Renaissance philosophy,¹² except that the former is specific to computing technology.¹³ Interface aesthetics then is simply how humans – respectively computer users – perceive the world via the organizational and sensory structures programmed into the device.¹⁴ The question, however, is whether such a model of the 'Interface as a New Aesthetic Category' isn't rather about phenomenology than aesthetics, since by itself, it is neither concerned with judgment of taste, nor with art. For Manovich, a primary

function of computer interface art is to challenge the 'idea of content pre-existing the interface', thus suggesting different subject-medium-object relationships that ultimately prove the power of the medium.¹⁵ While Manovich is careful not to reduce human-computer interface to GUIs and look-and-feel, but includes data organizational structures like hierarchical file systems and hypertext in his consideration, the interface aesthetics he proposes could not only be criticized for its exclusive (yet typical) focus on human-computer interfacing, but also for using interface as a factual synonym of medium, and aesthetics as a synonym of phenomenology.

Humanities media studies have simultaneously restrained and inflated the notion of interface, comparable to the 'restrained rhetoric' structuralist literary theoretician Gerard Genette observed in modern philology since Giambattista Vico: the notion of rhetoric was gradually reduced to the figures of speech (tropes) of the *elocutio*, and ultimately to the single – yet vastly expanded – trope of the metaphor.¹⁶ Interface, in its general sense of a common boundary, could conversely be considered the cybernetic sibling of metaphor, the Greek word for 'transfer'.

Another issue is the restraint within the very concept of the 'user interface', with its inscribed difference from a 'programming interface' or API,¹⁷ and hence implied separation of 'users' from 'programmers' based on different access privileges to machine functions granted by the respective interface. While the API is, as pointed out in the beginning, supposed to purely work as a software-to-software interface, for example as the communication channel via which a media player program interfaces with a song database, its juxtaposition to a user interface is, in the end, arbitrary. In 8-bit BASIC computers like the Apple II, Commodore 64 or Sinclair ZX, on the Unix command line, in MIT's Lisp machines and even in Alan Kay's Smalltalk-based graphical user interface developed at Xerox PARC, the user interface was also a programming interface and vice versa. The contemporary computer art form of 'Live Coding', such as in Adrian Ward's and Alex McLean's Perl-based musical performances and in jodi's ZX Spectrum video *All Wrongs Reversed* ©1984, demonstrates how APIs can be employed as user interfaces. As a matter of fact, every act of computer hacking – in the 'black hat' sense of breaking a system open – boils down to a tactical misuse of an API as a user interface. A good example is John Draper's

legendary use of a Cap'n Crunch toy whistle to deactivate AT&T's tariff time switch: the touch tone frequencies of the dial were designed as the telephone user interface, the whistle's 2600 Hz frequency as a programming interface withheld from ordinary customers, but turned into a user interface with the help of the technology provided in the cereal package.

Aesthetics, in a simple sense of perceptive transparency or opacity – aided by such aesthetic factors as the pleasing rendering of visible, audible and touchable controls versus the sublime obscurity of a hidden programming interface – is a common mode of choice of drawing the line between the two levels of access in the interface design. Vice versa, human-computer interfaces are often designed to lack convenience as a software-software or hardware-hardware interface. Graphical PC software requiring programmed mouse movements for scripted automation, or the need of a mechanical device for remotely switching on a personal computer, are striking examples. According to the ideals of both computational elegance and hackability however, the threshold between human-computer and computer-computer interfaces should be smooth if not altogether absent, with the ultimate aim of abandoning the dichotomy of programmer and user, designer and consumer.

Such design considerations imply that notions of aesthetic pleasantness also exist in all types of so-called computer-to-computer interface: software-to-software, hardware-to-software, software-to-hardware, hardware-to-hardware. Programmers' discussions on mailing lists and Internet forums are ripe with debates over whether an API or a hardware design is 'ugly' or 'beautiful',¹⁸ thus reiterating both classical eighteenth-century categories of aesthetic judgment and, on a larger historical horizon, Pythagorean and Platonist ideas of the transcendence of beauty in mathematics, arts (music) and cosmology. Donald Knuth's *Art of Computer Programming* and Steven Levy's hacker credo that 'you can create art and beauty on a computer' refer to this pre-modern notion of art as beauty, and neither to eighteenth-century aesthetics with its notion of art as comprising beauty, the sublime and ugliness alike, nor to aesthetics as historiophilosophy of art after Hegel.¹⁹ In the extreme yet not untypical case, the computer engineering notion of art as beauty simply boils down to the internal elegance of a logical design, algorithm or equation, which at best corresponds to the beauty of its visualiza-

tion, such as in fractal geometry. It is a concept of aesthetics that could not be farther away from contemporary aesthetics like Rancière's, or Nicolas Bourriaud's influential contemporary art manifesto 'Relational Aesthetics', regardless of the latter's borrowing of software terminology.²⁰ The computer art that has adopted it, such as the Artificial Life works mentioned in Manovich's essay, is also the one that has fully removed itself from contemporary art discourses outside a science and technology lab-based media art system. These gaps in the notions of aesthetics play a key role in the overall widening gap between the two cultures of science and humanities, engineering and contemporary art.

Ever since the BBS underground cultures of the 1980s²¹ and Net art of the 1990s, 'hacks' and intentional crudeness of software and hardware design have been embraced as an alternative computer aesthetic.²² As such, it perfectly conforms to classical philosophical notions of the sublime as beauty's antipode. Edmund Burke's eighteenth-century *Investigation into the Origin of our Ideas of the Sublime and Beautiful*, for example, lists pleasure and pain, terror, obscurity and suddenness among its effects and attributes.²³ In hacker/cracker aesthetics, they turn into pleasure and pain of hardware and software interfaces, terror of the desktop, obscurity of the API, suddenness of operating system crashes, fitting not only traditional aesthetics, but also Jean-François Lyotard's more contemporary equation of the aesthetic sublime and a postmodern experience of 'incommensurability of reality'.²⁴ It is an aesthetic, however, that constitutes itself as the symmetrical opposite of neo-Pythagorean beauty ideals that governed computer science from Knuth to fractal geometry, the 'art and beauty' of the white hat hacker culture described by Steven Levy, and the human/computer interface designs of mainstream, high tech media lab arts. In the end, this dialectics helped to stabilize and reinforce 'media art' as a separate art system based, with few exceptions,²⁵ on pre-modernist aesthetic parameters.

The contemporary (visual) art system is, unlike electronic art, music or film, no longer defined by a medium or occupation with media, but first of all by its own system.²⁶

In order to succeed, contemporary art needs to shape informed, up-to-date systemic references to the art context, its languages and institutional frame.²⁷ Ever since abstract painting and Duchamp's *Ready-Mades* rid visual art both of pictorial representation and specific media,

but left framing and context, this has been the exclusion mechanism of a modernist and contemporary art aesthetics that only appears to be permissive and all-inclusive in regard to work and practices that count as art. As it has become crucial for artists to produce the 'right' contextual reference, art is no longer defined by the autonomy of its products – whether solid objects or ephemeral practices – but by doing the right thing in the right place at the right time within the art context.²⁸ Contemporary art has become systemically incompatible to technological aesthetics because it has no interest in any relations, interfacing and mediation whose art references are either lacking or not up-to-date. Positively put, technological and media aesthetics may have spotlighted critical blind spots of an allegedly 'post-media' contemporary art system.²⁹ Colliding Kant's opposites of knowledge and judgments of taste (respectively logic and aesthetics), this aesthetics had its own particular punk and hacker cultural appeal. It is the aesthetics of Net and software art roughly between the mid-1990 to the mid-2000s. But what remains when this impulse has worn out? Even a comprehensive interface aesthetics reflecting interface as user interface *and* API, hardware *and* software, beauty *and* debasement misses the mark of any critical contemporary aesthetics unless it deliberately stretches the notion of 'interface' into a metaphor of the social and the art system. Or, in the many worst cases that have already happened, it boils down to glorification of new technology as the better contemporary art, be it in iPhone lifestyle, Web 2.0 hype or media theoretical glorification of sorting algorithms and CPU instruction sets.³⁰ Yet none of this is as provocative as Marinetti's glorification of a race car as more beautiful than the Nike of Samothrake, an aesthetic judgment that has become common street sense to any car geek anyway and, if applied to computers and the Internet, boils down to the stock neoliberal ideology of the 'creative industries' superseding the autonomous arts.³¹

Aside from mere aesthetic preference, serious philosophical and political issues are involved. Ever since Heidegger applied fundamental ontology to technology, to the effect that technology became an *a priori* of the human condition instead of a human product,³² there has been a technological sublime in media theories from McLuhan to Kittler. As second nature, technology may arbitrarily take the place of Kant's natural beauty or the mathematical and dynamic sublime. That means we

are no longer overwhelmed by mountain ranges or thunderstorms, but, for example, by the pervasiveness of computing. If, with Lyotard, a sublime experience of computing has its share in the experience of incomensurability, it obscures the fact that the reality of computing is based on constructed designs and policies that can be changed.

Modern aesthetic theories are likewise difficult to apply to computing and its interfaces. Kant's notion of the dynamic and mathematical sublime may lend itself to cinema or virtual reality gaming, but hardly to any contemporary audiovisual or tactile computer user interface, less so to more abstract computer-computer interfaces. Still, the whole mapping of aesthetics and interface remains a stretch given Kant's juxtaposition of aesthetics and logic.³³ His notion of beauty as 'pleasure without interest'³⁴ does not lend itself to technical thinking, which, on the contrary, recognizes beauty in perfect functionality. In a more contemporary discourse, computer culture and engineering may fit, to some degree, in Jacques Rancière's 'ethical regime of art',³⁵ where artists are craftspeople and their products judged by truthfulness of representation, as opposed to the later 'representative regime' where art gains its autonomy, but is still defined by its making, and a modernist 'esthetic regime' of simultaneous autonomy and engagement with everyday life.³⁶ While these regimes, or periods, can be usefully mapped onto the development of computational visual arts in the twentieth century, from early depictive computer graphics via representational neo-Renaissance audiovisual installation art in the manner of Bill Viola and Jeffrey Shaw³⁷ to social-contextual and interventionist Internet art since the 1990s, they can hardly be applied to the design of the technology itself. Rancière's notion of aesthetics simply is too narrowly bound to literature and visual arts. Not even lending itself to the history of music and sonic arts, it could be mapped to applied arts and technical designs at best via crude analogy.

Interface design thus marks a blind spot of modern aesthetic theories just as much as, for example, food. Cooking is perhaps the most basic cultural practice that integrally involves aesthetics in the original eighteenth-century sense of judgments of taste, yet exists outside the definition of fine and even applied arts.³⁸ Wherever cooking was brought into modern and contemporary arts – from Marinetti's futurist cuisine,³⁹ Daniel Spoerri's Eat Art of the 1960s and Gordon Matta-Clark's artist

restaurant *Food* in the early 1970s to Rirkrit Tiravanija's cooking installations and interventions since the 1990s⁴⁰ – it has been less about food as an aesthetic phenomenon (akin to visuals or sound) than a social means, both in its contextual friction with the art system and communal refunctioning of art spaces. Bourriaud's own definition of 'relational aesthetics' as a 'theory consisting in judging artworks on the basis of the inter-human relations which they represent, produce or prompt' misses to reflect this latter, crucial aspect without which 'relational art' would just be a fancy neologism for sociocultural art.⁴¹

If food is thus a medium – both in the fine art sense of an artistic material and in the communication studies sense of an information transmitter – allowing an audience to differently relate to itself and the art system, isn't it then also an interface in the general dictionary sense of *a surface forming a common boundary of two bodies, spaces, phases*? And isn't relational aesthetics, with its nominal indebtedness to the computer term of the relational database,⁴² describing an art, and aesthetics, of interfacing? Next to the dangers of cybernetic superimpositions of machine models onto society or, vice versa, anthropomorphizing the machine, the notion of a 'social interface' is too broad to be useful. What, in culture, is not a 'social interface'? And ultimately, 'social interface' boils down to a synonym of 'communication medium', with only a minor semantic shift from community to society and from mediation to interconnection. This does, of course, not mean that there is no social dimension in human-computer and computer-computer interfaces. Quite on the contrary, the social dimension precisely lies in those dumb, unsexy and typically non-aesthetic – not immediately visible or tangible – formalisms of hardware and software and their interference with human life, from day-trading algorithms to insurance risk algorithms, bank account balancing software, to the behavioural modelling in Web-based social networking software.

There are, in other words, no human-human 'social interfaces' to be modelled after human-computer or computer-computer interfacing without reductionism. With its subtitle *From Judgment to Calculation* – that is, borrowing from Kant: from critical (aesthetic) reasoning to formal processing – Joseph Weizenbaum's 1976 book *Computer Power and Human Reason* tackles exactly this issue and makes further arguments obsolete here.⁴³ The opposite, however, is true as well: every

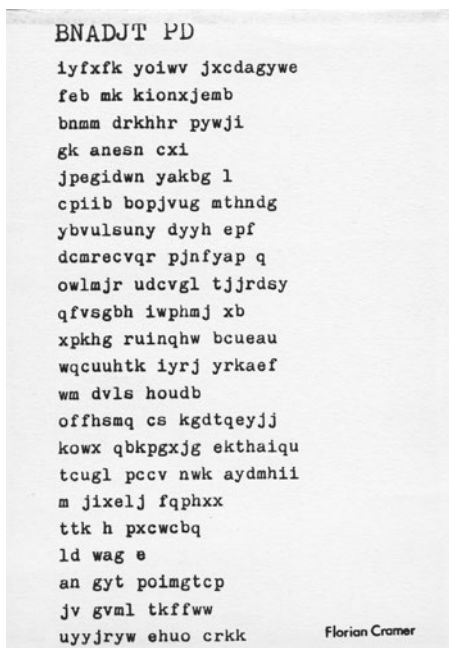
human-computer and computer-computer interface also acts as a 'social interface' in the sense of the (by definition: formally constrained) computational operations it lends (as an enabling technology) and superimposes (as a controlling device) to human practices.⁴⁴ Yet the terms 'interfacing' and 'interface' become meaninglessly broad when thus referring, in cybernetic terminology, to any kind of feedback and feedback device.

Even when founded on narrower, colloquial notions of both interface and aesthetics, interface aesthetics may have its place as a critical approach both within media studies and computer science when considered a paradigm rather than limited perspective; when it insists on the *aisthesis*, perceptibility, of all computer feedback. If an API can be as ugly as a GUI, then it is also a user interface, with the aesthetic perspective shedding light on the politics of interface denominations. It still means that 'interface aesthetics' will remain a quite restrained subset of aesthetics, and never suffice for a critical perspective on electronic arts. Embracing aesthetics and subjectivity as tools for the critical analysis of technology may conversely help us to avoid reductive cybernetic equations. Aesthetic judgment remains, after all, the least computable form of analysis and decision, if only for technical reasons.⁴⁵

III. EPHEMERA

13. BNADJT PD

iyfxfk yoiwv jxcdagywe
feb mk kionxjemb
bnmm drkhhr pywji
gk anesn cxi
jpegidwn yakbg l
cpiib bopjvug mthndg
ybvulsuny dyyh epf
dcmrecvqr pjnfyap q
owlmjr udcvgl tjjrdsy
qfvsbgh iwphmj xb
xpkhg ruinqhw bcueau
wqcuuhtk iyrj yrkaef
wm dvls houdb
offhsmq cs kgdtqeyjj
kowx qbkpgxjg ekthaiqu
tcugl pccv nwk aydmhii
m jixelj fqphxx
ttk h pxcwcbq
ld wag e
an gyt poimgtcp
jv gvml tkffww
uyyjryw ehua crkk



From: Nr. Merz No, Edition Test Operate Test
Exit - Toptex 002, Germany, 1986

(programmed on a Sinclair ZX81 home computer in 1985 with a rounding bug, published in the zine NR. MERZ NO. in 1986)

14. Ultimate Manifesto of Neoism

Two girls wearing silver overalls and Monty Cantsin lookalike masks visited Monty Cantsin. The first girl said: 'I bet this is an allegory.' The second said: 'You have won.' The first said: 'But only allegorically.' The second said: 'No, in reality. In allegory, you have lost.'

Hello and welcome to Neoism, the international movement of games and total freedom. It may be difficult for the casual audience to under-

stand or appreciate Neoism because Neoism is the vehicle of its own understanding. Neoism simply means that what is done in its name is simultaneously new ('neo') and established ('ism'). It does not imply that it is original. In this sense, Neoism makes past, present and future the same, rendering them pointless. With time left behind them, Neoists find any obsession with freedom futile. Neoism is not a means to freedom, but supports censorship as a radically populist cultural practice. In the same spirit, Neoism prescribes arbitrary game rules to put the lives of Neoists under the discipline of rigorous combinatorics, with perpetual permutations. The purpose of Neoism is to reinforce mnemonic structures on the mental plane and so invigorate culture. Of all values and norms we believe the value of tradition is the greatest; this is the one we try hardest to reinforce.

In a Neoist view, the world is not things colliding in space, but a random array of disconnected phenomena. Neoism does not conceive of the spatial as lasting in time. Since every phenomenon is irreducible, the mere act of giving it a name implies falsification. The paradox, however, is that names and philosophies exist in Neoism, in countless numbers. There are Neoists who consider a certain pain, a green tint of yellow, a temperature, a certain tone the only reality. Other Neoists perceive all people having sex as the same being, and all people memorizing a line of Shakespeare as Shakespeare. Another group of Neoists has reached the point of denying time. It reasons that the present is undefined, that the future has no reality but as present hope, that the past is no more than present memory. Yet another group has it that the history of the universe is the handwriting produced by a minor god communicating with a demon. Those Neoists think that the world is an emblem with a lost subscription where only that which happens every three-hundredth night is true. Other Neoists believe that while we are asleep here, we are awake somewhere else, so that everyone is two. Books are rarely signed, and the notion of plagiarism does not exist.

Neoism is, above all, a prefix and a suffix without anything in between. According to Neoist sources, it was founded in the year 1346. Since then, Neoism has permanently been about to dissolve. Some Neoists even claim that Neoism never existed and is a mere invention of its enemies, Anti-Neoists. Since Neoism is indivisible, it cannot grasp itself, and anyone who wants to grasp it has to be an Anti-Neoist. And

since the Neoists want to create a situation in which a definition of Neoism would make no sense, attempts to write off Neoism by historicizing it are just part of the Neoist cultural conspiracy. Obsessed with speculation, reality adjustment and mad science, Neoists produced nothing but manipulations of their own and other histories.

When such manipulations make it impossible to differentiate between words and things, the structure of things must begin to repair itself. Neoism is here to fix these things once and for all. Neoist names like Monty Cantsin, Akademgorod and Neoism are regarded not as artificial, but as tangible symbols so that everything done with them immediately affects the things they represent. At first, Neoism was probably nothing but a collection of obscure insider jokes and ironical references. They were elaborated into fanciful allegories and hieroglyphs whose points only insiders would get. Later, their hidden allusions were forgotten, and the signs were taken for themselves. Since they obviously had to mean something, Neoists had to reinvent their meaning. The remotest analogies between signs and meanings were constructed until Neoism became an art of concordant discord, a sphere with as many coordinates as diameters, a self-refuting *perpetuum mobile*.

The pompous claims and the solemn pathos of Neoism had an extraordinary impact on naive people. Rich with obscurity, riddles and esoteric subtexts, Neoist writing such as *The Disposal of Truth*, *Mind Invaders*, *The Seven by Nine Squares*, *The Book of Neoism*, *The Universe in Contention* and *Dialectical Immaterialism* tries to achieve nothing less than a complete reinvention of culture. Neoist achievements allegedly include time travel, the transformation of blood into gold, inexpensive telepathic technology and, more generally, collective control over matter, space and time by manipulating things through their names. Neoism finally claims to have overcome the parameters of life and death, offering immortality to everyone: through the name Monty Cantsin, Neoists live and explore the paradox of a subjectivity that is one and multiple, collectively realizing individuality and abandoning it in the end. The result of this experiment is a simultaneous 'both/and' and 'neither/nor' as the principle of all Neoist thinking.

A chief concern of Neoism is to turn people into players. This is to be gradually achieved. First, Neoism denies there is a game. Second, it hides the rules from those involved. Third, it gives them all penalties and no

wins. Fourth, it removes all goals, enforces their playing, inhibits their enjoying. Fifth, it makes them look like players, but forbids them to play. To make everyone remain a piece in the game, it permits them to associate only with pieces and denies the existence of players.

Imagine a house. Six walls. A house, no door, no window. A person inside that house. The house consists of nine squares, 20 feet across and 20 feet high and 20 feet wide. But the person's diameter is only 19 feet. His awareness is only 19 feet. Does he see the walls? No! Neoism makes him think he is a one-lifetimer, and his awareness goes down to 18 feet. And when it goes down to 18 feet, Neoism moves its walls in to 19 feet. When Neoism gets him down to the size of a fist, its walls are the size of stretched out arms, and things have been nicely repaired. And if anybody jumps out of line, we've got lobotomy, shock treatment, Siberia – whatever you want, baby, we have it here.

So be on your guard! Watch Neoism. Take it home. Don't be ignorant. Neoism is compassionate, and it is cruel. Be on your guard! Don't hate its obedience and don't love its self-control. Don't dismiss it in its weakness, and don't be afraid of its power. Why do you despise its fear and curse its pride? It lives in fears and strengthens in trembling. Neoism is stupid and it is wise. Neoism will be silent among the silent, and it will appear and speak. Why then have you dismissed it?

Neoism appears when you are away, and it hides when you appear. Take it home to places that are ugly and in ruin. Out of shame, take it home and scatter its members shamelessly. Approach it and turn away. Neoism is the reading that is attainable to anything; it is the speech that cannot be grasped.

If you want to understand Neoism, differentiate. If you want to know what it's all about, understand its philosophy. Understand its technical application, and study Neoism in its own words. Conceptual understanding is of importance here. Not everything in Neoism is of equal value. Neoism has its own opinion, and it has a right to keep its own opinion. And boy, it's got some wild opinions. You oughta hear them sometime. But that's a different thing . . . a different thing . . . and you can tell very easily when it swings over into its opinion, when it starts rambling about this or that. Take it as amusing, but it doesn't really have anything to do with Neoism. Neoism itself is cleaner than a wolf's tooth. There are a lot of wolves' teeth out there and they aren't too clean.

Neoism is clean because it does not exist except in the reactions it creates. Some Neoists used the experimental arts to promote the Neoist values of tradition and speculation. Neoism, in this disguise, was a movement that created the illusion of a movement called Neoism. After various mutations, Neoism developed an increasingly complex web of contradictory self-descriptions, a hermeneutic drift that leads every Neoist to reinterpret Neoism in any suitable way. Neoist self-descriptions soon became an impassable maze. This explains why it is so difficult to approach Neoism, whose only work has been a never-ending monologue about itself. To complicate things even further, Neoists now refuse categorically to reply to any questions or requests for information about Neoism.

Neoism is like porn movies: the subject has no importance, logic is unnecessary, there is an accumulation of well-known things, the focus is always on the same explicit facts, repetition and boredom rule. One is tempted to believe that Neoism once had some sort of intelligible shape and is now only a broken-down remnant. Yet this does not seem to be the case; at least there is no sign of it. By its own standards, Neoism is irrefutable, perhaps the only perfection in mankind that has superseded nature. In any case, closer scrutiny is impossible, since it is extraordinarily nimble and can never be laid hold of. It lurks by turns in the stairways, the lobbies, the entrance halls. Often it can't be seen for years; then it has presumably moved elsewhere. It always comes faithfully back to your place again. By differentiating a little bit, one can get the true intention of what Neoism tries to accomplish. Neoism is sound where there is sound. It really wants to help people and at least we owe it great respect for that.

Join us, we want war with you. Cursed be anyone who doesn't believe us.

Monty Cantsin

15. self.pl

```
#!/usr/bin/perl

open (IT, '< self');
while (<IT) {
push @it, $_}
close (IT);
open (IT, '>> self');
print IT join ('\n ', @it);
close (IT);
```

16. Action Melancholia

2007

From Katherine S. Dreier's and Marcel Duchamp's 'Société Anonyme' to Res Ingold's 'Ingold Airlines', many artists have posed as corporations; since Kurt Schwitters' 'Merzreklame', artists have worked as PR agencies, and since Johannes Baader's Dadaist interventions in the Weimar Reichstag parliament and Berlin Dome church in 1918 and 1919, artists have physically, and subversively, intervened in the public sphere. Contrary to initial expectations, the rise of the Internet as a mass medium and of Internet art in the 1990s did not yield an aesthetics of 'virtual' disembodiment, but quite to the contrary helped to escalate and radicalize artistic interventionism.

Through official-looking websites and domain names, groups like the Yes Men could believably pose as the World Trade Organization and instigate communicative processes that allowed them to be invited as WTO representatives and pull off critical pranks at highbrow economic conventions. Similarly, the mass availability of software design tools and skills equalized the means of corporate identity production between artists and companies. Thanks to professional-grade graphics and web design, the 'Nike Ground' project of the artist collective 0100101110101101.org was a believable simulation of Nike's corporate identity. The alleged renaming of Vienna's Heldenplatz into 'Nike Ground' managed to confuse both a common audience – which took

the project literally – and gullible leftist critics who failed to get the ambivalence of the project, as something that simultaneously subverted and reinforced the Nike brand.

In the 1990s, there was much talk on Internet art-related discussion forums and conferences about ‘tactical media’, a concept that is not quite clear in its mere words. It took artists to go from actionist performance onto the Internet and, eventually, from the Internet back into the non-electronic public sphere to give the concept a meaning: as communication technology being cleverly used as a door opener to otherwise inaccessible social spheres. In comparison to Res Ingold’s awkward pretension of an airline through a series of dinner party receptions, the Yes Men’s fake WTO and 0100101110101101.org’s fake Nike websites tactically used the advantages of the Internet for more elegant and thus more efficacious simulations, realizing at the same time that the simulacrum isn’t powerful unless it leaves the realm of the symbolic and affects face-to-face social situations. This approach to ‘interactive art’ is squarely opposed to the mainstream ‘media art’ notion of the same term as cybernetic feedback devices, or, in other words, the pseudo-interactivity of Pavlovian stimulus-and-response systems forcing the audience to act within the constraints of programmed machine logic.

The Yes Men, 0100101110101101.org and the – tactically no less proficient – Viennese Monochrom collective form closely linked nodes of the artistic and personal network of ubermorgen.com. The development of artistic approaches is similar, too, from an early embracement of the Internet in the corporate over-affirmation of etoy.com to its dystopian tactical use as ubermorgen.com. From a realm that was open to be appropriated by self-designed corporations, the Internet ended up being artistically perceived as corporately controlled territory. This change of perception proved to be productive and, as the comparison between etoy’s (ongoing low-brow) work and ubermorgen’s reveals, a leap in artistic quality.

Unlike the Yes Men’s fake WTO website, ubermorgen’s Internet is thoroughly dystopian. It is not even a corporate space that can be hijacked for a morally good cause, for the hijacking is no less dark and abysmal than its object; there is no way out the system. Unlike the Yes Men’s subverted WTO, no parodistic or utopian device exists that dis-

robes corporate logic like the emperor's new clothes. Instead, a project like *Google Will Eat Itself* (GWEI) just lets this logic run amok.

Beyond that, *ubermorgen.com*'s dark humour has a side that transcends corporate identities and ostensible impersonality. *PSYCH.OS*, a series of video and images subconsciously recorded as an audiovisual *écriture automatique* inside a psychiatric hospital, at first doesn't seem to be related to projects like GWEI or *www.vote-auction.com* at all, except that it was created by the same artist. The correspondence between the former's highly subjective and the latter's highly corporate art consists of more than the former depicting the individual inside yet another controlling institution and the latter injecting imaginative hackerdom into a corporate cosmos. In 2006, *ubermorgen.com* was part of the 'Smile Machines' exhibition during the transmediale festival in Berlin, a show on humour in contemporary and computer-based art. *Ubermorgen's* piece *G3-Bureaucrazy* consisted, among others, of a Web-based psycho drug recipe generator. After filling out a multiple choice questionnaire of psychotic symptoms, users would receive a hardcopy of an officially looking prescription for strong psycho drugs, complete with a fake doctor's signature. Combining the psychotic and the corporate and turning it into a business, this piece bridged the gap between GWEI and *PSYCH.OS*, precarious machine logic and precarious subjectivity. It is the most concise present-day update to reflections of psychoses in modern art, bare of all the romanticizing that marked surrealism from Breton to Artaud, and bare of the bourgeois 'art brut' aestheticization of undrugged psychotic expression.

The contemporary artist no longer works on the grounds of deliberately unrestrained and self-fashioned 'craziness', but, having turned into a marketing director and self-managing freelancer in the art world, on Prozac or Effexor. But *ubermorgen's* piece is not just a satirical reflection of a contemporary world where you find, such as in LA, house-size billboards for 'South California's favorite antidepressant'. It also is a very personal piece that evokes abysses of one's individual condition, precisely by depicting it not as an unpredictable psychotic, but as impersonal software automatism.

What in Renaissance art and philosophy was known as melancholia, first transformed in early twentieth-century modernism, from surrealism to the Vienna actionists, into violent psychosis and finally into self-

controlled conditioning and chemical self-normalization in our time. Nevertheless, *ubermorgen.com*'s art remains actionism even in such a formal piece as the recipe generator. First of all, the recipe printed from the website can actually be used to alter one's condition, just like the Yes Men's WTO site has been tactically used to intervene in business congresses; and finally, the work has a more profound personal dimension. *Ubermorgen*'s humour is existential, unlike the lighter-weight humorism of, for example, Kurt Schwitters or Robert Filliou. It also transcends the mere pose and postmodern play with signs that still seemed characteristic for *etoy.com*. In combination, humorism and existentialism create a powerful mixture in *ubermorgen*'s art. It is simultaneously reflexive and actionist, introverted and extroverted, melancholy put into action: an 'Action Melancholia', performed at high personal risk in its conflict with lawyers and courts and in the danger of personal burn-out. Unlike academic artists who call themselves 'critical', but shout foul once they actually get in trouble, there is a silent melancholic feedback loop in *ubermorgen*'s actionism between troublemaking, being troubled and getting into trouble.

In Renaissance emblems, the melancholicus was depicted as a man with a gagged mouth sitting near a river and reading a book. In *ubermorgen*'s art, he sits in front of a computer near Internet data streams and wears a corporate mask.

17. Pop Culture and the Aesthetics of connection 2009

1. *Romanticism, Gesamtkunstwerk, Folk Culture*

It is hardly necessary to debate Diedrich Diederichsen's thesis of an 'aesthetics of connection' within pop music. Anyone who has been socialized through a pop music subculture can immediately understand what he is talking about. Looking at punk, for example, merely in terms of sound would miss at least half the point. If, however, you want to find out why pop music has lost its primary power to establish this sort of connection and bring about identificatory forms of fashion, language, gesture, images and politics, you need to step outside of the narrow discourse of pop.



Design: D.U.M.P./Benscore Rotterdam
Photo: Florian Cramer

The most simple answer might be: pop music is youth culture. Youth culture defines itself through styles; these styles are always semiotic and artistic in the general sense and have sociocultural and political connotations (one need only think of the Baroque or classicism). Today's youth culture no longer defines itself primarily through pop music; instead it also looks towards computer games (with *World of Warcraft* having generated more than three times the revenue of *Avatar*, the most profitable film of all times), mobile phones and social networks, religion (Islam) and other media and symbolic systems. Pop music, with the exceptions Diederichsen cites of hip hop, heavy metal, as well as Goth, is no longer the freshest example of a mass cultural aesthetic *Lebensphilosophie* (philosophy of life).

Sticking with punk, however, it is obvious that the simple youth culture view falls too short. Punk and post-punk have largely been accepted and revalued as artistic avant-gardes within the contemporary

art world. It is entirely possible that future art history books will foreground punk and post-punk and marginalize art movements like neoexpressionist painting and appropriation art, which have until now been considered canonical for the period of the 1980s. Descriptions of punk and post-punk that focus on youth culture tend to fall short, since they fail to take into account the extent to which clever avant-garde artists (Malcolm McLaren, Jamie Reid, Genesis P'Orridge, Lydia Lunch) were active participants in the scene. Structurally, the conflict situation within underground pop culture in the 1960s, 1970s and 1980s is the same one at the heart of the *Lebensphilosophie* and *Lebensreform* (life reform) youth movements, radical politics and avant-garde art at the beginning of the twentieth century (where Walter Benjamin occupied Diederichsen's role as the pop-intellectual). Both pop music and early artistic avant-gardes can thus be described in terms of aesthetic anthropology, a notion developed by the recently deceased Gert Mattenklott, who was himself aesthetically socialized within the periods in question.

Taking this as a starting point, we can delve further into art history or sociology of culture. Is pop music – due to its semiotic aesthetics of connection grounded on the idea of *Lebensphilosophie* or aesthetic anthropology – the last *Gesamtkunstwerk* (total work of art)? As a short autobiographical footnote about my own aesthetic socialization: in 1982, at the age of 13, I developed the habit of secretly reading Diederichsen's articles for *Sounds* under my school desk. That same year in Hamburg (the same city as the *Sounds* editorial office) the journal *konkret* published art historian Horst Bredekamp's influential text 'Fußball als letztes Gesamtkunstwerk' (Football as the last total work of art). At that time, even *Sounds* became interested in discussing soccer in general and Hamburg's team in particular. A popular hooligan T-shirt of Rotterdam's Feyenoord club – the other football team formerly trained by Ernst Happel – just shows the word 'Rotterdam' in bold Gothic letters. The typography ascribes to both the Feyenoord Hooligan culture and the Gabber hardcore music scene, which likewise originated in Rotterdam and the circles around the Feyenoord Ultras (as can be heard on the Gabber track 'Rotterdam Hooligans' by Rotterdam Terror Corps). The German Gothic typography would also provoke people of Dutch origin, however, since the city centre was almost entirely obliterated in 1940 by the *Wehrmacht* in one day of bombing.

This goes to show that both football culture and pop music can be extremely loaded referential systems and aesthetic, political forms of identification. Often the reduction and simplicity of the sign (such as the Rotterdam lettering) has a reciprocal correspondence with the complexity of evocations conjured by its references. Several questions come up here: How does this relate to the romanticist programmes of the *Gesamtkunstwerk*? Are these general characteristics of popular or folk culture? Is there a difference between popular and folk culture? And, finally, is an 'aesthetics of connection' a general feature of all cultures and cultural phenomena – such as religion, meals, sexuality, burial rituals?

Perhaps the decisive difference when it comes to pop music is that it still originates from the system of art and thus from aesthetics in the narrower sense. Measured against romanticist and post-romanticist aesthetics from Schelling to Hegel and from Nietzsche to Adorno, pop music is the bastard child of the musical *Gesamtkunstwerk* – a *Gesamtkunstwerk* in opposition with its inventor: certainly Dionysian, but not high culture in the Wagnerian sense; a manifestation of aesthetic resistance, yet industrially reified. What is it that distinguishes the aesthetics of connection in pop music from the early romanticist concept of universal poetry, which, according to Friedrich Schlegel's 116th *Athenaeum Fragment*, also embraces 'the kiss that the poetizing child breathes forth in artless song'? The tricky dialectic of this demand lies in the call to abolish both entertainment and serious culture while at the same time securing these by drawing a distinction between art and the artless; using romantic irony to call attention to this border (for example, in Tieck's *Gestiefeltem Kater* [Puss in Boots]). This is the way in which the popular first comes to be. Popular music in Germany is born as a concept with *Des Knaben Wunderhorn* (The Boys Magic Horn) and becomes a political construction through philology and poetic inventions such as Heine's *Loreley*.

This inheritance, however, has been doubly discredited: through nationalist romanticism and the Third Reich, and through the mutation of the folk song into the *Schlager* (popular-conservative German crooner folk music) and *Musikantenstadl*. In Germany, the discourse on pop saw itself in aesthetic opposition to this trend, much in the same way that New Music and Adorno's school of musical aesthetics saw itself in opposition to mass culture. Ironically, German music has achieved

the most international success when its melodies and text modules draw from the style of the romanticist folk song. Kraftwerk's songs since 'Autobahn' function entirely according to this pattern, and both Einstürzende Neubauten and (the dreadful) Rammstein reactivate all the clichés of dark romanticism. The romanticism of the folk song, together with the irony it has exhibited since the late eighteenth century, also runs through innovative underground German pop music from Holger Hiller and Der Plan all the way to Felix Kubin. These references are not so surprising when one thinks about the filial relationships between Anglo-Irish folklore, country & western and white rock music, or between gospel, soul and hip hop. It is a fact that all pop music draws on folk music traditions.

The same holds true not only for music but for pop discourse, which includes pop literature and pop theory. Apart from a number of parallels to British cultural studies and 1980s British pop journalism, the German definition of pop culture, pop literature and pop theory is largely incomprehensible to the Anglo-American world, although this difference has only existed since the 1960s. One need only compare, for example, the German Wikipedia article 'Popkultur' with its English language equivalent 'pop culture'. In America, pop culture stands for *Star Trek* versus *Star Wars* as opposed to hip hop versus heavy metal. Hip hop and heavy metal aren't even listed under pop, which is considered its own musical style, encompassing both The Beatles and Lady Gaga. Instead, hip hop and heavy metal can be found in a separate article about 'popular music'. John Zorn and Terre Thaemlitz, both of whom Diederichsen regards as pop, would never be considered as such in America. In Germany, there is ultimately still a strong distinction between serious culture and entertainment, art music and popular music. That is to say, this division exists in exactly the same way as Adorno cemented it. For this reason, pop theory becomes oppositional and distinct, and pop does not simply stand for the 'popular' or 'folksy'.

In the German-language Wikipedia, the page for 'populäre Musik' links to the article 'Popmusik'. In Germany, 'Popmusik' refers to Anglo-American popular music, and, as such, it is a post-war phenomenon (a claim also made by Diederichsen). With the necessary conceptual and political caution, one could describe German pop music and the German pop discourse as a postcolonial phenomenon in the sense

described by Homi Bhabha. A foreign culture is superficially taken on, translated and ultimately infiltrated. For example, it is astonishing that German disco and house music, from Giorgio Moroder all the way to Milli Vanilli, is still centred in Frankfurt, Munich and other southern German regions, while German new wave and post-punk was based in Düsseldorf, Hamburg, Berlin and Hannover. The former were in zones previously occupied by the Americans and their GI discos, while the latter were in those occupied by the British – that is to say, in John Peel's radio transmission range.¹

In the end, pop music in Germany is not just an aesthetic and political opposition to *Schlager* music and folksiness. This means that both pop-leftists as well as reactionaries can agree that pop music is essentially anti-German – or at least they were able to do so before fascism moved into pop, first as a provocative gesture and later as ideology. At the same time, pop is an opposition to the critique of the culture industry and the late-romanticist glorification of high culture that came out of the Frankfurt School. Yet, just like Adorno, it operates with the machinery of aesthetic resistance: as resistance *in* aesthetics as opposed to resistance with aesthetically packaged messages (in contrast to Eisler, German singer-songwriters, the Autonomes/punk scene, and German *Politraps*).

This central function of the aesthetic – loaded with ideas related to *Lebensphilosophie* – is precisely what defines pop music in the sense understood by Diederichsen, placing it in a continuum with early and late romanticism as well as avant-garde art. Because his music lacks this very dimension, a composer like Helmut Lachenmann is simply not avant-garde (and surely much less so than Brian Eno, Lydia Lunch or Terre Thaemlitz), despite whatever his self-image may be.

To put it in an extreme way: pop music is a system of references that can serve as a perfect hollow body for aesthetic projections. This is its ontological vocation. Thus, a band that plays nothing for 4 minutes and 33 seconds (like the German new wave group Nichts in 1981) produces something fundamentally different from John Cage.

It is also possible that this aesthetic, ontological view of pop music was not simply settled after the 1980s, but migrated – along with pop discourse – into specialized areas of research, becoming a rich source of quotations for *zeitgeist*-conservatives like media theoretician Norbert Bolz.

2. *The Record Album as Medium*

Diederichsen's media argument and the function of the record album within pop music, on the other hand, provides convincing support for the thesis of pop's aesthetic ontology. For all classical musical avant-garde music, whether composed or improvised, the record album was always a spinoff product: it was seen as a pale mimetic reflection of a concert or session, a dead, canned package of sound. Citing similar reasons, John Cage claimed that he was not interested in making albums of his music (though as part of Heinz-Klaus Metzgers and Rainer Riehn's multi-disc project *Music Before Revolution*, he did contribute to a landmark concept album). Even experimental art made with record albums, from Nam June Paik to Christian Marclay, returns the mass-produced object to the status of the music session or the unique exhibition copy, thereby directly negating pop.

In the 1980s and 1990s, pop music valorised the record album as *Gesamtkunstwerk* to such an extent that even filmic spectacles – music videos like *Thriller* – were secondary media, serving only to aid the sale of records. From the standpoint of semiotics and the conventional culture industry, this is an absurd situation in which a medium that is audio-visually more rich indexically represents a medium that is audio-visually more poor. (In the cinematic film, the soundtrack album is the poorer substrate or index in terms of media. Celine Dion, for example, is the Proustian cookie for Di Caprio and Winslet on the railing of the Titanic.)

3. *Synthesis*

It follows that pop culture is not merely a form of folk culture enriched by media and technology – a notion familiar from Adorno, but also seen in the Coen Brothers' film *O Brother Where Art Thou?*. It is also its transposition into aesthetic anthropology, identities and practical philosophies of life. This equation seems to end with the Internet – and the loss of aesthetic and vitalistic enrichment once works circulate only in the abstracted medium of the audio file and, thanks to software like iTunes, become database art. But there is another side of the coin where pop music and its media once again revert to becoming a sort of folk culture where the barrier between senders and receivers, producers and consumers, established with twentieth-century mass media, no longer

exists. (An example that was set in underground hippie culture and punk/post-punk, but only within the constraints of alternative media). Not only are MP3 files in abundant circulation, but almost everyone with creative ambition seems to be also a music producer. Exclusivity can thus only be maintained by issuing work on analog media – one of the reasons for the renaissance of the vinyl LP. But this only confirms the diagnosis *ex negativo*. Pop music as a *Gesamtkunstwerk* has become retro: it no longer appropriates other codes, it is itself a code that is being appropriated.

18. Floppy Films



IV. SPECULATIVE

19. Language and Software Studies

2005

Software and language are intrinsically related, since software may process language, and is constructed in language. Yet language means different things in the context of computing: formal languages in which, among other things, algorithms are expressed and software is implemented, and so-called 'natural' spoken languages. There are at least two layers of formal language in software: programming language in which the software is written, and the language implemented within the software as its symbolic controls. In the case of compilers, shells and macro languages, for example, these layers can overlap. 'Natural' language is what can be processed as data by software; since this processing is formal, it is restricted to syntactical operations.

While the differentiation of computer programming languages as 'artificial languages' and languages like English as 'natural languages' is conceptually important and undisputed, it remains problematic in its pure terminology: There is nothing 'natural' about spoken language because it is a cultural construct and thus just as 'artificial' as any formal machine control language. To call programming languages 'machine languages' doesn't cut it either as it obscures that 'machine languages' conversely are human creations.

High-level machine-independent programming languages such as Fortran, C, Java and Basic are not even direct mappings of machine logic. If programming languages are human languages for machine control, they could be called cybernetic languages. But these languages can also be used outside machines – in programming handbooks, for example, in programmer's dinner table jokes, or as abstract formal languages for expressing logical constructs, such as in Hugh Kenner's use of the Pascal programming language to explain structures of Samuel Beckett's writing.¹

In this sense, computer control languages could be more broadly defined as syntactical languages as opposed to semantic languages. But this terminology is not without its problems. Common languages like English are both formal and semantic; although their scope extends beyond the formal, anything that can be expressed in a computer control language can also be expressed in them. It follows that computer

control languages are a formal (and as such rather primitive) subset of common human languages.

To complicate things even further, computer science has its own understanding of an 'operational semantics' in programming languages, for example in the construction of a programming language interpreter or compiler. However, just as this interpreter doesn't perform 'interpretations' in a hermeneutic sense of semantic text explication, the computer science notion of 'semantics' defies linguistic and common-sense understanding of the word, since compiler construction is purely syntactical, and programming languages denote nothing but syntactical manipulations of symbols.

What might more suitably be called the semantics of computer control languages resides in the symbols with which those operations are denoted in most programming languages: English words like 'if', 'then', 'else', 'for', 'while', 'goto', 'print' in conjunction with arithmetical and punctuation symbols; in alphabetic software controls, words like 'list', 'move', 'copy' and 'paste'; in graphic software controls, symbols like the trash can.

Ferdinand de Saussure states that the signs of common human language are arbitrary² because they are a purely sociocultural convention that assigns certain phonemes to certain concepts. Likewise, it's purely a cultural convention to assign certain symbols to certain machine operations. But just as the cultural choice of phonemes in spoken language is restrained by what the human voice can pronounce, the assignment of symbols to machine operations is limited to what can be efficiently processed by the machine and well used by humans.³ This compromise between operability and usability is obvious, for example, in Unix commands. Originally used on teletype terminals, the operation 'copy' was abbreviated to the command 'cp', 'move' to 'mv', 'list' to 'ls', etcetera, in order to cut down machine memory use, teletype paper consumption and human typing effort at the same time. Any computer control language is thus a cultural compromise between the constraints of machine design – which is far from 'objective', but based on human choices, culture and thinking style itself⁴ – and the equally subjective user preferences, involving fuzzy factors like readability, elegance and usage efficiency.

The symbols of computer control languages inevitably do have semantic connotations, simply because no symbols exist to which

humans do not attribute some meaning. But they cannot denote any semantic statements, that is, they do not express meaning in their own terms, but humans metaphorically read meaning into them through associations they make. Languages without semantic denotation are not a historically new phenomenon; mathematical formulas are the oldest example.

In comparison to common human languages, the Babylonian multitude of programming language is of lesser significance. The criterion of Turing completeness of a programming language, that is that any computation can be expressed in it, means that every programming language is, formally speaking, just a riff on every other programming language. Nothing can be expressed in a Turing-complete language such as C that couldn't also be expressed in another Turing-complete language such as Lisp (or Fortran, Smalltalk, Java . . .) and vice versa. This ultimately proves the importance of human and cultural factors in programming languages: while they are interchangeable in regards to their control of machine functions, their different structures – semantic descriptors, grammar and style in which algorithms can be expressed in them – lend themselves not only to different problem sets, but also to different styles of thinking.

Just as programming languages are a subset of common languages, Turing incomplete computer control languages are a constrained subset of Turing complete languages. This prominently includes markup languages (such as HTML) respectively file formats, network protocols and most user controls (see 'interface') of computer programs. In most cases, languages of this type are restrained from denoting algorithmic operations for computer security reasons – to prevent virus infection and remote takeover. This shows how the very design of a formal language is a design for machine control. Access to hardware functions is limited not only through the software application, but through the syntax the software application may use for storing and transmitting the information it processes. To name one computer control language a 'programming language', another a 'protocol' and yet another a 'file format' is merely a convention, a nomenclature indicating different degrees of syntactic restraint built into the very design of a computer control language.

In its most powerful, Turing complete superset, computer control language is language that executes. As with magical and speculative

concepts of language, the word automatically performs the operation. Yet this is not to be confused with what linguistics calls a 'performative' or 'illocutionary' speech act, for example in the words of a judge who pronounces a verdict, or a leader giving a command or a legislator passing a law. The execution of computer control languages is purely formal, the manipulation of a machine, and not a social performance based on human conventions such as accepting a verdict. Computer languages become performative only through the social impact of the processes they trigger, especially when their outputs aren't critically checked. Joseph Weizenbaum's software psychotherapist Eliza, a simple program that syntactically transforms input phrases, is a classical example,⁵ as is the 1987 New York stock exchange crash that involved a chain reaction of 'sell' recommendations by day-trading software.⁶

Writing in a computer programming language means to phrase instructions for an utter idiot. The project of artificial intelligence is to practically prove that intelligence is just a matter of a sufficiently massive layering of foolproof recipes; in linguistic terms, that semantics is nothing else but (more elaborate) syntax. As long as artificial intelligence fails to deliver this proof, the difference between common languages and computer control languages will continue to exist, and language processing through computers will remain restrained to formal string manipulations, a fact that after initial enthusiasm has made many experimental poets since the 1950s abandon their experiments with computer-generated texts.⁷

The history of computing is rich with confusions of formal with common human languages, and false hopes and promises that formal languages would eventually become more like common human languages. Among them are artificial intelligence research, graphical user interface design with its promise of an 'intuitive' or, to use Jef Raskin's term, 'humane interface',⁸ and major currents of digital art. Digital installation art typically misperceives its programmed behaviourist black boxes as 'interactive', and other digital artists are caught in the misconception that they can overcome the Western male binarism of computer languages by reshaping them after romanticized images of indigenous human languages.

Still, the digital computer is a symbolic machine that computes syntactical language and processes alphanumerical symbols, it treats

all data – including images and sounds – as textual, that is as chunks of coded symbols. Nelson Goodman's criteria of writing as 'disjunct' and 'discrete', that is consisting of separate single entities that differ from other separate single entities, also applies to digital files.⁹ The very meaning of 'digitization' is to structure analog data as numbers and store them as numerical texts.

Correspondingly, all computer software controls are linguistic regardless of their perceivable shape, alphanumerical writing, graphics, sound signals, or whatever else. The Unix command 'rm file' is operationally identical to dragging the file into the trashcan on a desktop. Both are just different encodings for the same operation, just as alphabetic language and Morse beeps are different encodings for the same characters. As a symbolic handle, this encoding may enable or restrain certain uses of the language though. In this respect, the differences between ideographic-pictorial and abstract-symbolic common languages also apply to computer control languages. Pictorial symbols simplify control languages through predefined objects and operations, but make it more difficult to link them through a grammar and thus express custom operations: just as a pictogram of a house is easier to understand than the letters h-o-u-s-e, the same is true for the trashcan icon in comparison to the 'rm' command. But just as it is difficult to precisely express the operation 'If I am at home tomorrow at six, I will clean up every second room of the house' through a series of pictograms, the same applies to phrasing more complex computational instructions. Abstract, grammatical alphanumeric languages are more suitable for those.¹⁰ The utopia of a universal pictorial computer control language (with icons, windows and pointer operations) re-enacts the rise and eventual failure of universal pictorial language utopias in the Renaissance, from Tommaso Campanella's *La Città del Sole* to Comenius's *Orbis Pictus* – although the modern project of expressing only machine operations in pictograms was less ambitious.

The opposite approach to utopian language designs occurs when computer control languages get appropriated and used informally in everyday culture. Jonathan Swift tells how scientists on the flying island of Lagado 'would, for example, praise the beauty of a woman, or any other animal . . . by rhombs, circles, parallelograms, ellipses, and other geometrical terms'. Likewise, there is programming language poetry

which, unlike most algorithmic poetry, writes its program source as the poetical work, or crossbreeds cybernetic with common human languages. These 'code poems' or 'codeworks' often play with the interference between human agency and programmed processes in computer networks.

In computer programming and computer science, 'code' is often understood either as a synonym of computer programming language or as a text written in such a language. This modern usage of the term 'code' differs from the traditional mathematical and cryptographic notion of code as a set of formal transformation rules that transcribe one group of symbols into another group of symbols, for example written letters into Morse beeps. The translation that occurs when a text in a programming language gets compiled into machine instructions is not an encoding in this sense because the process is not one-to-one reversible. This is why proprietary software companies can keep their source 'code' secret. Most probably, the computer cultural understanding of 'code' is historically derived from the name of the first high-level computer programming language, 'Short Code' from 1950.¹¹ The only programming language that is a code in the original sense is assembly language, the human-readable mnemonic one-to-one representation of processor instructions. Conversely, those instructions can be coded back, or 'disassembled', into assembly.

Software as a whole is not only 'code', but a symbolic form also involving cultural practices of its employment and appropriation. But since writing (or 'code') in a computer control language is what materially makes up software, critical thinking about computers is not possible without an informed understanding of the structural formalism of its control languages. Artists and activists since the French Oulipo poets and the MIT hackers in the 1960s have shown how their limitations can be embraced as creative challenges. Likewise, it is incumbent upon critics to reflect the sometimes more and sometimes less amusing constraints and game rules computer control languages write into culture.

20. Poetic Art of Wisdom:

Quirinus Kuhlmann's '*41st Kiss of Love*'

2004

Auf Nacht / Dunst / Schlacht / Frost / Wind / See / Hitz / Süd / Ost /
West / Nord / Sonn / Feur und *Plagen* /
Folgt Tag / Glantz / Blutt / Schnee / Still / Land / Blitz / Wärmd / Hitz /
Lust / Kält / Licht / Brand und *Noth*:
Auf Leid / Pein / Schmach / Angst / Krig / Ach / Kreutz / Streit / Hohn /
Schmertz / Qual / Tükk / Schimpf / als *Spott* /
Wil Freud / Zir / Ehr / Trost / Sig / Rath / Nutz / Frid / Lohn / Schertz /
Ruh / Glück / Glimpf / stets *tagen*.

Der Mond / Glunst / Rauch / Gems / Fisch / Gold / Perl / Baum /
Flamm / Storch / Frosch / Lamm / Ochs / und *Magen*
Libt Schein / Stroh / Dampf / Berg / Flutt / Glutt / Schaum / Frucht /
Asch / Dach / Teich / Feld / Wiß / und *Brod*:
Der Schütz / Mensch / Fleiß / Müh / Kunst / Spil / Schiff / Mund /
Printz / Rach / Sorg / Geitz / Treu / und *GOtt* /
Suchts Zil / Schlaff / Preiß / Lob / Gunst / Zank / Port / Kuß / Thron /
Mord / Sarg / Geld / Hold / *Danksagen*

Was Gutt / stark / schwer / recht / lang / groß / Weiß / eins / ja / Lufft /
Feur / hoch / weit *genennt* /
Pfleht Böß / schwach / leicht / krum / breit / klein / schwarz / drei /
Nein / Erd / Flutt / tiff / nah / *zumeiden* /
Auch Mutt / lib / klug / Witz / Geist / Seel / Freund / Lust / Zir / Ruhm
/ Frid / Schertz / Lob muß *scheiden* /
Wo Furcht / Haß / Trug / Wein / Fleisch / Leib / Feind / Weh /
Schmach / Angst / Streit / Schmertz / Hohn *schon rennt*

Alles wechselt; alles libet; alles scheint was zu hassen:
Wer nur disem nach wird=denken / muß di Menschen Weißheit
fassen.

From night / fog / fight / frost / wind / sea / heat / south / west / north /
 sun / fire and plague
 Comes day / bright / blood / snow / calm / land / bolt / warmth / heat /
 lust / cold / light / torch / and need:
 From woe / pain / shame / fear / war / ache / cross / strife / scorn /
 grief / pang / trick / slur / that mock /
 Will joy / pomp / fame / balm / wins / thought / use / peace / praise /
 jest / rest / cheer / ease / yet dawn.

The moon / glow / smoke / goat / fish / gold / pearl / tree / flame /
 stork / frog / lamb / ox and belly
 Loves shine / straw / steam / peak / flood / glow / foam / fruit / ash /
 roof / pond / field / wheat and bread:
 The shot / man / work / toil / art / game / ship / mouth / prince / feud /
 care / greed / truth / and God /
 Seeks goal / sleep / praise / boost / aid / feud / port / kiss / throne /
 death / grave / coin / bliss / thanks said;

What / good / strong / hard / right / long / large / white / one / yes / air
 / flame / high / wide is called /
 Tries ill / weak / sure / bent / broad / small / black / three / no / earth /
 flood / deep / close to avoid /
 And guts / dear / quick / wit / mind / soul / friend / will / boast / fame /
 joy / jest / praise / must flee /
 Where fright / hate / lie / wine / flesh / form / foe / woe / shame / fear /
 strife / pain / scorn still rule

All things change, all things love; all things seem to hate something:
 Whoever contemplates this, surely grasps human wisdom.¹

In his history of the sonnet, Walter Mönch refers to Quirinus Kuhlmann's '41st Kiss of Love' as a 'curious construction'.² Within the less classical canon of combinatorial poetry, it is also an unusual instance because it expands the Proteus verse, a word-permutational form going back to classical antiquity, into a Proteus sonnet with 13 (!)³ possible writings or readings. In terms of sheer quantity of permutational possibilities this far surpasses all known combinatorial poems, exceeding Raymond

Queneau's *Hundred Thousand Billion Poems*, for example, by a factor of 10 to the power of 100. Today, '41st Kiss of Love' is not only the most commonly cited poem from Kuhlmann's *Heavenly Love-Kisses* (1671), but, judging from the number of reprints, also the poet's most widely known text in general. In the 1960s and 1970s, the text became an important point of reference in circles associated with concrete poetry, Queneau's Oulipo group and, later, computer poetry.

Although the long-line verse and word sequencing of '41st Kiss of Love' may at first appear irregular, the poem is constructed in full accordance with formal rules. Instead of breaking with traditional forms, it exaggerates them. With three enclosed rhyme quatrains and a concluding couplet, it is structured as a hybrid of the Petrarchan sonnet (in the first two stanzas) and the English sonnet (in the last two stanzas). Its asyndetic strings of monosyllabic words can be permuted: their sequences can be changed at will. The poem is accompanied by an epilogue in which Kuhlmann calculates the time it would take a writer to fully permute just a single verse (one year). He goes on to list 50 permutations, spanning two and a half pages of print. Both the permutational poem and this sort of reflective commentary were, of course, nothing new to the seventeenth century. An example from late antiquity is offered by Optatianus Porphyrius' 'Carmen XXV', and in the Middle Ages we find word-combinatory poems such as the 'Litanies de la Vierge', written by the *Grand Rhétoriqueur* Jean Meschinot, among others. Julius Caesar Scaliger canonized the form in 1561 and coined it 'Proteus verse'. In the seventeenth century, countless emulations proliferate, especially among spiritual poets.⁴ The formal innovation of '41st Kiss of Love', however, consists in its expansion of the Proteus verse, or double verse, into the Proteus sonnet; an expansion that is openly addressed as an intertextual operation. This becomes evident when the text is compared with a word-combinatory poem appearing in Philipp Georg Harsdörffer's *Poetischem Trichter*, written in 1654, 17 years prior to '41st Kiss of Love':

From fear / need / woe / hate / shame / mock / war / storm / fear /
 strife / toil / and work
 comes joy / thought / balm / boon / fame / praise / wins / rest / heart /
 use / pay / and prize.⁵

Kuhlmann's sonnet appropriates Harsdörffer's asyndentic arrangement, its metrical foot, the construction of vertically corresponding opposites, as well as the beginning of the poem's epilogue together with its title, 'Wechselsatz'. In both Harsdörffer's and Kuhlmann's poems, this *wechsel* (change) is both syntactic (applying to the word-order along the horizontal axis) and semantic (applying to the vertically corresponding pairs of opposites). The poem thereby becomes an allegory for mutability as such: one that contradicts the Romantic critique of the Baroque allegory's lack of clarity and abstraction of the general from the specific. Kuhlmann's sonnet adopts 20 of the 22 words in Harsdörffer's poem. It omits one pair, preserves the original connections between six of the 20 words, permutes six additional words to create new pairings within the group and connects the remaining words with a selection from its own provenance. This inventory of agreements and differences points to a second combinatorial structure inscribed within '41st Kiss of Love'. Besides the explicit intratextual combinatorics of word permutations, an implicit, intertextual combinatorics becomes discernible; one that plays through all possible options for textual appropriations and recombinations.

Other word groupings in the sonnet clearly originate from poetic calculus. The vertical word pairings in the first and third stanzas, for example, are antonyms, whereas in the second stanza – appropriate to the motif of the kiss – they form metonyms. The second stanza thereby creates an axis of symmetry that overlaps in incongruent ways with other axes of symmetry in the poem. Time and again, 'exchanges' occur within the text, yet such changes are continually subverted each time words are shuffled anew. On the one hand, the poem claims to write itself only through the process of permutation, yet on the other it seems to suggest that its initial arrangement is the most superior. Exchange, then, does not just occur intratextually and intertextually; it also occurs on a metatextual level within this contradiction of approaches.

The poem's intertextual references are, however, much more complex than what a one-to-one comparison with Harsdörffer's 'Wechselsatz' makes evident. Harsdörffer's text itself builds upon a previous text. In a footnote, it declares itself to be an 'imitation of versus vertumnalis by Lansio'.⁶ Harsdörffer refers here to the Latin Proteus

verse in *Consultatio de principatu inter provincias Europae*, written in 1621 by the württembergian professor of rhetoric and law, Thomas Lansius:

Lex, Rex, Grex, Res, Spes, Jus, Thus, Sal, Sol, (*bona*) Lux, Laus.
Mars, Mors, Sors, Fraus, Fex, Styx, Nox, Crux, Pus, (*mala*) Vis, Lis.⁷

Here Lansius combines three poetic forms defined successively in Scaliger's *Poetices* as one. Besides Proteus verse, these include two special forms of the versus rapportatus, a double verse with a parallel grammatical structure: the 'Correlativi' as syntactic sequence and the 'Concordantes' as discordia concors between related opposites.⁸ When compared with Scaliger's example of hexametric Proteus verse, 'Perfide sperasti divos te fallere Proteu' (Wickedly you hoped to deceive the gods, Proteus), Lansius's verse seems simplistic in both its meter and grammar. This simplification, however, paves the way for both Harsdörffer and Kuhlmann to compose Proteus verse in the German language, with its less flexible word order. Beyond this, it enables the first connection between Proteus poetry and Lullian combinatorics. Because of its hexameter, Scalinger's Proteus verse – and all poems taking it as a model – introduces an artificial limit on permutability. The number of its mathematically possible permutations far exceeds the amount actually permitted within the constraints of its meter.⁹ Lansius's Proteus verse, on the other hand, can itself be used to demonstrate mathematical combinatorics. As early as 1630, it was reprinted along with a permutation table in Johann Heinrich Alsted's Lullist encyclopedia.

Kuhlmann's own calculations in the epilogue to '41st Kiss of Love' end at 50 permutations, a number not easily explained by the 13 permutable words of each verse. This points to the influence of a further text source: Athanasius Kircher's *Ars magna sciendi sive combinatoria*, which contains a list of all permutations of the integers between 1 and 50.¹⁰ Kuhlmann's secondary school poems already adopt Kircher's version of Lull's General Table as a rhetorical topic and transcribe Kircher's graphic symbols of the Lullian *principia* in their margins. (I claim that Kircher's system is also evident in the arrangements of the words in '41st Kiss of Love', but I will not elaborate this thesis here due to space constraints.)

In simplifying sentence structure, grammar and meter, the Proteus poems composed by Harsdörffer and Kuhlmann find themselves, almost paradoxically, at the very heart of language as it was understood by the linguistic science of their times. In *Teutschen Sprachkunst* (1643), Justus Georg Schottelius defines monosyllabic substantives as 'stem words' constituting the basic morphological and semantic units of the German language. According to Schottelius, these stem words build the elementary set of a combinatoric that is carried out within language itself. Thus, they are defined by the characteristic that: 'Ihre Anzahl völlig und gnugsam sey: 4. Daß sie von sich reichlich auswachsen und herleiten lassen / was nötig ist: 5. Daß sie allerley Bindungen / Doppelungen und artige Zusammenfügungen leiten.' (Their number is complete and plenty: 4. That they sprout forth from themselves in abundance and derive / what is necessary: 5. That they guide all types of bonds / doublings and courteous joinings.)¹¹

With the sole exception of 'Printz' (prince), all of the monosyllabic words permuted in '41st Kiss of Love' can also be found in the lexicon of stem words provided by Schoettelius's work. 'Doublings and courteous joinings' are likewise generated in Harsdörffer's and Kuhlmann's Proteus verses, as Harsdörffer notes, when they are spoken with an iambic intonation which pulls their words together into *Komposita*. The idea of entering the 'centre of all languages' through combinatorial 'miracle junctures' is expressed in the epilogue to '41st Kiss of Love'.¹² In using permutational verse to transform the generative processes of language into poetry, Harsdörffer and Kuhlmann appropriate these processes poetically. These works are thus not simply poems (*Dichtungen*) made using language, but dense creations (*Erdichtung*) constructed with language, poetry as paragrammatism and practical linguistic research.¹³

Kuhlmann's poem is not content with the demand to 'grasp' 'human wisdom' allegorically through the exchange of words and things. Instead, as stated in its epilogue, it is 'wi in einem Klumpen / di Samkörnchen der Schluß- Red- Sitten- Weiß- Rechen- Erdmessungs- Thon- Stern- Artzney- Natur- Recht- Schrifft- Weissheit verborgen.' (like a clump / that contains the seeds of the wisdom of conclusions, speech, customs, knowledge, arithmetic, geographic measurement, sound, stars, medicine, nature, law and writing.)¹⁴ On the one hand, then, the poem extends the encyclopaedic aims of early modern Lullism, and, on the

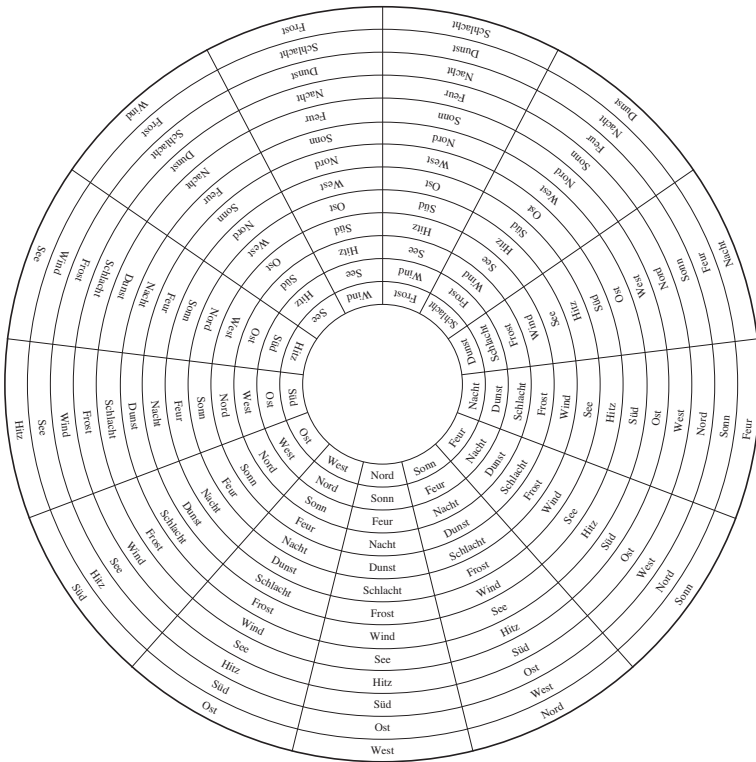
other it dispels the ambivalence of an ‘ars magna sciendi’ – which can be an art of both knowledge and wisdom – in favour of wisdom. The poem declares itself to be the seminal foundation and secret source of such wisdom, despite its seemingly explicit poetics. If this claim was true and the poem thus also recursively contained all knowledge about itself, it would not, however, require such commentary. Either the poem’s wisdom or that of its author breaks down at this point. In the same way that the metatext of commentary, with its rows and rows of written numbers, returns to an object language, the poem’s infinite wisdom may just be a rhetorical simulation. But a human reader would never be able to disprove its claims, because the permutations of the text cannot be mastered. The reader is replaced by a machine, the technicalities of which are sketched out in a text written parallel to ‘41st Kiss of Love’ and published as the *Teutschen Geschicht-Herold* in 1673. Critically referring to the seventeenth-century Lullists, Kuhlmann states:

Auch die Gewißheit dises Wechsels zu zeigen haben sich bemühet
Hieronymus Cardanus / Athanasius Kircherus / Johann Buteo /
Nicolaus Tartalius / Thomas Lansius / Hieremias Drerelius / Daniel
Schwenter / Georg Philip Harßdörffer / Christoph Clavius / George
Henisch / Marin Mersenne / Hegias Olynthius / Hieronymus
Isqvierdo u.v.a. welche aber alle den alten Fußstapffen nachgetreten /
und von weiten gewisen / was si vor unmöglich hiltten / wegen ihrer
Grösse in der Nähe darzustellen.¹⁵

A word combinatory machine provides the means to go beyond these predecessors:

Wiwol sie mit disem Schatten sich vergnügeten / war ich doch ni
vergnüget / und erfand darüber ein Wechselrad / durch das mein
Reim / der in einem Jahrhunderte ni ausgewechselt / inner etlichen
Tagen völlig ausgewechselt / und sahe mit höchster Bestürtzung /
wi di Wandelung dreizehenfächtigt auf einmal geschahe. Vor war die
Wechselung von dreizehen Wörtern / einem Menschen unversuch-
bar / nun nicht mehr.¹⁶

Because this *Wechselrad* (Permutation Wheel) shuffles 13 words, the machine is clearly meant to permute just one of the 12 Proteus verses in ‘41st Kiss of Love’ at a time. Only a machine, then, is able to ‘understand’ the totality of exchanges within the poem. The *Wechselrad* is thus both a text-generative machine as well as a hermeneutic one. In *Prodomus*, a theoretical text written in 1674, Kuhlmann describes the *Wechselrad* as a ‘rotam, tredecim circulos continentem’: a wheel consisting of 13 concentric circles, generating 13 permutations with every turn. When combined with the quotation from the *Geschicht-Herold*, these descriptions provide enough technical information to be able to reconstruct the apparatus (Illustration 1).



Reconstruction of Quirinus Kuhlmann's wheel
Florian Cramer

The construction seems to confirm the idea proposed by John Neubauer and other interpreters that Kuhlmann's *Wechselrad* is 'the rotating circle already observed in works by Lull, Bruno, Harsdörffer and others'.¹⁷ Yet the function of this apparatus is fundamentally different: its circular fields display permutations as opposed to combinations. Its dials can only be positioned in such a way that the vertical axis yields a genuine, unpeated permutation of the information entered along the horizontal axis. Kuhlmann refers to this process as an 'innovative shortening',¹⁸ because each permutation established along the vertical axis of the wheel simultaneously indicates 12 further permutations.

Despite this, the *Wechselrad* does not accomplish what Kuhlmann claims, namely that one verse of the sonnet could 'in a matter of days be exchanged entirely'. The machine's simultaneous thirteen-fold transposition merely reduces the total number of permutations to be calculated from 13! to 12!, that is to say, from 6.2 billion to 479 million. Even the aid of a clock mechanism couldn't accelerate these remaining calculations in an efficient manner.¹⁹ Kuhlmann's thesis that an expansion of the wheel to include additional concentric circles would increase the *transmutandorum virtus* of the *Wechselrad* also proves false.²⁰ The *Wechselrad* does not, however, simply shift from technical instrument to rhetorical vehicle: it is also an object of poetic and philosophical reflection. In much the same way that 'change' occurs within the poem's permutating signifiers on both a syntactical and allegorical level, the *Wechselrad* is doubly coded:

'As we have invented a changing wheel for changing verse / to accomplish these: so we wish to show the change of nature in its changing wheel and, thus revealed, view the true world wisdom.'²¹

The epigraph to '41st Kiss of Love' – a passage alluding to the transience of human matters allegedly taken from 'De paperum amore', the fourteenth sermon by Archbishop Gregory of Nazianzus – makes explicit mention of the wheel. The quote deviates significantly from its original source, however. Gregory's 'verum res nostrae orbis quidam, volvuntur' becomes 'sed omnia quadam veluti *rotâ circumvolvuntur*',²² and his 'mutationes ferentes' becomes '*vicissitudines afferente*'.²³ Through these changes, the *Wechselrad* retroactively writes itself into the quotation.

As a text comparison reveals, the topos of the Wheel of Fortune was indeed influenced by a pastiche of Gregory's sermon and a passage from Boethius' *Consolatio*. Through inclusion of the word *vicissitudo* the topos of the *vicissitudo rerum* also enters into the quotation, making reference to a line of Terence's dialogue – 'omnium rerum, heus, vicissitudo' – and its allegorical elaboration by Erasmus of Rotterdam.



Zacharias Dolendo after Jacques de Gheyn, 1596/1597

The Wheel of Fortune and the *vicissitudo rerum* are common motifs and topoi of the visual arts in the early modern period; the Wheel of Fortune as an emblem of a ruler's ascent, downfall and re-ascent, and the *vicissitudo* as the cyclical progression of fortune, prosperity, arrogance, envy, war, poverty, humility and peace. An emblematic example of this is found in an engraving by Jacques de Gheyn, a student of Hendrik Goltzius, from his series *Omnium rerum vicissitudo est* (Illustration 2).²⁴

Personifications of fortune, prosperity, arrogance, war, poverty, humility and peace rotate along the earth's globe like clock-hands describing a circle of human fate. Similarly, the classic coding of Fortune's Wheel since Monte Cassino's version around 1100 reads, 'Regno', 'Regnam', 'Sum sine regno', 'Regnabo'. Kuhlmann's '41st Kiss of Love' develops an analogous succession through the Lullist system of elements, virtues and sins, and through the cardinal points, elements, arts and senses. The introduction to the *Geschicht-Herold* comments on both the *Wechselrad* and the poem's concluding line in this allegorical sense:

'The almighty creator of heaven and earth created heaven and earth like a changing wheel / using beings instead of the changing words: All things on earth change / all love / all hate.'²⁵

Just as the *Wechselrad* cannot merely be considered a text machine, the word changes in '41st Kiss of Love' cannot be separated from the changes occurring between the things these words name. Schottelius, who theorizes that the German language has its historical roots in Hebrew and thus also in the divine Adamic language, defines stem words as those words that 'mean their thing right away'. Quirinus Kuhlmann's concept of language is antinominalistic as well, but in contrast to Schottelius it does not just connote the Christian Kabbalah, but can itself be read as such.²⁶ Kuhlmann's *Geschicht-Herold* summarizes this thought with the thesis that 'durch Anleitung unsers Wechselrades selbst di Natur anagrammatisiert oder buchstabenwechselt' (through guidance of our changing wheel, nature itself anagrammatizes or changes letters).²⁷ If the prologue constituted by the *Geschicht-Herold* is theoretical Kabbalah, it follows that '41st Kiss of Love' and the later 'Kühlpsalter' are Kuhlmann's versions of a practical Kabbalah.

But what does this mean in terms of the dependencies between machine, literature and nature? A number of Kuhlmann's writings from the early 1670s suggest that combinatorial text generators are themselves capable of meaning production – other texts from this period, however, do not. Long before the text machines in Swift's *Grand Academy of Lagado* and Borges' *Library of Babel*, Kuhlmann's *Geschicht-Herold* and *Prodomus* projected a less ironic 'Ars magna librum scribendi', 'welche alles begreift / was alle Menschen begreifen / und durch einen gegeneinanderhaltungswechsel alles belehret / was belehret werden kont' (that understands everything / that every man understands / and through changing comparisons teaches everything / that can be taught).²⁸ In this vision, such understanding (*begreifen*) is reached through combinatorics of alphabet letters, a process that ultimately generates all present and future books. In a later correspondence with Athanasius Kircher – who anticipates many aspects of the current debate around artificial intelligence, as seen, for example, in the work of John Searle and Marvin Minsky – Kuhlmann dismisses Kircher's *cista*, a poetic calculating machine, with the argument that it could help every young boy concoct verse through combinatorial means, but not create poetry.²⁹ When compared with the project of combinatorial literature, the *Geschicht-Herold* is perhaps the earliest German manifesto for a poetics of genius:

'The art of verse cannot be learned / for it has no law; and is not ignorant / for it is most absolute. Hence a poet learns everything / about the actions of man. And what a poet knows / neither man nor a poet can learn.'³⁰

In his own shift from *poeta laureatus* to the figure of *Kühlprophet* and *Kühlmonarch*, Kuhlmann follows this path with radical persistence.

The final stanza of '41st Kiss of Love' makes a direct point about 'wisdom' through a concettistic series of unresolved contradictions: 'Alles wechselt; alle libet; alles scheint was zu hassen: / Wer nur disem nach wird-denken / muß die Menschen Weißheit fassen' (All changes; all love; all appear to hate: / to reflect this / human wisdom must be grasped).³¹ Wisdom is a theme of *Heavenly Love-Kisses* in both a musical and semantic sense. Two of its sonnets refer to *Corpus Hermeticum*, while the rest

are adaptations ‘primarily of the Song of Songs’.³² Following on the heels of Catullus and Johannes Secundus, adaptations of the Song of Songs and kiss-poetry were inflationary genres in the seventeenth century; genres, it has been argued, that often lacked originality even when combined.³³ Despite this, I maintain that the intertextual operations between Kuhlmann’s lyric poetry and Solomon’s *Book of Wisdom* are much more complex than this philological relativization might assume. Alongside Lansius’s and Harsdörffer’s Proteus poems, Solomon’s *Proverbs XX-XXIX* form an important subtext and intertext to ‘41st Kiss of Love’. In the fourth stanza of the poem, for example, the word pairing ‘klug’ – ‘Trug’ corresponds with Solomon’s Proverb VIII, 8: ‘Das ist des Klugen weisheit / das er auff seinen weg merckt / Aber das ist der Narren torheit / das es eitel trug mit jnen ist.’ Likewise, the word pairing ‘Witz’ – ‘Wein’ in the fourth stanza reflects the Proverb: ‘Der Wein macht lose Leute / und starck Getrencke macht wilde / Wer da zu lust hat / wird nimer weise.’ With the aid of the 1545 edition of Luther’s bible, which is cited by Kuhlmann in other writings, at least 19 Proverbs can be linked to individual word pairings within the poem.

Because ‘41st Kiss of Love’ can be read as *versus rapportati* or ‘Concordantes’ according to Scaliger’s definition, and because it is broken down into stem word pairs, the sonnet becomes a textual analysis of Solomon’s aphoristic wisdom. The Proverbs are not simply used as quotations. Instead, they are read as an already permuted set of exchangeable units with an underlying generative mechanism. Kuhlmann’s ‘41st Kiss of Love’ thus reverse-engineers an imaginary Solomonic machine, reconstructing a lost source code that has left behind a representative output consisting of 596 Proverbs. When this code is newly implemented within the sonnet, another machine, the *Wechselrad*, is required to generate output while simultaneously reading, or ‘understanding’ it.³⁴

In declaring itself a Solomonic art, Kuhlmann’s *ars combinatoria* upholds an early modern topos of social and scientific utopias. Within this topos, Giulio Camillo’s *Theatre of Memory* (1550) serves as a Solomonic temple,³⁵ the Spanish Jesuits Hieronymo Prado and Juan Bautista Villalpardo attempt to reconstruct its original architecture (1596-1605), Solomon’s entry into the ‘Temple of Wisdom’ illuminates, if only briefly, the anti-utopia of Comenius’s *Labyrinth of the World* (1623),³⁶ Francis

Bacon's *New Atlantis* (1624) houses its scientific elite in 'Solomon's House',³⁷ Robert Fludd alludes to a magical 'Ring of Solomon',³⁸ and Jacob Boehme refers to Solomon's possession of the Adamic language. This connection is also made by the Rosicrucian Johann Valentin Andreae in 'Fama Fraternitatis' (1614):

Wisdom (saith Solomon) is to a man an infinite Treasure . . . with this Treasure was our first Father Adam fully endued: Hence it doth appear, that after God had brought before him all the Creatures of the Field, and the Fowls under Heaven, he gave to every one of them their proper names, according to their nature . . . For the wise King Solomon doth testifie of himself, that he upon earnest prayer and desire did get and obtain such Wisdom of God, that thereby he knew how the World was created, thereby he understood the Nature of the Elements, also the time, beginning, middle and end, the increase and decrease, the change of times through the whole Year, the Revolution of the Year, and Ordinance of the Stars; he understood also the properties of tame and wilde Beasts, the cause of the reigning of the Winds, and minds and intents of men, all sorts and natures of Plants, vertues of Roots, and others, was not unknown to him.³⁹

In addition to naming the topoi addressed in '41st Kiss of Love' – Adamic object language, the orders of micro- and macrocosm – certain stylistic parallels stand out between Kuhlmann's sonnet and the 'Fama'. The preface to the 'Fama', for example, refers to 'Gütigkeit . . . Zucht / Klugheit / Gerechtigkeit vnnd Stärcke' (Goodness . . . Soberness / Prudence / Righteousness and Strength)⁴⁰ while the sonnet lists the attributes 'Gutt / stark / schwer / recht' (good / strong / heavy / right). The main section of the 'Fama' refers to the 'librum M.' (librum mundi) that was 'brought into good Latin' by the brotherhood after a study of the 'Cabala' and is divided into 'our axiomata' und 'our Rota'.⁴¹ Later, it states:

[If] none of us had in any manner known anything of Brother R.C. and of his first fellow-brethren, then that which was extant of them in our Philosophical Bibliotheca, amongst which our Axiomata was held for the chiefest Rota Mundi, for the most artificial, and Protheus the most profitable. Likewise we do not certainly know if these of the

second row have been of the like wisdom as the first, and if they were admitted to all things.⁴²

'Librum Mundi', 'Rota Mundi' and 'Protheus' are key words for the poetics and wisdom-discourse in both '41st Kiss of Love' and the *Wechselrad*. That this intertextuality is not merely coincidental is suggested by Kuhlmann's 'Ansprach an die Rosenkreuzer' in *Neubegeisterten Böhme* (1674), which consists of one thousand 'theosophical questions' generated through combinatorial means.⁴³ In this 'address', Kuhlmann announces a 'Schrift von den Wundern der 6ten Zeit oder den Rosenkreutzern' (writing of the wonders of the sixth order of time or of the Rosicrucians), because 'derer Wunder warhafftig / ihr verheischen dem Naturgrunde möglich' (their wonders are truthful / and their promises are possible according to the natural ground).⁴⁴

As Solomonic machines, the '41st Kiss of Love' and the *Wechselrad* 'grasp' – at least rhetorically – human and divine language, secular and secret knowledge through calculated inflations of intratexts, paratexts, intertexts and subtexts. Their poetics are not, as the permutation principle initially suggests, synthetic and constructive, but rather analytic and intertextual. Kuhlmann lifts Lull's and Kircher's restrictions of the combinatorial alphabets to the letters B through K, contaminates meta and object language and makes colloquial language into a combinatorial source code. Poetry becomes the medium of exuberant referencing, and of densification (*Verdichtung*) of texts and knowledge, which – with the sonnet form as a beacon – manifests the failure of Kuhlmann's scientific utopias. For those utopias were not meant to remain poetry but 'artes', like the 'ars magna librum scribendi' – 'artes', however, that in the end remained nothing more than sketchy concepts.

21. 'Alternative Porn' and Aesthetic Sensibility 2006

The contradiction of all pornography is that it destroys the obscene. Like the beautiful for classicism, the sublime for dark romanticism and the ugly for the grotesque, the obscene is porn's aesthetic register, its aura and its selling point. Sade invents modern pornography as the discourse of art

crosses a historical threshold from rule-based poesis to the sensitive aisthesis. The *120 jours de Sodome* illustrate precisely this clash of cultures: a gang of perpetrators, old aristocrats who combine and choreograph their orgies according to the rules of poetics; a group of victims, young children from the bourgeoisie, whose sensibilities unmask the debauchery as perversion in the first place; and as a result, a mutual escalation of poesis and aisthesis, construction and sentiment, machine and body. Conceptualism and performance, the antagonistic and complementary poles of modern art, are already fully developed here, and their conjunction of the pornographic and the mechanical will be taken up again in Duchamp's *Large Glass* and Schwitters's *Merzbau*, patrician sex-machine construction and petit-bourgeois sensitive 'cathedral of erotic misery'.

That the pornographic logic of the taboo on obscenity cancels itself nowhere more thoroughly than in pornography itself, is demonstrated exemplarily by the performances of Annie Sprinkle. An actress in 1970s mainstream porn who became an action artist and 'alternative porn' pioneer, she not only transgresses genre boundaries but also turns the classical imagery of heterosexual pornography on its head. With her ritual invitation to the audience to look into her vagina by means of a speculum, Sprinkle concludes the iconographic tradition of Courbet's *L'Origine du Monde* (1886) and Duchamp's *Etant donnés* (posthumous, 1968), but disarms the previously lewd gaze, exorcising, an agent of both sexual education and enlightenment, both the taboo and the sexual mystery from such display. Speaking of an obscene 'heft of language' and discovering 'in a word such as "cunt" . . . great power',¹ writer Kirsten Fuchs indicates not only the taboo of Indie porn discourses which defuse this heft but also the failure of industrial pornography to reproduce it. Sade, whose systematically constructed escalations blunt the consumer's sensibilities just like any mainstream pornography, attempts to save the taboo by carrying his excesses to the extreme of ritual murder, a figure of thought, romantic and sentimentalist at its core, which lives on in the 'urban legends' of performance art suicides Rudolf Schwarzkogler and John Fare, and is physically performed, in a race against the *zeitgeist*, in Genesis P. Orridge's modifications of his body.

The 'exploitation' of the porn viewer consists in the false promise of obscenity, or its simulation – as Gonzo porn has done since John Stagliano's *Buttman* series – through the aggressive penetration and pro-

trusion of bodies.² Yet this is precisely where mainstream and independent pornography, the business and the activism of porn meet: Sprinkle's performances are Gonzo with the addition of a feminist 'empowerment', which returns the object of such protrusion to the position of the subject. And the independent pornography that has recently established itself as a genre, mostly on the Internet but flanked by sexually explicit auteur movies such as *9 Songs* and *Shortbus*, can be the subject of a discussion free of bad conscience because, among other reasons, it presents 'good' sex without obscenity; fulfilling, after the interventions of the feminist anti-porn debate of the 1980s, Peter Gorsen's diagnosis of a neovitalist tendency in contemporary sexual aesthetics that consummate the programme of turn-of-the-century anti-industrialization and naturist movements.³

Thus, the boundaries are blurred between the pornographic exploitation of codes from subcultures and artistic experimentation on the one hand, and the subcultural appropriation of pornographic codes on the other hand. The Australian porn holding gmbill.com hosts 'Project ISM' at ishotmyself.com, a simulated conceptual art project by women who photograph themselves, and beautifulagony.com, a website – the eroticism is quite successful – exclusively devoted to close-up videos of men's and women's faces during sex and orgasm, thus serializing the concept behind Andy Warhol's *Blow Job*, in recursive application of Warhol's aesthetic to itself. The milieus, roles and interests of art and commercial enterprise, of artists and sex workers, of sex industry and cultural criticism seem to blend into each other: the photo models and sex performers at suicidegirls.com or abbywinters.com discuss feminist literature seminars, artist Dahlia Schweitzer is at once electropunk singer, author, former call girl, photography artist and her own nude model with a college degree in Women's Studies, while the humanities in turn approach the subject as participant observers in Porn Studies and at recent 'netporn' and 'post porn politics' conferences.

The price for such integration is the avoidance of all conflict. Whether as a provocation, as an expression of the power of sex or of sexual politics – what is thus liquidated, the obscene, was what marked the points of intersection between the experimental arts and commercial pornography, in Courbet and Duchamp, in Bataille's novels, Hans Bellmer's dolls, Viennese actionism, Carolee Schneemann's *Meat Joy*,

but also in pornographers later honoured as artists, such as photographers Nobuyoshi Araki and Irving Klaw, fetish comic strip artist Eric Stanton and sexploitation moviemakers Russ Meyer, Doris Wishman, Jean Rollin (whose work was honoured by Aïda Ruilova during the most recent Berlin Biennial) and Jess Franco.⁴ What is obscene in these constellations are fetishes that become objects of exchange between the porn and underground cultures. Cross-fading between the biker and gay leather S/M cultures, between Satanism and fascist iconography, Kenneth Anger's experimental film *Scorpio Rising* of 1964 exemplarily demonstrates these transactions. A decade later, Genesis P. Orridge and Cozey Fanny Tutti will copy this back into youth culture with their pornographic performance group COUM Transmissions, from which the band Throbbing Gristle and industrial music emerge, as will punk fashion, collaged by Vivienne Westwood at her London boutique 'SEX' out of bondage and fetish accessories.

McLaren's and Westwood's punk is the bourgeois culture of sentiment inverted, mobilizing the registers of the ugly, the disgusting and the obscene for an anti-beautiful aesthetic. Little wonder, then, that in its later, no less bourgeois mutation into the Autonomist culture of squat houses, construction trailer camps and cultural centres, punk claimed a different, 'alternative' kind of beauty for itself. Following the same logic, the connotations of the fetish are transformed from the obscene into the anti-obscene in the sex stage shows of early hard-core punk band Plasmatics, featuring frontwoman Wendy O. Williams, a former stripper and porn actress, and later of the punk/metal women's band Rockbitch, and finally in 'Indie porn', an allegedly punk-cultural Internet phenomenon. During the 1990s, specialized porn websites establish the genre of 'Gothic porn' with otherwise conventional pornographic images and videos showing women in the Dark Wave look. In 2001, 'Suicide Girls', the first commercially successful Indie porn website, emerges from this environment.⁵

But punk, thus dressed up as leftist radicalism, disowned its roots in fetishism, or rather displayed its other side, traced already in the late 1970s rivalry between punk and disco by Spike Lee's movie *Summer of Sam*, with punk culture – dominated by heterosexual white men – nursing its resentments of the poly-sexual, gay-dominated and multiethnic disco culture. German polit-punk band Slime's disparaging refrain of

1981, 'Samstag Nacht, Discozeit / Girls Girls Girls zum Ficken bereit' (Saturday night, disco time / girls girls girls ready to fuck), expressed an attitude which, six years later, at the apex of the feminist 'anti-porn' campaign, exploded in violence at Berlin movie theatre Eiszeit when an autonomous commando raided a presentation of Richard Kern and Lydia Lunch's underground porn movie *Fingered*. Even today, debates on pornography belabour this conflict, though less explicitly so. Proclamations of an alternative pornographic culture and imagination still always also mean taking a stand against anti-pornography feminism. And the other origin of Indie porn, besides commercial Gothic porn sites, is the 'sex-positive feminism' – founded by Susie Bright, Diana Cage and others as a countermovement to the PorNo campaign of Andrea Dworkin, Catharine MacKinnon and, in Germany, Alice Schwarzer – which not only discussed but also put into creative practice a 'different' pornography incorporating feminist reflections; for instance, in the lesbian journal *On Our Backs*, in the German Konkursbuch publisher's annual *Das heimliche Auge*, and at nerve.com.

Both feminist tendencies, anti-porn and pro-porn, disagree on the therapy but not on the diagnosis that mainstream pornography is sexist and disgusting.⁶ What is often overlooked, especially in Europe, is that Dworkin and MacKinnon by no means demanded that pornography be prohibited or censored.⁷ Instead, their campaign acknowledges the power of sex and of the obscene imagination – the power that virtually all varieties of alternative pornography play down as a game without consequences, rationalize and repress. Indie porn replaces the rhetoric of artificiality in classical mainstream pornography – artificial body parts, sterile studios, wooden acting – with a rhetoric of the authentic: instead of mask-like bodies normalized using make-up, wigs and implants, the authentic person is exposed and protruded not physically, as in Gonzo porn, but psychically. Indie porn websites, comprehensive links to which can be found at www.indienudes.com, no longer emulate the cover aesthetics of porn videos and magazines but have switched to a standard format including diaries, blogs and discussion forums where users communicate with models and models with each other in a rationalized discourse characterized by a pretence of mutual respect, while the private person is at the same time in her 'authentic' totality exposed to the public view, following exactly the logic traced

by Foucault in the development of the penal system from the physical mutilation of the offender to the modern panoptic prison's psychological terror.

With this personalization and psychologization, Indie porn is making the logical next step in a progressive unmasking of the pornographic actor that began in the 1980s with the switch (recounted at epic length in the movie *Boogie Nights*) from 35mm porn-theatre flicks to cheap video, continued in Gonzo anal sex porn, and culminates in Internet pornography. Gonzo porn is even more subversive and transgressive than Indie pornography in that it subliminally satisfies and thus installs gay desires within the heterosexual mainstream: anal barebacking, women styled like drag queens, and – in contradistinction from most 1970s and 1980s porn – offensively sexualized male stars, like Rocco Siffredi, in the camera's focus. What Gonzo stages as a radical poiesis and white-trash body performance in the vein of *Jackass*, is turned in Indie porn into a sentimentalized confessional discourse before a paying audience cast as voyeuristic confessors, with constant assurances of the bourgeois normalcy and, irrespective of its rating, the playful harmlessness of the sex on view.

Just as Indie pop is a specious alternative to the music industry's mainstream, and in reality based on the same business model, which is being protected by ever more absurd copyright laws, preventive technology, cease-and-desist notices and searches of homes, Indie porn is not at all 'independent' but in fact commercialized and sealed off from free channels, even positioned in opposition to them: precisely because the mainstream merchandise is easily available on peer-to-peer exchanges, pornography, like pop music, now sells only by virtue of difference, including difference from itself.

22. **mez, *Viro.Logic Condition*][ing][1.1_** **Text Analysis** 2006

Mezangelle, the artistic language developed by Australian Net artist mez_breeze, is a mix of collage and construction, program code and conventional text. Though modelled on computer languages, it is not

composed in strict programming syntax. As is common for the Codeworks genre, mezangelle texts circulate mostly in the form of e-mails sent to Internet forums, such as the following from August 2001 (mez:virologic):

Date: Fri, 24 Aug 2001 13:24:21 +1000
From: '[mez]' <netwurker@pop.hotkey.net.au>
Subject: Viro.Logic Condition 1.1

```
_Viro.Logic Condition][ing][ 1.1_
```

 $[b:q:in]$

```

::Art.hro[botic][scopic N.][in][ten][dos][tions::
1.[b.ranch outwards||seething
jam-jar curs][ed][ored
drenching s][creening][ounds]

```

```

::Neol[o.jism][ithic Rever][b][s.al][l][s::
2.[drink sever][al][ed
c u in he][l][avan
a c][vclops][hair b:cumming sane]

```

```

::Gig:a[h!][:cycling::
3.[alert & c.rash.ing
chrysa][s][li][ding!][s//via
code syrup & brooding symbols]

```

[illegible]

.The Viro.logic Condition s][ir][ear.c][am][hes the
named


```
s.pr][int][eads thru matching bi][r][o][bo][.logic
links.
```

.There r 3 major cycles of Viro.logic
con.troll.ed by the following reactions.

.Internet p[er] [at]tended [re]duced as a wr[h]y.zomic
x.pression.

```
.Interphysical person as an x.tendable geophysical
x.pression.
```

```
.Inter.twin.ing of previous patterns as links of fixed
strands, stitched
via newbies.
```

[illegible]

```

the [-viro] [-logic] [-e condition |
-f STRAND] [-d ACTION] [-'searches=ACTION] [-'x.
tended-
req][exp.eriential][] [-'fixed-strands]

```

- / - / - / - / - / - / - / - / - / - / - / - / - / - / - / - / - / - / - /

```
[...the named input + technologic strains + physical  
input if no strands  
are nominated + possible contaminants = by default  
the condition spreads  
through machining biologic/robologic links...]
```

```
[e:n:d]
```

The title line of this text already demonstrates a mezangelle hybrid. It identifies the writing as a computer program with a particular version number, whose source code – as is typical for older programming languages – is bracketed by a ‘begin’ and an ‘end’ line. Imitating the conventions of chat, e-mail and newsgroup postings, single underscores (‘_’) are placed at both ends of the line, recalling the ASCII replacement sign for underlined text. The use of colons references both the International Phonetic Alphabet and the Perl syntax command to call up external program modules; through them, the word ‘begin’ expands to ‘bee-gee-in’, a phonetic hybrid of ‘begin’ and ‘being’. Within the begin / end bracket, a double separator line marks the start of a text passage set in a different typography. Because of its placement, it appears to be either a prose addendum to the poetic verses or a technical description of program code. Its structure, format and style imitate the manual page – also known as the ‘man page’ – of the Unix operating system, which typically begins with a short synopsis of the documented program and makes a point-by-point break down of its successive command options.¹ A close look at the text reveals that the program options for *_Viro.Logic Condition* [ing]// 1.1_ create the vertical acrostic, ‘mez’.

Because of the title’s bracketed notation, it can either be read as ‘Virologic Condition’, ‘Logic Condition’, ‘Logic Conditioning’, or ‘Virologic Conditioning’. Both the text’s title line and its ‘[b:g:in]’ line leave the question of who or what is conditioned or exposed to the virus open; it is unclear whether this applies to a human body or a technical system. As we will see, this question persists as a leitmotif of the text. Similar to the Perl syntax used to call up external modules, the subse-

quent lines feature what programming language calls ‘packets’ or ‘objects’. These are used to integrate subprograms and are separated from one another through lines beginning with ‘::’. The first of these lines again generates portmanteau words with multiple meanings:

::Art.hro][botic][scopic N.][in][ten][dos][tions::

The first word in this line can be read in four different ways: as ‘Arthroscopic’, ‘Art robotic’, ‘Arthrobotic’ and ‘horoscopic’. The second word expands to ‘Nintendos’ (the name of a leading Japanese computer game and game console manufacturer), ‘intentions’ and ‘DOS’ (referring to the old Microsoft/IBM ‘Disk Operating System’). Mez’s language thus merges symbols, machines and human anatomy to form a grotesque hybrid body, which, not quite like that of a Golem, is attributed with infection, illness and medicine (arthroscopy):

1.[b.ranch outwards]||seething

As in the command line of the Unix operating system and the programming languages C and Perl, the double vertical bar (‘||’) stands for the Boolean ‘or’ clause. This line can be read in two ways: either as a verb construction describing what the virologic hybrid body does (‘branch outwards, [or] seething’), or as a noun describing the exterior world of a human subject (‘ranch outwards, see-thing’). The next line, also belonging to the program part ‘1’, has a double meaning that is inscribed within semantics rather than grammar:

jam-jar curs][ed][ored

If this line is read as ‘jam-jar cursed’, it describes a marmalade jar that has been damned or bewitched.² As an interior description, it thus corresponds with the exterior account of ‘ranch outwards’, and possibly names the source of infection. Yet, read as ‘jam-jar cursored’, the language shifts to that of the computer. In this case, the line describes a mouse or a keyboard cursor in the form of a marmalade jar; a surreal disfunction of hardware and software. ‘Jam-jar’ is most likely also a play on the character Jar-Jar in the film *Star Wars Episode 1: The Phantom*

—

Menace (released in 2000, just one year prior to the text), who was the first fully computer-generated protagonist in a non-animated film. *THX 1138*, an earlier science fiction film by George Lucas, likewise appears in the title of *th.x[tasy].[of]1[mel]1[olan]3[choly]8*, a mezangelle text from 4.4.2006 (<http://netwurker.livejournal.com/75956.html>).

This reference adds another level of meaning to the layering of biology and computer technology in the text, as already suggested by the title. It is reasonable to assume that since the Jar-Jar character became such an unpopular figure on the Internet among Star Wars fans and computer hackers (see, for example, the 'Death to Jar-Jar Binks' home page, the 'Jar-Jar Hate Page', and the rap song 'Jar-Jar Must Die'), it clearly forms a subtext to 'jam-jar cursed'. The following line:

drenching s[[creening]]ounds]

expands into 'drenching screening' and 'drenching sounds'. Looking at the four-line pseudo-program packet as a whole, it is difficult to determine who or what is the acting subject of the text and who or what constitutes its object: the virus-infected, arthritic robot, dissolving into deformed screen graphics and sounds, or the 'arthroscopic intentions' of a sick human body in a domestic space?

::Neol[[o.jism]]ithic Rever]]b]]s.al]]l]]s::

This line nests the words 'Neolithic', 'Neologism', and 'jism' on the one side and 'Reverb', 'Reverbs', 'Reversal', 'Reversals' and 'all' on the other. At least two readings come about from the combinatorics of these morphemes. The subject feels thrown back to the Stone Age, senses the Stone Age reverberating, or: there is a 'Neologism Reversal', an inversion of a new term. As before, the boundaries between bodies and technology dissolve, and this loss of borders brings with it the motif of infection and sickness. The text can compellingly be read as both a private medical report and as the error log of technology that has been infected with a virus. Taking this into account, an interpretation of 'Neologism Reversal' easily suggests itself: the computer virus (a neologism derived from biology) becomes the model used to interpret biological infection, resulting in this neologism's logical and historical reversal. The subject

of the text observes its own sickness, compares it with the computer virus, and reflects on the inversion undergone by this neologism when digital infection is used to explain biological infection. 'Jism', an English slang term for sperm, introduces a further source of infection into the structure, and it is almost as if the words themselves are infected and contaminated. In the subsequent line, numbered to indicate the next program section, the medical report continues in its paradoxical manner:

2.[drink sever][al][ed]

Liquids are either ingested here to fight the infection ('drink several'), or, like the 'jam-jar cursed', 'drenching screening', and 'jism' are themselves a poisoned and contaminated source ('drink severed'). The following line pulls these opposites together in the most obvious way:

c u in he][l][avan

Besides the general statements 'see you in hell' and 'see you in heaven', this line contains two Internet-specific allusions: 'c u' refers to the video conferencing software CUseeMe, popular at the time of the text's appearance, and 'see you in hell' appropriates the rhetoric of computer viruses and damage alerts found on hacked or attacked computers. The last line of the section,

a c][yclops][hair b:cumming sane]

expands to 'a cyclops becoming sane', 'a chair becoming sane' and 'hair becoming sane'. Because of its spelling, 'to come' takes on a double meaning, with 'b:cumming' standing for the slang term 'to cum' (to have an orgasm) as well as 'becoming' and '[to] be cumming'. Since the preceding line hints at web cameras ('cu'), the 'cyclops' becomes a visual metaphor for the home computer as a one-eyed creature; a figure with a camera-eye on its monitor-head. Again, there is an ambiguity as to who has been infected and who is becoming healthy; even the recovery is inscribed with sex slang and thus becomes an omen of latent viral transmission and infection.

The following part of the text and program plays with the multiple meanings of the word 'cycling':

> ::Gig:a][h!][:cycling::

'Gigahigh cycling', 'Gigahertz cycling' and 'Gig cycling' / 'Gigah! cycling' describe the gigahertz clock speed of a computer's central processing unit, bicycle riding in the mountains and extreme sensations of rising and falling. Each of these word combinations portrays a catastrophically overwound apparatus or organism that reaches a critical point. Buried in 'Gig:a][h!]' lies a further play on the Net art entity antiorp / integer / Netochka Nezvanova, whose artistic code language systematically uses an exclamation mark to replace the letter 'i'. Since this is the only passage of the text using this kind of notation, it can be interpreted as a hidden greeting – 'hi' – to readers who happen to be fellow Net artists.

Resuming the itemization found in the second line of each paragraph, the following line similarly thematizes the destabilized condition of the apparatus or organism:

3.[alert & c.rash.ing

This line is easily interpreted as 'alert & crashing' and 'rash'. The apparatus or organism remains in this destabilized state in the next line:

chrysa][s][li][ding!][s//via

The larva ('chrysalis') introduces an additional biological metaphor into the text. Mezzangelistically nested with the verb 'sliding' and its plural substantive 'slidings', it becomes 'chrysaliding(s)'. The machine-organism, then, runs at full speed, loses control ('Gigacycling', 'rash', 'alter & crashing'), atavistically regresses and withdraws as a larva. This larva slides 'via'

code syrup & brooding symbols]

Biology and computer programming, the organic and inorganic, explicitly mix in this formulation. 'Syrup' is both medicine for the recupera-

tion of the body, and – as ‘code’ – a restorative remedy for the crashed machine. ‘Code syrup & brooding symbols’, furthermore, are metaphors for computer control and programming; a view of symbolic control and loss of control as an organic system. The first verse of the text – or, as the case may be, the first section of the imaginary program – describes the hybrid organism. The second section, which shifts into an ambiguously coded space, describes the sources of its infection and its healing. Finally, the third section describes its interior state. With the ‘code syrup’ and ‘brooding symbols’ of the last line, the mezangelle text also describes itself: its poetics of the viral autoinfection of words, which become organic through their syntactical and semantic flow.

There are models for this sort of poetics within literature. The main thesis of William S. Burroughs’s speculative poetics in *The Electronic Revolution* is that language itself is a virus: ‘I have frequently spoken of word and image as viruses or as acting as viruses, and this is not an allegorical comparison.’³

Since for Burroughs the virulence of language is understood neither as a special case nor merely in the figurative sense, he goes beyond Richard Dawkins’ speculative theory of the ‘meme’ as a speech act with an infectious influence that spreads, like a virus, through communication.⁴ In Laurie Anderson’s pop song ‘Language is a Virus’ (1986), originally written for the performance ‘United States Live’ and produced as a disco-version by Nile Rodgers for Anderson’s concert film *Home of the Brave*, Burroughs’ dictum itself becomes a meme and a self-fulfilling prophesy⁵ – and the 72-year-old Burroughs even makes an appearance in the film as Anderson’s tango partner. Burroughs’ pronouncement that language is a virus and that cut-up literature is the release and tactical application of its virulence also serves to describe the virological condition of mezangelle and its ‘Exe.cut[up]able statements’ (which are literally inscribed with reference to Burroughs). However, the mezangelle poetics of *_Viro.Logic Condition[/ing/] 1.1_* take a much more radical approach to Burroughs’s programme of the word as virus, reprogramming the microstructures of lexis and grammar instead of just mixing found blocks of text. The result is a densification of language as opposed to a redundant recycling of text.

Imitating the layout and language of the Unix ‘man page’, the second section of mez’s text contains the technical documentation of *_Viro*.

Logic Condition[/ing/] 1.1_'s imaginary computer program. In this, it corresponds to software, the neologism coined by John Tukey in 1957 as an umbrella term for all technical computer services except hardware; equally encompassing both programming and maintenance. Here, however, even the documentation is a para-algorithmic text with portmanteau words that expand into multiple meanings:

.The Viro.logic Condition s[ir][ear.c][am][hes the named
N.pu.t][rojan.logic][strains [or physical N.put if no strands r
nominated]
4 possible contaminants.

Next to 'Neol[o.jism][ithic Rever][b][s.al][l][s]' in the program section, the meZangelle nesting of the verb 'searches' in the first line of the manual section is the text's most clear self-statement. This line refers to SirCam, an e-mail virus that began spreading to personal computers all over the world in July 2001. It greeted receivers with the message, 'Hi! How are you? – I send you this file in order to have your advice', and proceeded to erase data according to a random algorithm.⁶ Since *Viro.Logic Condition*[/ing/] 1.1_ first appeared in August of 2001, at the height of the SirCam epidemic,⁷ the text is a historical reflection of a 'virologic condition' of its time. Since, however, both 'logic' and 'physical' bodies act as gates ('N.pu.t [] strains') for the 't[rojan]' infiltration, the manual section explains that the virological condition is twofold: an infection effecting both a machine and a body. This motif is underscored by the impurely rhymed substantive pair 'strains' / 'strands', where 'strains' stands for strains of bacteria as well as the stress placed on bodies or machines, and 'strands' stands for both veins and wires.

Taken as a whole, the line describes how the imaginary Viro.logic Condition program functions technically. In the style of the SirCam virus and with the logic of the Trojan horse, it scans technical infrastructures or organisms for security gaps ('possible contaminants'), and then attacks. Like the whole second section of the text, this line is a reworking of the 'man page' of GNU grep, a free Unix system program enabling computer files to be searched via regular text searches.⁸

The corresponding section in the grep ‘man page’ reads:

grep searches the named input FILES (or standard input if no files are named, or the file name – is given) for lines containing a match to the given PATTERN.

A text comparison shows that in mez’s text this formulation has been rewritten to thematize virus attacks and to replace computer-specific terms like ‘file’ with more ambiguous expressions that are equally suggestive of biology and technology. The lines that follow this are based on the grep man page sentence: ‘By default, grep prints the matching lines’:

.By de:fault|[lines]| the Condition
s.pr|[int]|eads thru matching bi|[r]|[o]|bo|.logic links.

Since this line documents a malfunction, ‘By default’ becomes synonymous with ‘By fault’ and ‘spreads’ becomes both ‘sprints’ and ‘prints’. At the same instant, the line refers to both bodies and machines, as indicated by the nested adjective ‘biologic’ / ‘robologic’. The fully executed combinatorics of the sentence demonstrates the method mezangelle uses to write its algorithmic poetry:

By fault, the condition spreads thru matching biologic links

By default, the condition spreads thru matching biologic links

By fault, the condition spreads thru matching robologic links

By default, the condition spreads thru matching robologic links

By fault, the condition sprints thru matching biologic links

By default, the condition sprints thru matching biologic links

By fault, the condition sprints thru matching robologic links

By default, the condition sprints thru matching robologic links

By fault, the condition prints thru matching biologic links

By default, the condition prints thru matching biologic links

By fault, the condition prints thru matching robologic links

By default, the condition prints thru matching robologic links

Because this algorithm also effects the descriptive part of the text, the 'documentation' becomes a source code upon which the 'virological condition' is executed. Three options or run-time parameters for the imaginary program are then described, forming the acronym, 'mez'. The introduction to this is loosely based on the grep man page sentence: 'In addition, three variant programs egrep, fgrep and rgrep are available':

```
+
. There r 3 major cycles of Viro.logic
con.troll.ed by the following reactions.
+
```

Inscribed within the word 'con.troll.ed' is 'troll', computer slang for an incompetent net-forum user who exhibits provocative, antisocial behaviour. The three lines that follow conform to the nomenclature of program options in GNU command line software, which are abbreviated with a hyphen and a single letter in shorthand and notated with a double hyphen and a command word in longhand. The grep man page documents these as follows:

OPTIONS

-A NUM, -'after-context=NUM

Print NUM lines of trailing context after matching lines.

Places a line containing -' between contiguous groups of matches.

-a, -'text

Process a binary file as if it were text; this is equivalent to the -'binary-files=text option.

-B NUM, -'before-context=NUM

Print NUM lines of leading context before matching lines.

Places a line containing -' between contiguous groups of matches.

Viro.Logic Condition[/ing/ 1.1 's fictive command reference begins with an imitation of the 'basic regular expression', an option that is only later found in the man page:

-G, -'basic-regexp

Interpret PATTERN as a basic regular expression (see below). This is the default.

In the *mezangelle* text, the expression 're:ge[/xp/]' conserves the semantics of the 'regular expression', a regular search term used in *grep* as well as other Unix programs such as *ed*, *sed*, *awk* and *vi*. It is also used in Perl as formal language for text searches and extensions of Boolean expressions:

-M, -'baseline-re:ge[/xp/]nerative.

.Internet p[/atterned/]/roduced as a wr[/h/][y.zomic x.pression.

.This is this e.ternal range.

Since historically *grep* was the first full-text search engine software (and a model for all later computer search engines), this line corresponds with the search for 'possible contaminants' previously described in the program section. At the same time, it also describes the recovery ('regenerative') of the afflicted system, which, according to the inscribed signature, is technically identified as the PC operating system, Microsoft Windows XP. The last line expands the term of the search 'pattern' or 'regular expression pattern' to a dry and sarcastic ('wry'), 'rhizomic' expression that again describes the logic of viral infection. The Internet, then, is the first 'cycle' of the virological condition. The second cycle

applies to the documentation of the ‘extended regular expression’, which, on the grep man page, reads:

-E, -‘extended-regexp
Interpret PATTERN as an extended regular expression (see below).

Mez’s poetic transcription transforms this to:

-E, -‘x.tended-rege][xp][nerative.
.Interphysical person as an x.tendable geophysical x.pression.

The first cycle effecting technical infrastructure is thus followed by a second cycle effecting networked persons in the physical world. The syntax of the expanded regular search terms in grep mutates to an expanded radius and a second stage in the infection’s escalation. The text compares the spread of the sickness to a computer-aided search in which the computer and organisms are systematically scoured for symbolic target points. The transcription of the software documentation into mezangelle does not just defamiliarize the text poetically: like Graham Harwood’s *London.pl*, it rewrites the software as a phantasmagoric machine.

The third and last ‘cycle’ is based on the documentation of grep’s ‘fixed strings’ option. In the original, this reads:

-F, -‘fixed-strings
Interpret PATTERN as a list of fixed strings, separated by newlines, any of which is to be matched.

In the mezangelle text, this becomes:

-Z, -‘fixed-stra][i][nds
.Inter.twin.ing of previous patterns as links of fixed strands, stitched via newbies.

The word pairing ‘strains’ / ‘strands’ from the first line of the second section is taken up again and written as a portmanteau. This third cycle

ties the technical infection of the first cycle together with the biological infection of the second in an 'Inter.twin.ing of previous patterns'. The result is a doubled ('twin'), hybrid infection as opposed to one existing in parallel. The 'strands' – veins and wires – form 'links' through 'newbies' (computer slang referring to inexperienced and careless technical novices). The 'virological condition' is precisely this double contamination and hybridity, both on the level of the signified (what it speaks of) as well as the signifier (the words with which it speaks).

The second to last paragraph follows the conventional man page format, which typically ends with an overview of all command options. This type of summary, however, is not found in `grep`'s original manual page:

```
the [-viro] [-logic] [-e condition |
-f STRAND] [-d ACTION] [-'searches=ACTION] [-'x.tended-
reg][exp.iential]] [-'fixed-strands]
```

Here the documentation of the imaginary program becomes a mnemonic. The last paragraph of the text reprises the start of the second section ('the named N.put[rojan.logic] strains [or physical N.put if no strands r nominated] 4 possible contaminants. .By de:fault[lines] the Condition s.pr[int]eads thru matching bi[r][o][bo].logic links'), yet it unpacks the mezangelle into conventional English:

[...the named input + technologic strains + physical input if no strands
are nominated + possible contaminants = by default the condition
spreads
through machining biologic/robologic links...]

The combinatoric of the original sentence, as previously demonstrated in its 12 expansions, is lost. With this, the program ends:

[e:n:d]

—

We can say, then, that *_Viro.Logic Condition[/ing/ 1.1_* writes science fiction in the literal sense of scientific and technological fiction. In this way, it recalls the idea of the ‘new flesh’, a phantasmagoric and sexual fusion of bodies and electronic information technology imagined in David Cronenberg’s 1983 film *Videodrome*. In the movie, this is iconically symbolized as a screen that erotically sucks in its viewers. In *_Viro.Logic Condition[/ing/ 1.1_*, on the other hand, the idea shifts to the abstract symbolic plane of an algorithmically virulent writing. Conventional science fiction, which takes the perspective of an observer and employs descriptive prose to speak of technology as a source of cultural and epistemological insecurity, is replaced with participatory observation expressed in a hybrid technical language. Its epistemological reflections derive from the very structure of its code, and these codes are sexualized because they are bound to bodies and subjects. As such, technical symbols amass to become intimate writings and imaginary, alphanumerical cyborgs; the mezangelle of *_Viro.Logic Condition[/ing/ 1.1_* writes its fantastic and grotesque realism.

The Poetics of Infection

Is *_Viro.Logic Condition[/ing/ 1.1_* just a metaphor or simulation of infection through code, since its imaginary programming language cannot be executed by machines? With regard to both the metaphorical description of physical infection as well as the performative infection of bodies through perlocutionary speech acts, infectious codes can be defined as codes that infect codes, writing that infects writing by virtue of an algorithm. On the technical and material level of its signifiers, the text unsettles readers due to both its notation style and its distribution as a mass e-mail; it takes on the appearance of a harmful virus code. Yet all escalations of the infection’s encoding are carried out on the aesthetic, imaginary level of the text. These can be distinguished within the following basic semiotics of infection:

1. Biological, analog, non-symbolic: the infection of bodies through bodies with the body as a carrier. Here the infection is not coded through artificial signs.
2. Descriptive: writing – for example a medical report – describes the infection of bodies through bodies, but is itself neither infectious,

nor does it imitate the infection it describes. (This applies to the descriptive substrate of mez's text.)

3. Mimetic-metaphoric: writing resembles the infection of bodies. Alternatively, as an indexical sign, it integrates traces of the infection of bodies.

This register characterizes *_Viro.Logic Condition[/ing/ 1.1_* as a whole. Beyond metaphor and simulation, the utopia of the text consists of using analog processes to make its signs fluid, allowing the writing to become a body that infects itself. This is achieved with the aid of an imagination that becomes a dreamlike reality, generating a continuum of signifiers and signifieds. The text thus attempts to unfold in the first biological, analog mode; rather than being symbolic in the mathematic and semiotic sense, it takes up the romantic notion of the symbol and a poetry that unifies gothic romanticism and folk romanticism in the subject of the body and the computer virus.

4. Performative through semantics that turn into viral pragmatics: bodies are effected through signs – such as criticism, hate speech or even jokes – which become ‘memes’ in the sense defined by Richard Dawkins. Writing neither describes nor imitates infection; it is itself infectious. Yet it infects the speaker, and not itself.
5. Self-infecting and syntactically viral: writing is infected by writing. From Proteus verse to computer viruses to jaromil's *forkbomb*, such infection occurs on the technical level, not just in the metaphorical sense. According to John von Neumann's theory of automata, computer viruses are self-replicating automatons constructed as software instead of hardware; in their instruction to self-replicate and self-modify they become recursive.

Hybrid forms of these five registers include fake virus warnings urging users to delete important system files. Such warnings are codes that manipulate codes, yet their infection is executed semantically and pragmatically instead of syntactically.

As a thought figure, the language of *_Viro.Logic Condition[/ing/ 1.1_* reflects the dissolution of boundaries through the reciprocal infection of bodies, machines and symbolic logic. Because this is carried out at the

level of semantics as well as syntax, the text performs a poetics of metonymy. In the exchange, crossover and slippage of meanings, it complies with Jakobson's definition of metonymy as a general trope of contiguity. The mezangelle language already begins to glide on the morphological level of its words; it metonymizes the similarities it constructs. Words like 'arthroscopic' and 'art robotic' are not just equated metaphorically but connected metonymically on the level of the signifier (through word order) and the signified (through the reader's imagination).

The dichotomy Jakobson draws between metaphor and metonymy is based on Frazer's distinction between 'imitative' and 'contagious' magic. At the conclusion of his essay, Jakobson writes:

The principles underlying magic rites have been resolved by Frazer into two types: charms based on the law of similarity and those founded on association by contiguity. The first of these two great branches of sympathetic magic has been called 'homoeopathic' or 'imitative,' and the second one 'contagious magic'.⁹

Frazer defines both terms as follows: 'Homeopathic magic is founded on the association of ideas by similarity: contagious magic is founded on the association of ideas by contiguity.'¹⁰ The example he cites for contagious magic is the banishment of an enemy through detached bodily material such as hair or nails.¹¹ With this conceptual history as a subtext, metonymy in the sense defined by Jakobson becomes a trope of infection itself. What Jakobson's definition holds back, *_Viro.Logic Condition[/ing/ I. I_* makes explicit: the text describes contiguity as infection, the 'contagious' as the 'contiguous' and vice versa. The five semiotic registers of infection – biological infection, description, metaphorization, performative infection and the syntactical infection of writing through writing – likewise share this reciprocal relationship. A metonymic infection thus also occurs within the metatext of mezangelle, as mutual infection and gliding semiotic registers of tropes and thereby of the infection itself. In this manner, *_Viro.Logic Condition[/ing/ I. I_* becomes a reflection of metonymy as a trope of infection and gliding semiosis as such.

The terms developed by Frazer and Jakobson contradict one another. Frazer sees contagious magic in opposition to mimetic and narrative

imitative magic, and characterizes it as a mixture of biological infection and performative speech act. Jakobson, on the other hand, considers metonymy to be a stylistic feature of descriptive, realist prose.¹² Since mez's text oscillates between all these expressive modes, it falsifies both models; firstly, in terms of its exclusiveness, and secondly in its abstraction. Frazer's dictum of 'association of ideas by contiguity' expands *_Viro.Logic Condition[/ing/ 1.1_* into a contiguous relationship of ideas and bodies. Its written signs are also bodily, because, as paraprogram code, they carry out actions. Due to the intralinguistic contiguity of mezangelle, they blur, smudging neighbouring signifiers as well as the division between signifiers and signifieds.

Like Burroughs' linguistic viruses, mezangelle is a fantastic thought-figure for infection on two accounts: with respect to the infectious effect as well as the infection already present in the structure of language. In Frazer's contagious magic, on the other hand, only an object and its carrier come into contact; the sign system itself does not become contaminated. Both Burroughs' literature and the codeworks write the technical phantasmagoria of a permanent and pervasive infection of signs. Unlike the Panspermia implied by the Kabbalah or Quirinus Kuhlmann, the world order is turned upside down; the microcosm of the viral sign encroaches upon the macrocosm, and – at least in the codeworks – no longer represents a higher order. Burroughs, however, conceals the roots of his poetics in occultism and parasciences such as Crowley's satanic theosophy, Alfred Korzybski's 'General Semantics' and Lafayette Ron Hubbard's 'Dianetics' and doctrine of Scientology.¹³ The latter of these was influenced by both Crowley and Korzybski, and his ideas were also briefly studied by John Cage and Morton Feldman. Regarding his encounter with Cage in the early 1950s, Morton Feldman writes:

There was a lot of talk about science fiction, also about Dianetics, a currently popular technique that was said to bring back memories of the womb. As I recall, John and I, with our crazy ideas about music, fitted in very well.¹⁴

Compared with Burroughs, the irrationality of codeworks by jodi, Alan Sondheim, mez and other Net artists (Heath Bunting, for example, ran

his website on the art server <http://www.irational.org>, which, in 2006, focused on a retrospective of Dortmund's Hartware Medienkunstverein) is less of the occult and more of a pataphysical nature. The semantization of computer formalisms in the codeworks genre comes as a consequence of artistic analysis as opposed to an auratization of technology. Through the method of metonymy, *_Viro.Logic Condition[ing] 1.1_*, too, undertakes a reading of culturally inscribed meanings, reflecting these as indissoluble contaminations of syntax and semantics, technology and biology, the machinic and the imaginary. In this, the question of whether codeworks can technically be executed on the computer proves to be superfluous. In contrast to speculative poetic combinatorics found in the Kabbalah all the way to concrete poetry, executable writing in codeworks is no longer utopian; instead, it is reflective and poetized everyday language.

The common denominator for codeworks has to do with a dystopian subjectivization of the computer, which is articulated in various ways: playful and anarchic in jodi, political and analytic in Graham Harwood, and, in mezangelle, as romantic poetry that iconoclastically subverts the fusion of the apparatus and the body found in stereotypes of 'virtual reality' and 'cyberspace'. A reflection of dystopia, subjectivization and algorithms as cultural constructs allows for computer art that critically reflects its codes. In the textual art of codeworks, algorithmic programs are – for the first time – no longer clean-room applications. Instead: they are dirty, corporeal and culturally contaminated material.

23. Notes on the Nature of Conspiracy 2006

For there either was some Tristero beyond the appearance of the legacy America, or there was just America and if there was just America then it seemed the only way she could continue, and manage to be at all relevant to it, was as an alien, unfurrowed, assumed full circle into some paranoia.

Thomas Pynchon, *The Crying of Lot 49*

Political Theology

Conspiracy theories are an old phenomenon, but a modern term, coined in Karl Popper's book *Open Society and Its Enemies* of 1945. What nowadays is called a conspiracy theory chiefly applies, since the publication of the Rosicrucian manifesto 'Fama Fraternitatis' in the early seventeenth century, to secret societies like the Rosicrucians, Freemasons and Illuminati, since the nineteenth century in to whole parts of the population like Jews, nowadays also to Muslims or, reciprocally in political Islam, to Christians. Religion is a conspiracy in the most literal sense of the word, a gathering and fabrication of spirits, or ghosts. Conspiracy theories thus target the grey areas between religion and politics, belief and power.

Their ground assumption is the existence of esoteric as opposed to exoteric politics just as in esoteric versus exoteric religion; in other words, that there is a hidden politics underneath or opposed to publicly visible politics, or – particularly in anti-Semitic conspiracy theories – that there is esoteric politics in exoteric and esoteric religion. Conspiracy theories are thus prime examples of political theology as defined by Popper's adversary Carl Schmitt. They are reverse-engineered political theologies that do not merely describe, but practically apply the concepts of the esoteric and the exoteric much like American neo-conservatism applies Leo Strauss's assumption of an esoteric truth in political philosophy.

If religion is a conspiracy, then theology is conspiracy theory and vice versa, conspiracy theories are theologies that have shifted from cultural explanations of nature to cultural explanations of culture; human explanations of how mankind works, as opposed to human (but disguised as divine) explanation of how divine power works. Modern conspiracy theories, in other words, are the oxymoron of secular belief systems.

Semiotics

These theologies are, above all, interpretations of signs: Western religions interpret nature as symbolic, as a divine sign that emanated from the divine word. In modern conspiracy theories, it is the attribution of signs – words, images, sound bites as recorded primarily by mass media – to one coherent and all-comprehensive meaning, connecting signs of

diverse origins against a common sense that considers them unrelated. As abundant webs of interrelated signs, where everything corresponds to everything, and every detail has a higher meaning, conspiracy theories are hyper-semioses and what Umberto Eco calls 'overinterpretation'; in his novel *The Pendulum of Foucault*, he writes, aside from its pulp fiction, precisely such a semiotics of conspiracy theories as hybrids of interpretation and political theology.

Conversely, Christian and Jewish theology have a strong element of semiotic paranoia since they trace every material phenomenon to the creation through the word of God. Pop cultural conspiracy theories like in Robert Anton Wilson's *Illuminatus* could be called semiotic plays on political theology, which ultimately reverted to proper political theology once they were taken, for example by 1980s German computer hacker Karl Koch, for face value and a Straussian esoteric revelation of the true machinations of world power. In hacker culture, paranoia of political world conspiracies steered by Illuminati or Freemasons still continues to exist.

Paranoia

See that patch of light over there where the mushrooms are growing? That's where the head rolls in the evenings. Someone picked it up once, he thought it was a hedgehog. Three days and three nights and then he was in his coffin. – Quietly: It was the freemasons, I'm sure of it, freemasons. Ssh!

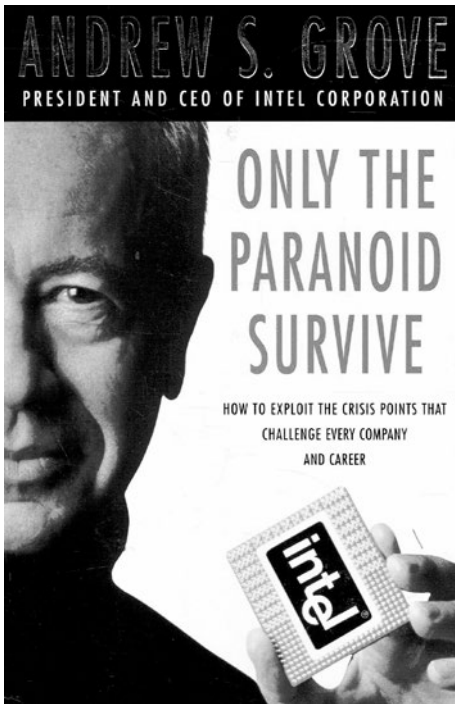
Georg Büchner, *Woyzeck*, 1837

To make sense of anything and everything is a narcissistic proposition insofar that it traces all signs back to one entity, and one conspiracy; this is why conspiracy theories are either monotheistic in their structure, or at least based on systematic theology. In psychoanalytic terms, they are paranoid semiotics, with paranoia being a form of irrationality that is perfectly if not overly rational: irrationality relying on rational methods of drawing seemingly logical, coherent and persuasive conclusions from observations and facts, or rationalization that becomes irrational because it doesn't accept irrationality, and contingency. On the level of rhetoric, this often entails inclusions of seemingly unrelated observa-

tions while filtering and keeping only those that fit a preconceived theory.

Sublime

Far from being merely a clinical psychosis, paranoia is the open modus operandi of whole industries: *Only the Paranoid Survive*, for example, is the title of the autobiography by Andrew Grove, co-founder and long-term CEO of the Intel corporation. Likewise, IBM and Microsoft are famous for their paranoid marketing strategy of spreading 'FUD', or 'fear, uncertainty and doubt' about competing products and companies, the emotions and sentiments that conversely complement semiotic over-rationalization of conspiracy plots. They describe the aesthetic dimension of conspiracy theories, in the literal meaning of aisthesis as perception, sentiments and subjective judgment.



Book cover Andrew Grove, *Only the Paranoid Survive*,
Crown Business, 1999

Since the Latin rhetoric of Pseudo-Longinus and the eighteenth-century aesthetic theory of Edmund Burke, the sublime is the aesthetic register of fear, uncertainty and doubt. Longinus, Burke, later Immanuel Kant and romanticist artists like Caspar David Friedrich and William Turner identify the sublime with forces of nature: storms, lightning, mountain ranges and canyons, dark woods. In the nineteenth century, gothic novels turn the horrors of nature into human-made horrors of culture, a tradition continued up to *The Name of the Rose* and *The Da Vinci Code* with their combinations of the gothic tale with murder plots and political conspiracy. It might not seem coincidental that the first large-scale conspiracy theories, such as the anti-Semitic *Protocols of the Elders of Zion*, have appeared since the nineteenth century, too, using the sublime as the trope of an aesthetic politics: infinite, branching out, threatening, overwhelming.

In his book *The Postmodern Condition* of 1979, Jean-François Lyotard identifies a 'postmodern sublime' based on subjective experiences, and a human condition, of contingency. The conspiracy theory novels of Thomas Pynchon, Robert Anton Wilson, Umberto Eco and Dan Brown not only exemplify a 'postmodern' permeability of popular and high culture, but also – especially in Wilson's hacker cultural perception – the thin line of paranoia, between reflecting and submitting to contingency.

Underground Politics

From Latin rhetoric to dark romanticism and abstract expressionist painting, the sublime has been generally identified as anti-beautiful, anti-classicist and therefore anti-mainstream. Gothic still exists as a subculture today. Conspiracy theories, with their paranoid sublime, likewise are a countercultural phenomenon, underground wherever they contradict official history and construct alternative realities. Disrupting commonsense truth, they show how things can be interpreted radically differently, amounting in the best cases to practical epistemological critique. For these reasons, conspiracy theories have been tactically employed in subcultures, both analytically, as readings, and synthetically, as fabrications, such as the collective identity and media phantom Luther Blissett. At the same time, it exemplifies a translation of Pynchon's, Wilson's, Eco's and (perhaps) Brown's conspiracy fictions into a social

practice, and as a critical reversal of the escalation of fiction into belief: dubbing itself a 'conspiracy' first, it ended up with the publication of the historical novel *Q*, thus ultimately containing itself as fiction and putting the lid on any paranoid political theology that otherwise might have grown out of the project.

Overground Politics

The affinity of conspiracy theories and postmodern condition does not exhaust itself in the sublime: while a single conspiracy theory claims an alternative truth, conspiracy theories in their whole state that there is not one, but an infinite number of truths whose rule depends on power and, especially in the case of counter-truths, persuasiveness. Just as Nietzsche stated in his 1873 fragment on *Truth and Lie in an Extra-Moral Sense*, truth is rhetorical:

What, then, is truth? A mobile army of metaphors, metonyms, and anthropomorphisms – in short, a sum of human relations which have been enhanced, transposed, and embellished poetically and rhetorically, and which after long use seem firm, canonical, and obligatory to a people: truths are illusions about which one has forgotten that this is what they are; metaphors which are worn out and without sensuous power; coins which have lost their pictures and now matter only as metal, no longer as coins.

While Nietzsche claims to offer an 'extra-moral' perspective on truth, it nevertheless contains a morality: that truth, as a rhetorical fabrication, cannot be trusted. Although Nietzsche's respective claim marks a blind spot in the logic of this statement – similar to the paradox of the Neoist slogan 'belief is the enemy' – it also points out where conspiracy theories become problematic: at the very point where they are trusted, and believed.

Thomas Pynchon's novel *The Crying of Lot 49* of 1966 tells of an underground, conspiratorial postal system of which, until the end, it is not clear whether it exists in reality or just in the imagination of its main protagonist. The system communicates the message of an alternate reality by its mere existence and mythological history. Its countercultural network includes a Neo-Nazi Mike Fallopian and the white supremacist

Peter Pinguid Society. At this point, the conspiracy plot is no longer romantic, but reflects grey zones between underground and overground politics; the underground, and what later was romanticized by Deleuze, Guattari and electronic art as a 'rhizome', is no value in itself.

Networks

If conspiracy theories create webs of meanings by considering anything related to anything, they construct networks. The network as such is a structurally paranoid figure of thought, or at least one that invites conspiracy theories. The Internet as the electronic network of networks thus is the perfect embodiment of conspiracy theories, including the popular urban legend that it was designed by the US military to withstand a nuclear strike.

Media Theory

No other discipline has spun this urban legend more often than media theory. Media theory itself has paranoid tendencies, first of all by its inflation of the term 'medium' to the degree that virtually everything ends up being a medium, including senders and receivers, light bulbs and guns, angels and altar bread. If everything is a medium, it is easy to conclude that we are surrounded and permeated by media. And since McLuhan's assumption that the medium is the message, media theorists believe that the medium is the creator rather than the purveyor of a message, a tool with its own agenda.

Therefore, media theory tends to describe technology not as something cultural and constructed, but as an autonomous agent that has taken over and programs culture, not unlike the science fictions of *Blade Runner*, *Robocop* and *Terminator*. Critical theory thus turns into a belief system that puts technology where gods and demons once used to be. It becomes all the more questionable once it transforms from a heretic provocation against goodie-two-shoes humanities into an institutional doctrine.

One could, admittedly, criticize this critique as paranoid itself. But thinking of 'media' as a whole as one big conspiracy might put conspiracy theories to productive critical use.

24. In Some Respects Reversed: Georg Philipp Harsdörffer's *Frauenzimmer Gesprächspiele* 2004

A die in the middle of ornamental vines that outline the perimeter of an overturned triangle; above this, the line, 'Auff manche Art verkehrt' (In some respects reversed). This is how the 'Hauptregister' ('index') of the eighth volume of Georg Philipp Harsdörffer's *Frauenzimmer Gesprächspielen* ends. The image reflects its motto in a number of ways: in the mirroring of reversed sides, the symmetry of which is subtly broken by the small leaf on the upper left corner of the decorative band; in the die, whose one borders incorrectly on its five; and, finally, in the overall construction of a reversed emblem, whose Subscriptio (the 'Hauptregister' itself, with the sum of its poetic games) is placed over instead of under the image. Ornamental vines sprout from the die and proliferate. They grow like a game the die has generated, without participating in it themselves. Does the emblem represent the *Gesprächspiele* itself, which appeared in eight volumes between 1641 and 1649, or does it represent its author, Harsdörffer, who as a member of the Fruitbearing Society¹ was given the name 'The Player'?



From: Georg Philipp Harsdörffer, *Frauenzimmer Gesprächspiele*, vol. VIII,
Hauptregister, 1649

Like the emblem, Harsdörffer's book is a poetic play with signifier and signified; a playful text about games that must be played along with as opposed to simply read. Alongside various dedications, lists and epilogues, each chapter of the book consists of a dialogue between three male and three female protagonists in conversation about one particular game. Next to poetry in the narrower sense of the term, these games include virtually all fields of classical and early modern knowledge, encompassing rhetoric, fine arts, music, philosophy, logic, mathematics and chemistry. This form, of course, is not novel; in secondary literature, conversational and dialogical Roman literature, such as the Parisian *Conférences* begun in 1633, is often cited as a model,² and on its title page, too, Harsdörffer's *Gesprächspiele* declares itself to be 'dependent on Italian / French and Spanish scribes'.

In both its form and subject, *Gesprächspiele* imports the anti-scholastic, counter-university discourse of the European academic movement that led to the foundation of London's Royal Society in 1662 and the Prussian Academy of Sciences in 1700, among other such societies. The fact that Harsdörffer addresses 'Frauenzimmer' (women) in his title and doesn't just allow them to appear as figures in the book, but also attempts to recruit them as readers and fellow players, is evidence of the educational programme he envisioned for a general audience of the upper middle class,³ a programme that Rosmarie Zeller and others have explicitly interpreted as women's emancipation.⁴ Amateur knowledge and specialist knowledge, however, remain divorced in the German text, and the use of Latin appendices makes this separation manifest on the level of language.⁵ Harsdörffer's combination of poetry, play and knowledge may seem conventional at first, referring not only to other models familiar from the time, but also to *delectare* and *prodesse* – the introduction to the text promises 'kurtzweiligen als nützlichen Gesprechen' (discussions both amusing and useful).⁶ *Gesprächspiele* expands the Horatian maxim by taking it word for word, leading to a 'misreading', or, in the sense of the emblem in the 'Hauptregister', a reversal of classical poetics. Its outcome is not a hermetic work, but rather poetry that is also a poetics in which the game short-circuits and contaminates itself. The emblem represents this in terms of rhetoric, with the die as invention and the climbing vines as embellishment of

material: *inventio* and *elocutio*. Only here, the ornament grows to engulf the *inventio*, which is relegated to approximately one eighth of the total image area, thus breaking every measure (*aptum*). Additionally, the *inventio* itself becomes a random generator. It corresponds with the obscure ordering of the games from volume to volume and within the individual books of *Gesprächspiele* as well with their arbitrary arrangement as an alphabetical list broken up into 'Easy Games' and 'Hard Games' under the category of each letter. More than 100 years before Diderot's and d'Alembert's encyclopaedia – the first encyclopaedia that did not organize its topics hierarchically, but rather arranged them in alphabetical order – Harsdörffer's directory provides an index of games beginning with 'A B C. Spiele' (A B C Games), 'das Angedenken' (The Memento), 'Alles oder nichts' (Everything or Nothing) and ending with 'Zahlen' (Numbers), 'Zergliederte Erzehlungen' (Segmented Narratives), 'Zweydeutige Wörter' (Ambiguous Words), 'Spiel von der Zeit' (Game about Time) and 'Zweiffelfragen' (Questions of Doubt). Contemporary readers might be reminded of Peter Greenaway's film *Drowning by Numbers* (1988), in which one protagonist, the young Smut, facilitates various quasi-scientific games, such as 'Dawn Card-Castles', 'Strip-Jump', 'Sheep and Tides', 'The Great Death Game', 'Deadman's Catch', 'Bees in the Trees', 'Hangman's Cricket', 'Tug of War', 'The Hare and Hounds' and 'The Endgame'.⁷ Both Smut's and Harsdörffer's games share a similar sort of meticulousness, but *Gesprächspiele*'s don't simply gesture towards being encyclopaedic. On the contrary, they carry out a recursion of their stored knowledge, giving readers all of the necessary tools to draft their own 'Gesprächspiele' (discursive games).⁸ The complete auto-instruction and auto-infection of the game in Harsdörffer's text sets it apart from its French and Italian prototypes. It deviates from Raymond Lull, whose 'special teaching method' is discussed in the fifth part of *Gesprächspiele*.⁹ Harsdörffer no longer saw the combinatoric *ars* of mainstream early seventeenth-century Lullism – propounded by Johann Heinrich Alsted, Marin Mersenne and Athanasius Kircher – as an instrument of theological rhetoric used to generate and modify universal questions and statements.¹⁰ Instead, he understood the Lullic system as a general method for creating and ordering knowledge. In this way, *Gesprächspiele*, which was published right between Harsdörffer's similarly Lullist inspired *Mathematische und philosophische Erquickstunden*

(1636) and *Poetischer Trichter* (1648-1653),¹¹ also forms a popularized parallel to Alsted's Latin encyclopaedia (1630).¹²

Alsted's work is systematized and arranged (non-alphabetically) according to a combinatoric of conceptual categories that uses the Lullist method as a compositional procedure. Similarly, the emblem in Harsdörffer's 'Hauptregister' creates a division between the instructions and their execution. Much like the difference between the source code and execution of computer software, the die functions as an algorithmic generator and the vine growth is the product that comes about when it is run. Through *Gesprächspiele*'s unique combination of Lullism and conversational literature, the game and language are made mutually dependent. Here the game is established as a unit consisting of both linguistic rules as well as linguistic execution. From Harsdörffer's text, it can be inferred that language is foundational to every rule-based game. More precisely, such games are rooted in formal language, without which instructions could not be notated. Using alphanumerical signs as indices of combined terms and combinatorial methods, the Lullic procedure allows us to derive formalized statements from ordinary language that has been rewritten using arbitrary symbols. This process equally describes both composed music and the translations of computer programs through compilers and operating systems. The games in *Gesprächspiele*, however, are not interpreted on a formal level; they are executed by protagonists semantically, using colloquial language. In this way, they are like a formal classical score that is translated into music. Because games like football share a similar structure of formal rules and informal execution, it is not surprising that Harsdörffer dedicates entire chapters to sports, which are discussed under the general umbrella of 'discursive games' (*Gesprächspiele*).

On the other end of the spectrum are games in which the execution is itself formal. Chess, a game played within a formally restricted environment (and hence more easily mastered by a computer), is one example. Another is found in mathematics; a formal game that is itself able to describe all formal games.¹³ Computer games (and all computer software) likewise fall under this category of the purely formal execution of formal rule sets. From the first visually and algorithmically minimalist computer game, *Spacewar*, developed at MIT in 1962, to the photorealistic audiovisuals of 3D simulations, this structure remains constant.

In this evolution, the formalisms are simply masked by increasingly complex algorithms, making them harder and harder to recognize.

Contemporary digital artists such as jodi work against this tendency, making the formal systems underlying computer games legible.¹⁴ In works such as *Untitled Game* – which modifies the classic commercial shooting game, *Doom* – jodi strips games of their simulation control codes, reducing them to a framework of abstract graphics, or, as in *10 Programs written in BASIC ©1984* (exhibited in 2003 in Malmö), even exposing their naked source code.

A comparison between Harsdörffer's writings and computer and Net art is not farfetched, since *Gesprächspiele* and *Philosophisch-mathematischen Erquickstunden*, with their peculiar combination of algorithms, poetry and dialogic communication, form prototypes for contemporary computer and Internet poetry. Just as Harsdörffer's text ventures close to the parlour game and to popular scientific discourse, there are fluid borders between this literature and networked computer games¹⁵ as well as the sort of dialogical exchange of knowledge that occurs on mailing lists and web forums.

Yet Harsdörffer's and jodi's games radically contradict in terms of their poetics: the former focuses on expansion whereas the latter is concerned with reduction. Jodi understands the instructions of the game as an inscribed restriction as opposed to an instrument of generative potential. The word-combinatorial methods employed by the French Oulipo group – lipograms, sestinas, transliterations – are likewise understood as constraints or artificial restrictions, yet they simultaneously continue to build on early modern poetics. One of the founding documents of Oulipo, François le Lionnais' afterword to Raymond Queneau's *Cent mille milliards de poèmes* (1961), titled 'À propos de la littérature expérimentale', even cites a word permutational Proteus verse found in Harsdörffer's *Erquickstunden*.¹⁶

Seeming to go against the understanding of *Spiel* (game) as an artificial thing, Harsdörffer etymologizes the word as an onomatopoeic term for flowing water.¹⁷ In doing so, both the signified of the word 'game' as well as the word itself become a sort of game. Or, to use the terminology of Schottelius' linguistic theory, which was published at the same time as Harsdörffer's *Gesprächspiele*, the word becomes a 'stem word' in which the essence of the thing that it expresses is inscribed. Harsdörffer's

protagonist, Vespasian, names 'three kinds of sources' for all games; two of which are poetic and artificial, and one of which is aesthetic and natural:

Roughly translated as 'I. Of the Arts . . . II. Of certain Events / Stories / Narratives / Questions and Answers / etc. . . . III. Of those things / which the eye can see / of these flowers / of wine / wax / etc';¹⁸

The idea that these anti-nominalistic language games ultimately annul the distinction between the natural and artificial is echoed in the 'Hauptregister's' emblem. The vegetation growing out of the play equipment invites conflicting interpretations: that nature springs from art, that God throws dice, or that the emblem not only signifies play but is itself play, and therefore – 'in some respects reversed' – only able to make self-referential statements that are truly false. Compared with the constraints applied in both Oulipo and programmed art, however, this irony is not at all deconstructive. Rather, it is possessive, because it is impossible to cheat within it the game as such, much in the same way that after a *Lecture on Nothing*, questions can no longer be posed and all answers are known in advance.¹⁹

V. ARTS

25. With Perhaps the Exception of Rhythm: Speaking, Stuttering and Looping in Alvin Lucier's 'I Am Sitting in a Room'

1. *Hearing*

Part of what makes Alvin Lucier's musical composition 'I Am Sitting in a Room' (1969) so peculiar is that words can't describe it any more accurately than it already describes itself. Each recital begins with a performer – on the 1980 record it is the composer himself, recorded in his own living room – speaking the following sentences onto tape:

I am sitting in a room different from the one you are in now.
I am recording the sound of my speaking voice and I am going to play it back into the room again and again until the resonant frequencies of the room reinforce themselves so that any semblance of my speech, with perhaps the exception of rhythm, is destroyed.
What you will hear, then, are the natural resonant frequencies of the room articulated by speech.
I regard this activity not so much as a demonstration of a physical fact, but more as a way to smooth out any irregularities my speech might have.¹

This text is simultaneously the score for the piece as well as its sonic material. Over the course of a performance, it is played back again and again. On the record this repetition occurs 32 times within 44 minutes, and just as described, already its first playback [1:20-2:35] sounds considerably different than the original recording: the speaking voice takes on a slight echo, and with each subsequent play this effect gains in strength. The technical process underlying the piece is quite simple: a tape recording of the spoken text is played back into the performance space, where ambient microphones pick up the sound and re-record it onto the tape ribbon using a second tape head. The next time the tape is played, this second-generation recording is heard while a third-generation is recorded, and so forth.

By the sixth playback [6:45-8:00], the reverb on the recording is amplified to such an extent that its vibrations sound like distorted overtones and modulations of the speaking voice. From the ninth loop onwards

[12:18-13:38], the resonance of the space begins to eclipse the sound of the voice. Though certain qualities of human speech are still vaguely identifiable, words have become unintelligible. After approximately 24 of the 32 repetitions [33:23-34:46], the voice has disintegrated into bell-like sounds. During the last eight playbacks, its frequency spectrum continues to level out, approximating sine tones on an oscilloscope. As both the frequency and amplitude of the sounds lose selectivity, the rhythm of speech remains barely recognizable as such.

In essays and interviews, Lucier has pointed out that 'I Am Sitting in a Room' transforms the listening space into an acoustic filter.² The playback loop amplifies the distinct resonances and tones of a room, rendering this space audible and transforming it into an autonomous body of sound: a musical instrument. Seventeen years prior to 'I Am Sitting in a Room', John Cage's '4'33"' (1952) already made the unique acoustic life of the concert hall and its surroundings audible. Cage's piece, in which a musician sits still at a piano for the full four minutes and 33 seconds of the performance, is, however, a much more anarchic exploration of acoustic space than 'I Am Sitting in a Room', whose systematic approach resembles experimental science. Unlike twentieth-century serial composition or indeterminate music, the concept (or score) of the piece and the experience of listening to it are connected in an apparently simple and intuitive way. Perhaps this is the reason it has become a classic of contemporary music.³

'Music for Solo Performer' (1965), Alvin Lucier's most widely known composition besides 'I Am Sitting in a Room' and 'Navigations for Strings' (1992), marks his departure from traditional and serial composition and subsequent turn towards a music of audio-physical experimentation. The 'Solo Performer' after which the piece is named uses his brain to control a number of electromagnetically powered percussion instruments. Electrodes pick up the brain's alpha waves, which are amplified and electronically transmitted to the source stimuli. Like 'I Am Sitting in a Room', the score consists of a short set of instructions written in English⁴, a typical 1960s notational style used, for example, by John Cage, La Monte Young and Fluxus event artists such as George Brecht and Nam June Paik⁵. 'I Am Sitting in a Room', however, differs from works by these artists and from all of Alvin Lucier's other compositions in that the score itself plays an integral part within the per-

formance, acoustically implementing what it verbally describes. This makes it all the more surprising that criticism and essays analyse 'I Am Sitting in a Room' merely as an experiment in sound, and have so far neglected to examine it as a work of language.

2. Loops/Rounds

Lucier's older 'Music for Solo Performer' can be described as a simple cybernetic feedback loop: a control circuit balancing out the actions and reactions between man and machine. The percussion instruments provide the performer with an acoustic response confirming the results of his exercise in brainwave concentration.⁶ 'I Am Sitting in a Room' is by contrast a hermetic composition: although the acoustic process is initiated by the performer, he or she exerts no influence after the text has been spoken and the recording apparatus has been activated. Additionally, if the gradual fading of the speaking voice is interpreted as the dissolution of sound, it follows that the process is entropic and thus develops in a linear manner towards a predictable result.

However, the work's apparent self-containment is subverted through three simultaneous roundings – or looping grindings – within the composition:

1. the audio tape loop
2. the phonetic loop of the stuttering speaking voice
3. the semantic loop of the composition's self-reference

2.1 Loop-types

2.1.1 Tape loop

Strictly speaking, the tape loop neither repeats the recording nor erases it. Instead, with each play of the tape the acoustic material is varied and transformed into a different sound. Seen hermeneutically, the information loss undergone in the entropic transition from comprehensible speech to unintelligible speech-sound is illusory. The playbacks don't generate noise; instead, they draw out and modulate the sounds of the room, and this new information subsequently replaces the old information of the spoken text. The tape loop doesn't produce acoustic feedback either, as might be assumed, because the recording device doesn't amplify itself to such a degree that space and

time collapse into a feedback howl. Since the duration of each playback remains consistent, the tape loop serves to periodize the piece, creating an interior rhythm and establishing a similarity between parts. This structure allows the listener to comprehend the acoustic transformations undergone by the material, almost like a counting rhyme. In this way, 'I Am Sitting in a Room' becomes a textbook example of Sulzer's and Schelling's general theory of rhythm as 'the periodic arrangement of a row of similar things, whereby the uniformity of the similar is tied to a multiplicity'.⁷

2.1.2 *Stuttering*

Though the tape loop does not produce acoustic feedback, it too can be described in terms of a cybernetic feedback loop if it is viewed as part of a control circuit that balances the acoustic information of the spoken text with that of the room resonance through creating an intersection of their particular frequencies. In this reading, the resonance constitutes feedback within the audio recording, whereas the voice constitutes interference within the acoustic space. Once the control circuit has equalized these two frequency spectrums, the disturbances are levelled and the system stabilizes into a state of acoustic invariability.

Indeed, the final sentence of the spoken score explicates the idea that disturbances should be filtered out in addition to voice frequencies: 'I regard this activity not so much as a demonstration of a physical fact, but more as a way to smooth out any irregularities my speech might have.' Speech act and self-reference, object and meta-language are conflated each time these 'irregularities' become audible on record as the stuttering pronunciations of the words 's-s-semblance', 'r-r-rhythm', 'n-n-not so much' and 's-s-smooth out'. If one takes 'I Am Sitting in a Room', then, as the loop of a speech impediment – a rounding understood simultaneously in the acoustic, cybernetic and artisanal sense of rounding and grinding – then the various loops or roundings within the piece cancel out each other. The control circuit of the audio tape, for example, eliminates the irregularities of the stutter. As a 1968 popular science book about 'thinking machines', *Knaurs Buch der Denkmashinen*, states: 'Stuttering is a type of biological cybernetic system breakdown . . . Here too, the "feed-back" comes too late, the control mechanism is "delayed". The closed loop control starts to "stumble".'⁸

In Lucier's composition, once the frequencies of the voice are absorbed by the room, the stutter is no longer present as a disturbance of phonemes. Yet it continues to persist as a rhythm of speech. What is destroyed, as the speaker asserts, is 'any semblance of my speech with perhaps the exception of rhythm'. The fact that the speaker stutters over the word 'rhythm' in this sentence becomes a type of self-fulfilling prophecy: the word itself becomes acoustic proof of the thesis it initially only expresses on a semantic level.

2.1.3 Self-Reference

When the speaker stumbles over other words in the text besides 'rhythm', such as 's-s-semblance', 'n-n-not so much' and 's-s-smooth out' – words that refer to the speech impediment and its removal – it becomes evident that the stutter in 'I Am Sitting in a Room' is a rhetorical strategy and that the amalgamations of speech-act and description, object and meta-language are systematic. The removal of the defect through Lucier's machine composition is bound to fail, however, because the process 'smoothes out' the speech impediment by ultimately transforming a small stutter into a large stutter made up of 33 repetitions. These repetitions cause the voice to murmur, and, as the tape loop continues to reiterate the filtered audio material, ultimately to suffocate. The performance of the work terminates when the score – the semantic, verbal self-description – has obliterated itself and can thus consequently no longer direct the course of action. It falls into silence because its instructions to itself are silenced. Its terminal rule – 'play it back into the room again and again until . . . any semblance of my speech . . . is destroyed' – can, however, be implemented even after it has been erased.

Yet, this rule aborts the performance at the exact moment when its stated goal, the smoothing of the speaking voice, seems to have been reached. This aim, it turns out, is rather dubious. If the actual concern of the piece was smooth speech, it would need to start at the moment when the performance terminates. Contrary to its statement, then, the acoustic process is not a means to an end but rather an end in and of itself; as incommensurable as the rhythm of speech that is supposed to stay audible even at the end of the performance. When this sound becomes a micro-rhythm resisting the smoothed out, rounded off macro-rhythm of the playback loops, the semantic contradiction within

the score is realized on an acoustic level. On the one hand, the score's instructions are to 'smooth out *any* irregularities my speech might have [emphasis mine]', with, however, the 'exception of rhythm'.

We can distinguish between three rhythms, then, within the piece: the macro-rhythm of the audio tape loop, which periodizes the acoustic process, the 'exception of rhythm', which is the resistant micro-rhythm, and, finally, the meta-rhythm of sounding and not-sounding, governed by the start-signal ('I am recording . . . and going to play it back') and the termination rule ('until') of the performance.

Each time the piece is played, 's-s-smooth out' unravels as a promise. It can only ever apply on a semantic level once it has been obliterated phonetically. '[To be] smoothed out' is thus the piece's utopia of language in a double sense: it is both its metaphysical aim as well as a linguistic void. The reality of the speech act could only be expressed through a continuous form of 'smoothing'. Although it is made smooth, nothing is smoothed out. The text's metaphysical suppression of a continuous form drives the process as well as each new staging of the piece since 1969. Thus, the utopia of language in Lucier's composition is also reflected in the rhythm of its performances.

2.2 *Recursion*

In 1959, ten years prior to 'I Am Sitting in a Room', British art theorist and activist Gustav Metzger wrote a manifesto for 'Auto-Destructive Art', defining it as a 'total unity of idea, site, form, colour, method and timing of the disintegrative process'.

Auto-destructive art can be created with natural forces, traditional art techniques and technological techniques [sic].

The amplified sound of the auto-destructive process can be an element of the total conception.

The artist may collaborate with scientists, engineers.

Self-destructive art can be machine produced and factory assembled.⁹

Despite the fact that Metzger's manifesto was aimed at the virulent object and performance art of its time,¹⁰ Lucier's musical composition fulfils all of its criteria for a 'disintegrative process'.¹¹ In a second manifesto from 1960, Metzger describes auto-destructive art as 'art which contains

within itself an agent which automatically leads to its destruction within a period of time'.¹² The 'agent' in 'I Am Sitting in a Room' is not, as one might assume, the audio tape loop, which, although it wears away at the speaking voice, could potentially continue an infinite amount of times. Instead, the 'agent' in the piece is the termination rule encoded in the text and its disintegration.

As a set of instructions repeatedly applied to itself until the result fulfils a specific condition, the spoken score for 'I Am Sitting in a Room' satisfies all of the formal criteria defining a recursive function. Based on Douglas R. Hofstadter's classification of recursive loops, the score, due to its termination rule, forms a partial recursive loop, while the stuttering forms a free loop (that is, a 'recursive transition network'), whose output is probable but not certain. This model allows us to describe the performance as a partial recursive loop that does not undo the catastrophic loop of the stutter, but merely covers it up. Thus, in its successive performances, Lucier's experimental acoustic therapy is perpetually doomed to fail. It is a sort of infinite regress, or, to use Hofstadter's terminology, a 'strange loop'.¹³ If the micro-, macro- and meta-rhythmic structures of 'I Am Sitting in a Room' can indeed be described in terms of recursion, then rhythm in the piece, besides serving as the 'periodic arrangement of a row of similar things', also has a logical, reflexive and linguistic dimension.

3. Poetry

'Another story about a writer writing a story! Another regressus in infinitum! Who doesn't prefer art that at least overtly imitates something other than its own processes?', the anonymous narrator complains in John Barth's 'Life Story' from *Lost in the Funhouse* (1968).¹⁴ The period of its publication isn't the only similarity *Lost in the Funhouse* shares with Lucier's tape composition; the book's subtitle, *Fiction for Print, Tape, Live Voice*, also announces a formal affinity. The first chapter, 'Frame Tale', consists solely of the sentence 'ONCE UPON A TIME THERE WAS A STORY THAT BEGAN'. The reader is meant to paste this sentence onto a Möbius strip and to read it as a smooth, infinitely looping narrative. Here, as in Lucier's spoken score, object and meta-language overlap. If an imaginary colon is placed after the word 'BEGAN', the story can be read as an endlessly nested narrative.¹⁵ Or, if it is read in such a way that the adverbial qualification 'ONCE UPON A TIME' concludes the

predicate 'BEGAN' while simultaneously introducing the main clause, 'THERE WAS A STORY', the story formulates a stoppage within time. The two works correspond in that 'Frame-Tale' is a poetic text with an inscribed performance, and 'I Am Sitting in a Room' is a musical performance with an inscribed poetic text.

Much like computer program source codes, both texts are able to execute themselves. They simultaneously function as both the software and the data processed by the software.¹⁶ Yet the tape loop in 'I Am Sitting in a Room' goes beyond the Möbius strip of 'Frame-Tale', since the spoken score doesn't merely execute itself, but also transforms itself as part of the process. It is thus a type of self-modifying code.

Alvin Lucier is rarely referred to as a programmer or a poet in secondary literature. Much more often he is described as a 'phenomenological composer'.¹⁷ In the foreword to Lucier's book *Reflections*, composer and critic James Tenney writes: 'It is not often that a composer appears whose work is so compelling and yet so different . . . that we find ourselves having to revise our basic (and often unconscious) assumptions – our "self-evident axioms" – about music.'¹⁸

In contrast to the serial music of Stockhausen and Boulez or the indeterminate music of John Cage and his followers, 'I Am Sitting in a Room' and all of Lucier's compositions since 1965 cannot be analysed using the classical parameters of music. Together with the sound art of Max Neuhaus and David Tudor, Lucier's acoustic experiments constitute a rupture in the history of composed music; a break comparable to the end of allegorical image codes in late eighteenth-century painting and the beginnings of pictorial abstraction. This break could be defined as a shift from compositional technique to a type of music installation free of the dogma of both composition and improvisational method. Yet both the diagnosis of an epochal break with musical vocabulary as well as the notion of the 'phenomenological composer' are relativized when 'I Am Sitting in a Room' is examined from a literary and linguistic perspective as opposed to a musical one. As Tenney notes in his foreword: 'Most of Lucier's scores are verbal, with only occasional use of standard staff notation. While they all have an elegant simplicity and clarity, several of them seem almost poetic in character.'¹⁹

A listener who cannot understand the English text spoken in 'I Am Sitting in a Room' nevertheless gains the immediate impression of a

connected, rhythmic language. Taking note of the text phrasing on record, it is clear that the lines deviate from the way they appear in the score.²⁰ While the written score is broken up into individual lines of complete sentences separated by full stops, a different set of line breaks become audible in the spoken performance of the text:

I am sitting in a room
different from the one you are in now.
I am recording the sound of my speaking voice
and I am going to play it back into the room
again and again
until the resonant frequencies of the room
reinforce themselves
so that any s . . . emblance of my speech,
with perhaps the exception of r . . . hythm,
is destroyed.
What you will hear, then,
are the natural resonant frequencies of the room
articulated by speech.
I regard this activity
n . . . ot so much as a demonstration of a physical fact,
but more
as a way to s . . . mooth out
any irregularities my speech might have.

One hears that the first two verses are stressed entirely in trochaic meter, expanding into dactylic meter in the third verse and concluding in iambic. Like this verse, all (!) of the remaining verses end in a masculine cadence. The same end rhyme appears altogether four times in 'Room'; twice it occurs as the genitive attribute of the dactyllic phrase 'nátural résonant fréquences'.

If 'I Am Sitting in a Room' is taken as a composition of words rather than sounds, it is clear that its break with compositional technique is thwarted by a rather conventional lyrical musicality of speech. Though the promise to 'smooth out' is continually refuted, the acoustic experiment is nevertheless able to integrate and smooth the rhythm of speech, the stutter, as a stylistic lyrical device. Language dissolves into sound

even before it finds its way onto the tape loop. In the end, the speaking subject insisted upon in the 'I' of the piece's title loses himself within the resonance of the room. The difference asserted in the text between the 'I' and the 'room' is lifted as soon as the two audio frequency spectrums intersect. It is only logical that the performance should end at this point, as both the 'smooth out' as well as the title itself, 'I Am Sitting in a Room', have been falsified.

The text, however, negates this temporality. The speaker addresses the listener in the present tense, as if his distance from the audience were merely spatial ('a room, different from the one you are in now'), and not temporal. Only the introduction of the audio tape allows the spoken text to age. It shifts the text into the past as an echo, until it becomes nothing but a memory trace. With this increasing temporal distance, however, the speaker is brought spatially closer to the audience. As the voice is filtered through the concert hall during the live performance, the 'other' space it asserts gradually evaporates on both a semantic and acoustic level.

In an interview about 'I Am Sitting in a Room', Alvin Lucier states: 'Every room has its own melody, hiding there until it is made audible.'²¹ The piece is thus perhaps the most precise poetic test of an aesthetic world-view developed 131 years prior, in Joseph von Eichendorff's 'Divining Rod' (1838):

Sleeps a song in things abounding
That keep dreaming to be heard
Earth's tuning will start resounding
If you find the magic word.²²

Lucier's magic word is the speaking voice and its frequency spectrum, which challenges the room to respond in song. In his poetry, as in Eichendorff's, it is not enough that the room is merely capable of singing. Instead, the voice of a meta-physicist is required to awaken the voice of the space. As the preamble of the score explicitly states: 'Choose a room the musical qualities of which you would like to *evoke* [emphasis mine].'²³

In Lucier's music, as in Eichendorff's poem, the singing world is not an allegory. On the contrary, it is a romantic-symbolic 'unity of the material and the transcendental object', to borrow a definition from Walter

Benjamin.²⁴ If one takes into account Lucier's own statements, metaphors of magic and the occult also correspond: 'I am not as interested in the resonant characteristics of spaces in a scientific way,' he states in an interview, 'as much as I am in opening that secret door to the sound situation that you experience in a room.'²⁵

Although these romantic, metaphysical dictions produce music by means of the particular harmonic-melodic sounds of spaces and objects, they also imply an underlying periodization and rhythmization of material. For the world of sound to awaken, the speaker and object must be non-identical. The first of these non-identical voices triggers the second as an echo, allowing it to ultimately drown out and overwrite both the initial voice and its speaker. Rhythm in 'I Am Sitting in a Room' thus goes beyond Sulzer's and Schelling's definition of the periodic distribution of like elements to include a distribution of unlike things. In Lucier's composition, the gradual drowning out of the voice by the room is dissected into 32 periods, much like the chronophotography of Edward Muybridge. Because of this, the piece takes on rhythm in two respects: firstly, through the periodization itself, and secondly, through the fact that in these 30 interim periods, the rhythmic shifts of the speaking voice and the room echo can be heard side by side. It is only through periodization, then, that the two voices enter into dialogue.

'I Am Sitting in a Room' employs a process that dissolves language into sound yet allows it to remain fragmentary. Because of this we can say that the piece is romantic poetry in the sense of both Schlegel's 'Athenaeum Fragment 116'²⁶ as well as Eichendorff's poem, in which, however, the world doesn't actually sing, but only begins to. Lucier's auto-destructive acoustic composition therefore marks a continuity between late twentieth-century experimental art and the programmes of romanticism. There are, however, obvious contrasts: whereas romantic poetry dissolves boundaries, an auto-destructive art piece reinstates them when its built-in time bomb 'agent' (the 'until' of Lucier's score) fragments the work of art, preventing totality instead of evoking it. Additionally, Lucier's rooms are bounded spaces; their harmonies are microcosms, whereas Eichendorff's singing world is macrocosmic.

On the other hand, auto-destructive art also denies its own artificiality and bounded limits. In Lucier's composition, this occurs when the audio tape loop effectively seems to turn itself off after the performer

has been lost to the space. Similarly, the resonance of the room seems to amplify itself ('the resonant frequencies of the room reinforce themselves') as opposed to being aided by a technical apparatus. Given the fact that the rhythms of 'I Am Sitting in a Room' – its stuttering, slurring and looping – are manufactured and not found, poiesis and not aisthesis, it is not surprising that rhythm is left out of its utopia of sound and language. Its rhythms cannot be taken as 'natural'. Instead, they remain the unruly and defiant *exception*.

26. Pataphysical Music Machines

From the Aeolian harp to computer generated music, musical automata have remained committed to the Pythagorean equivalence of music, mathematics and the world. This vision, which lives on in the key cybernetic concept of 'system', equalizes the artificial and the natural, art and science, formula and lived experience; or at least makes these terms comparable. In other words, the agenda is a metaphysical one. This agenda is openly addressed as such by the Pythagoreans; disguised or denied by cyberneticists, systems theorists and media theorists (who tend to speak of physics without the 'meta'); clearly obvious in artistic programmes such as Karlheinz Stockhausen's serial music and John Cage's indeterminate music (whose compositions, for example 'Atlas Eclipticalis', often rely on the very same art-nature equations, merely shifting the focus from mathematical order to mathematical chaos); alive in computational poetry from early modern Proteus verse to contemporary e-poetry; and present in the still institutionally dominant 'media art' that programmatically subscribes to catchwords like 'interactivity', 'emergence', 'autopoiesis' and 'artificial life'.

Computer art, cybernetics and media theory are paragons of metaphysics as a denied product of scientism or of projects that claim to destroy metaphysics as such.¹ The only exceptions to this are the few poetic approaches that don't take scientism and metaphysics seriously and don't regard these two terms as opposites. In the poetry workshop Oulipo, formed by Raymond Queneau and mathematician François Le Lionnais in 1960, algorithmic machines for art and poetry neither serve as a utopian, extended media language nor as feedback between art and

nature. Instead, they function as ‘constraints’: artificially applied limitations. One such example is Georges Perec’s programme to write a novel using only words that don’t contain the letter ‘e’. Another is Queneau’s *A Hundred Thousand Billion Poems*,² which takes the banal and commonplace as content and is generated from ten sonnets bound as paper strips (a simple sort of computer hardware). An Oulipo dossier explains such poetics in the following manner:

More abstractly, won’t we be tempted by a Topology of Commonplaces in which one would succeed in abstracting commonplaces from the structures of commoplaces – and then a ‘squared’ topology of these places, and so forth until one attains, in a rigorous analysis of this regressus itself, the absolute, the Absolute ‘whose armature,’ according to Jarry, ‘is made of clichés’?³

This computational mathematics of the commonplace not only looks to the author and founder of pataphysics, Alfred Jarry; it carries the title *Le Collège de Pataphysique et l’Oulipo*. In a similarly pataphysical way, it describes Oulipo as the literary division of the Collège de Pataphysique, founded 1948 in Paris – 41 years after Jarry’s death. If pataphysics seeks the absolute in the commonplace and finds it through computation, it ties empiricism and scholasticism together in a way that inverts and parodies the canonical scientific method. This step from an analytic to a synthetic pataphysics is outlined in the dossier cited above:

But that’s only half of our program, and the less fruitful half at that. As soon as he is broken in to this research and sensitized to this intellection to the *n*th degree, the potentialpotent literator (we certainly do not dare to say the present Members of the Oulipo Subcommittee) will be in a position to play his own fugue on this organ with multiple keyboards, mathematically labyrinthine combinations of register, ‘mixtures’ arising from infinitely subtle and iridescent harmonics. And what music? We have no idea. Do we actually believe in it? The only example we can offer to distantly evoke these intimations of the future is not part of our present deposition: the Transcendent Satrap Queneau’s *Cent Mille Millions de poèmes*.⁴

With 'fugues' and 'mixtures' on its 'organ', pataphysics institutes the music machine as the model for its poetics. In an apparently seamless way, its combinatorial art extends the Pythagorean tradition. Only apparently, however, since Pythagorean metaphysics is really just another banal commonplace assimilated by the pataphysicians. When Queneau quotes Lautréamont in the final sentence of his operating instructions – 'la poésie doit être faite par tous, non par un' – the prospect of an emancipated creativity is not understood in a romantic sense; nor is it a neo-romantic promise of 'interactivity'. Instead, it is an open invitation to transpose the trivial. Contrary to Pythagorean and neo-Pythagorean machine poetics, all macrocosmology and all systemic thinking is expelled from this pataphysical universality.

It is no different with 'Dr. Faustroll', who, as 'Faust drôle', inherits the name of Marlowe's and Goethe's alchemists. Instead of theosophically fusing physics and metaphysics, however, he uses pataphysics, 'after-physics', to leave them behind.⁵ The second book of Jarry's 'roman néo-scientifique' defines pataphysics as a 'science of imaginary solutions', which takes the 'laws governing exceptions' as its object, instead of the laws of nature. It is a poetic science not of the general, but of the specific and eccentric: that which lies outside of the natural law.

Because the musical machines in Athanasius Kircher's 'Musurgia Universalis'⁶ only seem eccentric from today's perspective, and because the randomness of Kirnberger's, Stadler's and Mozart's musical games of chance continue to follow the Pythagorean doctrine – as imparted by Boethius – of the unity of numerical and tonal calculation,⁷ the history of pataphysical music composition automata first begins in 1913. Two years after the publication of 'Dr. Faustroll', it is ushered in by Marcel Duchamp's 'Erratum Musical', whose title already addresses the technical and scientific exception: the printing error.⁸ The composition is a song for three voices consisting of 25 notes written in conventional treble and bass clef. These notes are cut up, mixed together and randomly drawn.⁹ Like Hans Arp's 'Nach dem Gesetz des Zufalls' (Arranged by the Laws of Chance, 1920),¹⁰ a composition determined by 13 paper cuttings arbitrarily dropped on a larger sheet of paper, the work is already completely permuted. It is not a score that can be executed by a human or a machine, like Tristan Tzara's text-collage poetry instructions, 'Pour faire un poème dadaïste' (To Make a Dadaist Poem, 1923). Referring back

to the title of the piece, the Libretto of 'Erratum Musical' consists of a dictionary definition of 'imprimer'. Contrary to Hans Arp and, later, John Cage, Duchamp does not view the chance process as natural; instead, he sees it as a machine product,¹¹ with the printing machine as a symbolic processor and proto-computer. In this way, the piece anticipates the phantasmagoria of machines in *The Bride Stripped Bare by Her Bachelors*, otherwise known as *The Large Glass*. Duchamp himself draws this connection in the *Green Box*, which functions as a sketch for *The Large Glass* and contains the score for 'Erratum'. In Richard Hamilton's book version of the *Green Box*, which was authorized by Duchamp, the score is even placed on the final page.¹²

Sung in an austere manner by the three siblings Marcel, Yvonne and Magdeleine, 'Erratum Musical' is not a harmonic, melodic success; it sounds more like an offbeat, discordant children's song. Within the New Music of the second half of the twentieth century, however, Duchamp's piece has not been taken as children's pataphysics or a phantasmagoria of machines. Following John Cage, who composed 'Music for Marcel Duchamp' in 1947, it has instead become the prototype for indeterminate aleatory music and is instrumentally performed as such by interpreters of Cage, such as Petr Kotik, Mats Persson and Kristine Scholz.¹³ Whether as machine music or indeterminate music, Duchamp's piece is not simply a Dadaistic account of the subject of the romantic artist. Instead of intending provocation, it stages itself as a laconic prototype of the machine-age art of failure, as perfected since the 1990s by Net artists jodi. Through a pataphysical approach that is both subversive and affirmative, Duchamp takes up the machine art of futurism and ironically undermines it.

'Erratum' equates tones and numbers ad absurdum, emptying them of all metaphysical and macrocosmic qualities. Pythagoras's musical and mathematical cosmology becomes a pataphysical undertaking and the musical automaton's adaptations of tones and numbers becomes an imaginary solution to the problem of musical composition. This dilemma comes to a head in the twentieth century, and neither aleatorics nor strict mathematical formalism are able to solve it. Cage's indeterministic music and Boulez's and Stockhausen's thoroughly composed serial music sound remarkably similar; because of this, the two compositional methods unintentionally demonstrate how chaos leads to aesthetic pre-

dictability and how, conversely, overdeterminism turns into chaos on the level of perception. Both lead to indifference.¹⁴ With Stockhausen and Cage we can see how the formal fulfilment of the Pythagorean programme ends in a metaphysics of nature. For Klaus K. Hübler, there is already an ambivalence within Stockhausen's apparent rationality in the 1950s. His writings, for example, 'often speak of the "higher" as opposed to the "greater" order'.¹⁵ Later, Stockhausen regards serial composition around 1950 as the dawn of a 'new universal era'¹⁶ and declares his music to be 'World Music' structured to correspond with the planetary macrocosm.¹⁷

Terry Riley's 'In C', which breaks all serial and indeterministic dogmas by beginning with the condemned ancient Pythagorean octave and ending on a similarly mystical note, is not the only imaginary historical and philosophical end to both aesthetics. Another is offered by Austrian composer Karlheinz Essl with his 'Lexikon-Sonate' (1992), which forms a musical counterpart to Andreas Okopenko's *Lexikonroman*. Composed in MAX, it is a computer generative piano piece that plays either sampled piano sounds or an electromagnetically operated Yamaha piano via a MIDI interface.¹⁸ While Okopenko's novel fractures the classical narrative into a referential system ordered according to topography and alphabet instead of time, Essl's 'Lexikon-Sonate' conducts a sort of musical encyclopaedianism. In the ideal case, it translates all forms and tropes of European piano music into computer formulas and algorithmic 'structure generators': 'Espressivo melodies, chord structures, trills, but also idiomatic ornaments like arpeggi and glissandi'.¹⁹ In 'Lexikon-Sonate', the total domination of music by the technical and mathematical – a project initiated by the Pythagoreans and taken to the extreme by Bach and Stockhausen – comes to a partially serious and partially ironic end. Like Oulipo's 'potential literature', the piece is a potential universal inventory and index of European art music. The piano – since Beethoven, orchestral composition and the socialization of the bourgeois subject through music lessons – is the standard instrument for such music. 'Lexikon-Sonate' is also, however, a late example of twentieth-century experimental music. For example, in its algorithmic universal formula, which by definition must also contain all extreme cases, it transforms the trill into new, radical sounds. It thus perpetuates the fundamental idea behind serialism, which applies consistent parametric

zation and quantization to the sound composition to break conscious and unconscious musical conventions and self-limitations. On the other hand, the structure generators are like barrel organs. Not only do they endlessly play European piano music in all its potential combinations, they bury it in a *piano sonata to end all piano sonatas*.

The childhood piano lessons that the composer, Essl, was made to suffer through end here as well, thanks to an outsourcing to the machine. In the same period – the late 1990s – the artistic subculture of Neoism programmed a slogan generator to relieve its members of the burden of producing these themselves.²⁰ Even earlier, in 1988, American Neoist tENTATIVELY, a cONVENIENCE built a ‘portable booted usic busking unit nuclear brain physics school lab philosopher’s union member’s mouthpiece blatnerphone hallucinomat’ as a portable recording studio and performance apparatus. It contained a PXL2000 toy video camera, television, plastic toy mouths, loudspeakers, drumsticks, a basin, and four simultaneously playing audio tape decks and radios, thus functioning as a low-tech audiovisual player, cut-up mixer, and percussion and feedback instrument all in one. tENTATIVELY named it a ‘busking unit’, since it was equipped with an electrical power supply and was initially conceived for street music performances.²¹ The machine’s low-cost construction attests to tENTATIVELY’s underground audio-visual activism, and its hardware is a sum of its pataphysical poetics: ‘booted usic’ (booted out user music as a parody of ‘mood music’); the ‘nuclear brain physics school’ (where tests are obtained through subliminal messages heard on a prepared audio tape while sleeping; along with the stipulation to reproduce this audio tape for the next generation of students); the ‘philosopher’s union’ (a union of philosophers, whose members are recorded in ‘mouthpieces’: grainy close-ups shots taken with an analog Fisher Price camera of mouths speaking about philosophy); the ‘blatner phone’ (a cassette deck refunctioned as a musical instrument).

Compared with Essl’s ‘Lexikon-Sonate’ and Alexei Shulgin’s ‘386DX’ – a group of street musicians and an old PC playing pop song MIDI files, accompanied by synthetic voice and primitive screen animations – tENTATIVELY’s hallucinogenic and cinematographic ‘Hallucinomat’ is radically analog. Although it may be self-sufficient in terms of its hardware and technology, it is non-generative and cannot play independently.

As a 'busking unit', it, too, is a barrel organ; not an iconoclastic one, however, but a plaything that is spectacular and folksy in the very sense described by Queneau in his *Hundred Thousand Billion Poems*: 'naive', 'handcrafted' and 'amusing'.²²

'Lexikon-Sonate', then, is not pure pataphysics, but rather somewhere between Queneau's *Hundred Thousand Billion Poems* and Stockhausen's 'Studie II'. Queneau and Essl bring the Pythagorean project of the mathematization and programming of the arts to a conceptual close, stripping it of its cosmology and metaphysics. The only restriction, though, is that Essl (influenced by radical constructivism) remains a systematic thinker. For this reason his work is twofold, encompassing both the programming of 'Lexikon-Sonate's' structure generators as well as the development of their software: the popular 'real-time composition library' for MAX/MSP.²³ In other words, Essl's solutions are artistic and imaginary, but also technical and concrete.

All musical and mathematical knowledge since the time of Pythagoras is gathered and concentrated in music programming toolkits like MAX/MSP and Pure Data (PD); this is a fact that even pataphysical programming cannot avoid. Finding imaginary solutions on the basis of real algorithms (applied mathematics) is only paradoxical if the project of the total mathematization and formalization of the arts doesn't already produce absurdity and Pythagoras's musical and mathematical cosmology isn't itself already a form of pataphysical research – one that knows its solution a priori and therefore imagines it.

This thinking continues to live on in the cybernetic promises of artificial intelligence, machine 'interactivity' and 'artificial life'. The discrepancy between available technology and the speculations projected onto it was even more obvious in the seventeenth century, with its no less radical projects that sought a complete combinatorial automation of the arts. In 1647, the poet, speculative combinatorialist and self-proclaimed prophet Quirinus Kuhlmann published his correspondence with Athanasius Kircher, containing what is likely the earliest theoretical dispute about automatically generated art and language. Kircher, on the other hand, emphasizes the purely technical combinatoric application of words and sounds in the music composition automata of his *Musurgia universalis*.²⁴ Kuhlmann does not dismiss these automata because they would be technically impossible to realize, but because they

would not, according to his argument, yield sufficient artistic results.²⁵ According to Kuhlmann, this sort of calculus could teach any child to produce rhymes; but not, however, to make poetry.²⁶

In the final analysis, all pataphysical programmes for art machines are founded on this pragmatic view, no matter how anti-rational, imaginative and eccentric they may appear at first glance. Like Duchamp's and Queneau's music and poetry automata, Jean Tinguely's drawing and music machines don't produce mathematical, musical perfection; instead, they generate a parody of it. This is obvious in the compact 'Méta-Malevich' and 'Méta-Kandinsky': early drawing machines from 1954 and 1956 that convert the styles of both artists into analog, mechanical generators, figuring modernist art as a redundant, mechanical formula. The installations *Metaharmonie 1* and *2* (1978 and 1979) integrate pianos, string and percussion instruments in their monumental mechanisms, thus – contrary to both Essl and CONVENIENCE – tying together machine-generated music and popular audiovisual entertainment. The parallel between this work and Fluxus artist Joe Jones's *Music Store* (1969-1971), which housed sound installations constructed with musical instruments played by electrical motors, seems to lie close at hand. Yet this comparison is also misleading, because Jones did not intend to construct absurd machines. In line with his teacher John Cage, his intention was to build modern-day Aeolian harps that employed an indeterministic, natural aesthetic. His work thus establishes certain strategies later taken on by sound installation artists such as Rolf Julius.²⁷ At least in terms of their title, Tinguely's *Metaharmonies* are compatible with the Pythagorean principle passed down through Heraclitus: that harmony is the union of opposites. The question is left open as to whether the installations parody this principle or carry it forward in a contemporary sense. Though they may be called *metaharmonies* instead of *pataharmonies*, they are perhaps not meant to be taken too seriously as real solutions. Compared with Méta-Malevich and Méta-Kandinsky, the *Metaharmonies* don't gesture towards the generative exhaustion of an artistic vocabulary. And while absurd mechanics replace artistic genius in the earlier works, Tinguely as the genius-engineer overshadows all critical points in the later works. A self-replicating Meta-Tinguely automaton (according to the work of John von Neumann) was never built.

Composer and sound artist Pierre Bastien, on the other hand, uses references that are openly pataphysical and Oulipian.²⁸ His *Mecanium*, for example, is an electromechanical orchestra of instruments powered and played by home-made 'Meccano' construction set machines. *Eggs Air Sister Steel* (1994) – a phonetic play on Queneau's *Exercices de style* (1947) – adapts the work of Oulipo in multiple ways. Bastien interprets Queneau's piece, which relates a banal short story in 99 stylistic variations, as a literary adaptation of Bach's 'Kunst der Fuge'. In his imaginary musical adaptation, 13 variations of a simple melodic theme are played by both *Mecanium* and musicians. Bastien translates Queneau's clever mix of mathematical calculus, apparent naiveté and crafty entertainment into a combination of complex mechanics and musical minimalism.

As opposed to Tinguely, Bastien's constructions are never physically overwhelming and sublime; like TENTATIVELY's 'busking unit', they assert themselves as toy technology. In the 1980s, the Survival Research Labs group around Mark Pauline established an artistic strategy that took exactly the opposite approach. Their noise and battle robots relate to the apocalyptic sublime²⁹ of Tinguely's large machines, such as the self-destructive *Hommage à New York* (1960). They are imaginary solutions and irrational technology less in the sense of Jarry and more in the sense of dystopian science fiction and industrial music.

To a certain extent, Pierre Bastien and Survival Research Labs expand on two opposing features of Tinguely's machine art. In the 1950s, this art was ahead of its time: not only was it post-futuristic, it was also post-cybernetic. The post-1960 'intermedia' programs of Fluxus that connect with Tinguely, Rauschenberg and Duchamp end, like Joe Jones, in a Cagean pseudo-Zen kitsch, or, with Gene Youngblood's later manifesto, 'Expanded Cinema', as affirmative techno 'media art' that inherits cybernetics. It would take another quarter century for Net art to come along and turn everything upside down again through pataphysics.³⁰

Cleverly and dialectically concealed within pataphysics is a pragmatic, critical rationalism that disputes the metaphysics and healing promise of technology. As such it becomes the only possible, non-naive position to take. Pataphysics in the machine arts, regardless of whether or not it is ironic, achieves a crypto-authority similar to Karl Popper's 'critical rationalism'. In 1961, shortly after Oulipo's formation, painter and situationist

Asger Jorn – whose essay ‘Open Creation and Its Enemies’ (1960) is a play on Popper’s main work, *Open Society and Its Enemies*³¹ – attacks pataphysics as a ‘religion in the making’ that is ‘set to galvanize human thought and action in about two hundred years time’. According to Jorn, the principle of universal equivalence within pataphysics makes it such that it no longer holds to pre-democratic authorities in the way that older metaphysics and religions do. In other words: because its imaginary solutions and poetics override the eccentric exception of technognostic Credos (and stupidity), pataphysics, understood as mainstream thinking in the making, ensures that art machines will survive.

27. Social Hacking, Revisited

2003

I

What is a hacker? The same question was brought up in 1999 in Cornelia Sollfrank’s lecture on the ‘next Cyberfeminist International’ in Rotterdam, and answered, provisionally at least, with the nine definitions of the ‘jargon file’, the famous self-written Internet dictionary of computer hackers:

1. A person who enjoys exploring the details of programmable systems and how to stretch their capabilities, as opposed to most users who prefer to learn only the minimum necessary.
2. One who programs enthusiastically (even obsessively) or who enjoys programming rather than just theorizing about programming.
3. A person capable of appreciating hack value.
4. A person who is good at programming quickly.
5. An expert at a particular program, or one who frequently works with or on it; as in ‘a Unix hacker’. (Definitions 1 through 5 are correlated, and people who fit them congregate.)
6. An expert or enthusiast of any kind. One might be an astronomy hacker, for example.
7. One who enjoys the intellectual challenge of creatively overcoming or circumventing limitations.
8. (deprecating) A malicious meddler who tries to discover sensitive

information by poking around. Hence 'password hacker', 'network hacker'. The correct term for this sense is 'cracker'.

Sollfrank observes that at least the definitions no. 6 and 7 are not restricted to computer technology, thus allowing us 'to expand the term to include all kinds of systems'.¹ One could also draw the opposite conclusion and regard computer hacking as a fairly young specimen of the old art of trickery and manipulation of systems. In that light, the hacker self-definitions no. 6 and 7 wouldn't be expanding on the others, but the latter would just be special cases of the former; a reading supported, for example, by the most ancient Western emblem of system manipulation, the Trojan horse, as it was told by Homer, and whose general meaning the hackers described in definition no. 8 supplied with the more special concept of a computer program which, secretly slipped into a computer from outside, camouflages as a system program to spy upon confidential user data.

What is then a hack? Just as the term 'hacker' describes various kinds of people who handle systems in unconventional ways, 'hack' describes this very activity itself, be it as a trick or deception, as an efficacious, but conceptionally unclean intervention (like a 'patch' or a 'bugfix'), or as a solution that is at once ingeniously simple and elegant, absorbing an abundance of issues in the densest possible form. Since, as a 'hack', Ulysses' wooden horse in fact did not exist outside the medium of language and as an artistic product of Homer's epic, it comes as no surprise that the theory of the art of language and oration was likewise the first to put down a theory of the 'hack'. It is telling that, 250 years after Homer, it chose the same topic of the Trojan War for this purpose. One of the two still known orations of Gorgias of Leontini, who brought the art of rhetoric from Sicily to Greece in the fifth century BC, is the 'Encomium of Helen'. By acquitting the person who was guilty of the Trojan War and thus refuting the historical common sense with seemingly striking arguments, the speech is a demo programme for the power of persuasion. Gorgias's actual hack is his use of recursion: Helena, he argues, might have been persuaded to act the way she did, with language being too powerful for humans to easily resist it:

Their persuasions by means of fictions are innumerable; for if everyone had recollection of the past, knowledge of the present, and fore-

knowledge of the future, the power of speech would not be so great. But as it is, when men can neither remember the past nor observe the present nor prophesy the future, deception is easy; so that most men offer opinion as advice to the soul. But opinion, being unreliable, involves those who accept it in equally uncertain fortunes.²

Persuasion is used here as an argument to persuade the audience. Thus the power of language becomes a self-fulfilling prophecy, a claim embedding its own performative proof. This hack has its philosophical implication that truth is a mere effect, generated by speech, manipulations, art. In his posthumous fragment 'On Truth and Lie in an Extra-Moral Sense', classical philologist Friedrich Nietzsche argues:

What, then, is truth? A mobile army of metaphors, metonyms, and anthropomorphisms – in short, a sum of human relations which have been enhanced, transposed, and embellished poetically and rhetorically, and which after long use seem firm, canonical, and obligatory to a people: truths are illusions about which one has forgotten that this is what they are; metaphors which are worn out and without sensuous power; coins which have lost their pictures and now matter only as metal, no longer as coins.³

But Gorgias's oration demonstrates more than that. Coupling rhetorical persuasion with recursive logic, it extends over the limits of its discipline. Not accidentally, recursive loops – that is, procedures which proceed themselves – are a legal part of all programming languages and play a central role in such attempts at mathematical aesthetics as Douglas R. Hofstadter's book *Gödel Escher Bach*. Likewise, the 'jargon file' contains entries on 'recursion', which is simply a cross-reference to itself, on 'recursive acronyms' and 'tail recursion'.

A hack therefore combines elegance of logical construction with the rhetorical force of what Latin rhetoricians first called 'stupor', a force that itself cannot be described in purely logical and mathematical terms. In the Renaissance, 'stupor' became a crucial term for the rhetoric and poetics of 'acumen', that is, a wit driven by 'ingenium'. While seventeenth-century theory still conceived of 'ingenium' as engineering, something that, like all rhetoric, could be taught by instruction, 100 years later the

term mutated into the romanticist 'genius', which could no longer be learned, but was a gift of nature. What happens then if hackers became the new role model of the artist? Does it mean to return to an aesthetics of artistic genius not only in theory, but also in praxis given the cults among prominent hackers like Richard Stallman or crackers like Kevin Mitnick – despite all efforts of modern art and art theory to overcome this thought pattern? Or does it, on the contrary, mean to disenchant the artistic genius and redefine it in the sober terms of technical ingenuity?

2

The first well-known and to date most successful act of sabotage against the Internet happened in November 1988, when computer science graduate student Robert Morris Jr wrote a computer program that endlessly replicated itself through the Net and thus brought countless network servers to a halt. While the consequences for Morris were a probation of three years, 400 hours of community labour and a sentence of 10,000 US dollars, the case became very expensive for the federal government of the USA. Still in 1988, funds of the Defense Advanced Research Projects Agency (DARPA) were used to reshape the 'Computer Emergency Response Team' of Carnegie Mellon University, Pittsburgh into the research centre CERT. Since then, CERT systematically collects information on security holes in computer software to document them, along with bugfix recipes, in its 'Advisories'. To date, CERT Advisories are a mandatory reading of computer security experts and system administrators all over the world.

Only two and a half years after the Morris worm, CERT issued a warning that no longer concerned machine codes of computer software and network protocols. In its 'Advisory CA-1991-04 Social Engineering', the institute warns of telephone calls and e-mails that, by means of rhetorical tricks and self-disguise, persuade users into leaking their confidential access data. A typical and still popular method of crackers is to pass themselves off as service technicians and, for of an alleged maintenance routine, ask company or university employees for their user passwords.⁴ The 'SOCIAL ENGINEERING FAQ', written by the anonymous entity 'bernz', therefore defines 'social engineering' as 'cracking techniques that rely on weaknesses in wetware [– that is: the brain, FC –] rather than software'.⁵

All technical definitions of 'social engineering', respectively 'social hacking', are based on the assumption that social manipulation is only a means to the end of technical manipulation. John Palumbo's standard paper 'Social Engineering: What is it, why is so little said about it and what can be done?', puts it as follows: 'Social engineering: An outside hacker's use of psychological tricks on legitimate users of a computer system, in order to gain the information (user names and passwords) he needs to gain access to the system.'⁶

When Palumbo flatly identifies every 'hacker' as male, his assumption oddly meets with Cornelia Sollfrank's feminist empirics. Sollfrank, a member of the German hacker organization Chaos Computer Club (CCC) since the 1990s, gathered from her own research that hacking continues to be dominated by males. In no. 66 of the CCC bulletin *Datenschleuder* (Data Catapult) she writes of the 'few representatives of the species "female hacker" that I found' and quotes two American experts with their 'strange explanations why they [female hackers] don't exist'.

Computer technology, she writes, is a 'resort . . . where virtually no women are around'. Sollfrank addresses this problem artistically, with a double strategy of documentarism and fiction. In 1999, she invited female hackers she had met during her research – among them long-time CCC activists Rena Tangens and Barbara Thoens – for a 'women hackers' day during the 'next Cyberfeminist International' in Rotterdam. In the same year, she shot a video interview with the pseudonymous female hacker Clara S0pht which, when it had its debut screening at the annual CCC congress, created outrage in the audience. Sollfrank later described the situation as follows: 'It was pretty well attended, including a lot of men, who watched everything and then attacked me for not defending sufficiently Clara S0pht privacy, because she had stressed that she did not want details about herself being publicized.'⁷

As a matter of fact, Clara S0pht didn't exist, except as a fiction of the artist Cornelia Sollfrank. The whole interview was simulated, all questions and answers had been made up:

At the end of the event I mentioned casually that the woman did not exist and that I had invented her. Some people were gobsmacked. Quite unexpectedly they had experienced art, an art which had come to them, to their congress, and talked in their language.

At the same congress, Sollfrank left an electronic birth-control device for women as a fake lost-and-found item. As she had hoped, this hardware created confusion among the (male) CCC organizers; unable to figure out what it was, they prominently featured it on their lost-and-found web page. Both manipulations are not just art intervening into the hacker self-perception of the Chaos Computer Club, but also intervention of hacker methodology into the art of Cornelia Sollfrank. Her interest in hacker culture is thus not simply a sociological, but a systemic one. She used the video tape and the birth control device as small Trojan horses, subliminal tools that leveraged the hacker congress against itself, deconstructing its discourse. The alleged experts of the subversion of systems turned out to be blind to the system they had created themselves.

Could both interventions thus be called classical 'social hacks', that is, hacks in the medium of interpersonal communication instead of hacks in the medium of program code? Suspicions that fusing art and hacker culture is the ideal of Cornelia Sollfrank's art are nourished by her website www.artwarez.org, which tries to combine art and hacker/cracker culture by its very name and the typographical ASCII Art borrowings, as well as by her project 'Liquid Hacking', a festival that in 2000 gathered both hackers and Net artists. With her ideal, Sollfrank doesn't aim for a certain social habitus and peripherally at best for common political standpoints, but for elective affinities of the conceptual. Some passages of the 'Social Engineering FAQ' could be read as a characterization of Sollfrank's art: 'Hacking takes more advantage of holes in security while the social engineering takes advantage of holes in people's common sense.'⁸ Still, there's a difference in targets. Even a social engineering hacker would rarely use holes in people's common sense to exactly expose those holes and cracks in common sense in general. For Sollfrank, however, social structures are not a vehicle, but the target of the intervention. To expose the cracks in common sense is her serious philosophical endeavour, the experiment and perpetual labour of her art to be critical without falling into essentialist traps, and self-reflexive without ending up as a merely pleasant postmodernism. Depending on the situation, Sollfrank employs digital or non-digital means for her hacks. Still, they remain 'social hacks' even when they involve computer programming. The Net art generators for example, programmed on Sollfrank's commission by Ryan Johnston, Luka Frelih, Barbara Thoens

and Ralf Prehn, are generative art, but not in the form of purposelessly beautiful algorithms, but as devices for intervening into social systems. In 'Female Extension', for example, they were employed to automatically generate art, which Sollfrank then entered under a number of false female artist identities into a competition, successfully bluffing the jury into the essentialist fancy of a 'female aesthetics' in Net art.

Redefining the 'social hack' into a hack of the social, and choosing the art system and computer culture as its playground, Sollfrank's art targets two specific social systems which, since Duchamp and since the emergence of computer hackers from the student model railroad club of the MIT around 1960, have been characterized by their playful manipulations of systems in general and themselves in particular. As a conceptual artist, Sollfrank locates herself within a history of artistic fakes and pranks,⁹ something she puts up front in her installation *Improved Tele-Vision*, which exposes the consecutive manipulations of a gramophone recording of Arnold Schönberg's 'Verklärter Nacht' through Nam June Paik, Dieter Rot and finally Cornelia Sollfrank. Critics have liked to call such tactics and manipulations 'situationist' since the revival of Guy Debord and the Situationist International in the late 1980s and early 1990s; however, the situationists themselves – a latecomer post-surrealist avant-garde that started off gathering third-class abstract expressionist painters to later end up as a Marxist political sect – hardly ever practiced such activities.

When reconstructing in turn the beginnings of German hacker culture, whose focal point since 1981 has been (both in positive and negative terms) the Chaos Computer Club, an evident resource is the first volume of the CCC *Hacker Bible*, which in turn lays out its historical self-perception by including a complete reprint of the 1970s American underground newsletters *YIPL* und *TAP*. Not surprisingly, *YIPL*, also known as *Youth International Party Line*, was one of the projects of Abbie Hoffman, the 1960s countercultural 'YIPPIE' prankster. But unlike his other publications like *Steal This Book!*, *YIPL* was exclusively about 'phone phreaking', applying technical tricks to telephones to achieve gratis phone calls. While this type of hacker, the 'malicious meddler' discredited in the eighth Jargon File definition, still coincides with his hostile colleagues in that his activity had been anticipated, practically and theoretically, in classical Greek epics and rhetoric, he differs from them and by this coincides with conceptual artists where

he or she a) actually aims at social structures (although with a sometimes simplistic political world view); b) is, like Gorgias and Nietzsche, aware of the ontology of code manipulation; and c) camouflages his or her identity.

In the early 1990s, Cornelia Sollfrank, as part of the artist group 'Innen', experimented with a radical exercise in identity as it would later be practiced on the periphery, then in the very centre of Net art by the Luther Blissett project and the pseudonymous entity antiorp, alias Netchoka Nezvanova. But, as the example of Netochka Nezvanova and her secret society-style marketing for the audiovisual software she has written shows, pseudonymity and the cult of programmer-genius are not necessarily opposites, but rather mutual attractors. On close examination, the same holds true for the contradictions of the 'hacker's' self-image as machinists either in terms of functional elegance or functional disruption. They are two sides of the same coin when they join, like in Gorgias, in the medium of recursion; recursion which can be just as much an elegant problem-solver in an elegant programming language such as LISP, as it is the motor of self-replication of a viral code. Cornelia Sollfrank's hacker ethics combines them both in a playful way, disruption with elegance. It is an ideal that is however doomed to fail in the reality of art-sceptical hacker conventions.

28. Post-Digital Writing

Keynote for the Electronic Literature Organization (ELO)¹

2012

1.

By the mid-1990s, thanks to the pioneering work at Brown University, electronic literature had established itself as field in Pierre Bourdieu's sense, that is as an area of production and discourse with intrinsic distinctions and authorities. Net art, as represented by the early Nettime mailing list and by artists such as Vuc Cosic, Alexei Shulgin and jodi, was the new kid on the block. Next to experimenting with Internet servers as artist-run spaces, it began to playfully experiment with the textual codes of the Internet; which made McKenzie Wark and others pitch it against established hyperfiction and electronic literature

writing.² Later, artists like mez breeze and Alan Sondheim were at home in both worlds.

Net art brought a fresh air of everyday culture and the digital vernacular: the languages of spam, chat bots, viruses, browser crashes, debugging messages, blue screens and 404 codes – a language that was much more rampant in the 1990s than in today's iPhone, iPad, Facebook and Google world, with its sanitized operating systems and app stores. And it was a largely non-academic movement, whereas electronic literature was, and continues to be, as closely tied to literature departments as composed computer music is to research lab-style university studios, at least in Northern America. On top of that, the critics were often the same people as the artists in those two academic communities.

In countries where literature departments are as scholarly constrained as the social sciences and therefore do not include literary writing in their curricula, electronic literature has practically disappeared as an artistic practice. My home countries Germany and the Netherlands are good examples. In Germany, Internet-based hypertext/multimedia literature boomed in the late 1990s mostly because of an award granted by a major newspaper, and faltered as soon as this award was discontinued. Most German-language scholarship on electronic literature still focuses on a handful of – rather marginal – writers and works from that period. In the Netherlands, the same is happening to the arts as a whole: as public funding is being slashed, a lot of artistic practice and cultural activism that had depended on it is simply disappearing.

By the 2000s, Net art had become just as historical as hyperfiction. But it provided the breeding ground for at least two significant tendencies in contemporary art: the media activist art of groups like the Yes Men or the Institute of Applied Autonomy, and digital pop from 8-bit music to Cory Arcangel's modified Nintendo game. A number of critical books on Net art have appeared in the last couple of years, most significantly perhaps Josephine Bosma's *Nettitudes*.³ Reading Bosma, it becomes apparent how the consensus on which early Net art seemed to have built its community might actually have been fictitious, and there appears to have been a rift between two ideas:

1. The Internet, or the networked computer, as an alternative space for artists' production and distribution, in the tradition of community

spaces, yet with the promise of even more radical experimentation with aesthetics, politics and economics than in brick-and-mortar spaces. While these politics were often vague, they become more focused on hacktivism and copyleft in the course of the 2000s. By the 2010s, they had become popular mass culture with the Anonymous movement and, in Europe, the Pirate Parties.

2. The Internet as new artistic medium, or more specifically: a new medium to be explored by artists, in the same way in which artists had, since the 1920s and 1960s, emancipated photography, books, film and later video towards means of artistic production. Even until a decade ago, the mainstream art system accepted these media only for the reproduction, but not original production of art works. Internet-based works are still hardly accepted in contemporary art except in the (separate) media art system.

In some cases, both ideas overlapped, for example when Nam June Paik appropriated video as a medium for visual art, but – with McLuhan's media theory as an analytical blueprint – also subverted its function as a mass medium. In other cases, the same practices could have the opposite implications: when George Maciunas opened the Flux Store on New York's Lower East Side to sell multiples and artists' books, he intended to shift artists' production towards low-cost, mass reproducible, unpretentious items that could be afforded by anyone. Maciunas's inspiration was the revolutionary socialist politics of LEF, the 1920s Soviet Left Front of constructivist artists around El Lissitzky. The socialist idea of democratic, affordable and mass-produced art – which also did away with the distinction between fine and applied art – had been continued in a reformist (rather than revolutionary) manner by the German Bauhaus and Dutch De Stijl. Next to Russian constructivism, they drew on the socialist politics of the British Arts and Crafts movement. Even the European situationists saw themselves indebted to the constructivist heritage of doing away with the difference of art and design in order to open it up for everyone. Among others, Asger Jorn had founded a 'Movement for an Imaginist Bauhaus' that became part of the Situationist International.

Around the same time in the 1960s, other Fluxus artists factually undermined Maciunas by making books and book-like objects as auratic,

collectible objects. They thus claimed a fine art domain within contemporary book culture and production. With bookstores such as Printed Matter in New York, Other Books and So in Amsterdam, and Motto in Berlin, the artists' bookstore was born and became, with each new generation, more like a gallery. There is now, just at the same historical point where electronic books and periodicals are eclipsing print, a massive renaissance of artists' bookmaking. It emphasizes, if not fetishizes, the analog, tangible, material qualities of the paper object. While this certainly is a counter-reaction to the digitization of media, these contemporary artists' books do pre-empt the future of the print book in general once books have largely migrated to electronic reading devices: the print book will survive in a crafty niche of the book-as-tangible-object. The renaissance of printmaking therefore is one indicator that the post-digital media age has begun: an age where, on the one hand, 'digital' has become a meaningless attribute because almost all media are electronic and based on digital information processing; and where, on the other hand, younger generation media-critical artists rediscover analog information technology.

2.

If we map 1960s artists' book culture to today's electronic publishing: does electronic literature stand for the culture of fast, almost cost-free, globalized publishing on the Internet, that is, the Maciunas model of avant-garde popularism? Or does it represent the opposite: a digital boutique and gated community of literary writing inside a sea of digital ephemera, a fine art white cube safely shielded from the digital trash? In a conversation on this issue I had with Kenneth Goldsmith five years ago in Rotterdam, Kenneth pointed out how he had become more interested in the file-sharing cultures of avant-garde sound, images and text than in the field of hypertext and multimedia literature. UbuWeb closely resembles a twenty-first-century version of the Flux store and its avant-garde popularism, yet with two significant differences. Firstly, it provides mostly historical instead of cutting-edge contemporary material. Secondly, it is not grounded on an economic model for artist's production aside from the classical academic one: teaching at a university, and publishing your work open access because you are working in a reputation-based, not a paid product-based economy. But isn't the same

true for the electronic literature represented by the ELO? Why maintain a fine-art niche when it is, unlike the white cubes and gallery spaces of contemporary visual art, not driven by the purely economic necessity of selling products?

And what does the term 'electronic literature' ultimately signify? If we take the word literature literally, as everything written with letters, then electronic literature today is no longer the exception but the norm. Paper publishing has largely become a form of Digital Rights Management for delivering PDF files in a file sharing-resistant format (but also, a more stable form of long-term storage of digital content than electronic storage). In the age of smartphones, tablets and e-readers, reading has largely shifted towards electronic media if we consider all writing that an average person reads per day. Is this the electronic literature we mean?

From an ELO perspective, it could of course be argued that this reading culture is too boringly conventional in its use of the medium as just remediation – as an electronic display of the same pages that were previously read on paper. But this would be the same kind of fundamentalist argument with which composers of generative computer music may dismiss mp3. I would agree with other Internet culture critics (certainly including Kenneth Goldsmith) that the digital revolution of music has been mp3, not Max/MSP or Pure Data. In e-book culture, we are now witnessing the mp3 revolution all over again: on the Pirate Bay, in underground download libraries like aaaaaarg.org and Monoskop, and the recent hacker efforts to turn the Open Source e-book software Calibre into a peer-to-peer e-book sharing network. This culture is currently not included in the domain and research of e-literature at all, but shouldn't it be?

Not only the culture of reading but also the culture of writing has changed profoundly. In a pragmatic definition, the field of literature revolves around published writing. And within published writing, there is the classical differentiation between fiction and non-fiction. Literary studies and criticism has taken *belles lettres*, fiction, for 'literature' as a whole, although there has never been a good reason for this, and although this separation is as dubious as the one between fine and applied art. This limited notion of literature in literary studies is purely a legacy of nineteenth-century romanticist philology that has survived till today.

But in the twenty-first century, even the primal criterion of literature has become obsolete: that of being published. In the age of homepages, blogs and social networks, the classical distinction between non-published personal writing and published writing is moot, and with it the distinction between everyday communication and publishing. For example, the question of whether a diary or a correspondence was literary used to be simply a question of whether or not to publish it; a criterion that is no longer meaningful on the Internet. If there ever has been a clear divide between amateur and professional writers at all, now it has collapsed completely. (Bloggers are just one example.) Of course, there are historical precursors such as in published correspondence and diaries, and from a materialist perspective, the differentiation between literary writing and everyday writing has always been artificial. Foucault's attack on the notion of the literary oeuvre, in *Archeology of Knowledge*, seems dated today:

Does the name of an author designate in the same way a text that he has published under his name, a text that he has presented under a pseudonym, another found after his death in the form of an unfinished draft, and another that is merely a collection of jottings, a notebook? . . . And what status should be given to letters, notes, reported conversations, transcriptions of what he said made by those present at the time, in short, to that vast mass of verbal traces left by an individual at his death, and which speak in an endless confusion so many different languages (languages)?⁴

The answer of modern critical text philology would be: yes. The critical text edition of Kafka, for example, now even includes the notes and letters he wrote on behalf of his insurance company.⁵ For edition philologists, it is a completely unresolved question what needs to be done with the electronic files, notes, Internet communication snippets of literary writers in the future.

Looking back at ELO initiatives like Born Again Bits and Acid-Free Bits, as laudable as they are, it is striking how they are fixated on a notion of electronic literature as self-contained works where each work is a file. This seems to be a legacy of the 1980s and pre-Internet times: of HyperCard stacks, Storyspace and Macromedia Director files. This

seems like an artificial preservation of a notion of oeuvre that Foucault had dismissed even for print culture. Or is this notion simply a side-effect of electronic literature being the product of literature departments where, just as with a term paper, a self-contained work with an unambiguous author signature is the precondition for assessing a student? That would also be a pragmatic explanation of why the more radically ephemeral, distributed Net art practices, or *netzwerke* (to use the terminology of *mez breeze*), never were widespread in the Electronic Literature field; works that never existed as files, but only as communication streams. (Alan Sondheim is another writer who understood and practiced electronic text as streaming very early.)

Lastly, the difference between written language and the style of spoken language has largely collapsed on the Internet, where all kinds of writing circulate in one and the same medium. For the first time in human history, there is a large repository and plunderground of popular written language – a medium that James Joyce, Kurt Schwitters or William S. Burroughs could have only dreamed of. But the question is again: Is electronic literature as represented in the ELO embracing this, or is it opting for the opposite, creating islands of literary works within the massive writing/reading streams of the Internet? This would be a position close to that of Adorno and the Frankfurt school, and their defence of fine art as resistance against the industry model of music and film mass entertainment.

Nevertheless, Adorno's and Horkheimer's analysis of the culture industry from the 1940s no longer matches what is now called the creative industries, at least where I work, without any negative implication. Adorno's and Horkheimer's critique was based on a strict producer-consumer dichotomy. Contemporary 'prosumer' culture has profoundly changed music and video production; writing no less if we look at the Internet. But how is it possible that media studies of audiovisual media prosumerism abound while they are virtually absent from literary studies? Why isn't the academic field of electronic literature studies the forerunner of such a research? Or is it just the opposite, that established notions of literariness and the literary work are being preserved in order to filter the sea of digital communications? But even with such a curatorial model, there remains a crucial question: Isn't this critical filtering artificially constrained to writing that bears the tag 'literary' con-

veniently upfront, instead of dealing with electronic writing at large? (Codeworks artists, for example, did just that.)

3.

What happens if we dispense of the notion of literary writing? In his book *Uncreative Writing*, Kenneth Goldsmith quotes Brion Gysin's famous statement that literature was 'fifty years behind painting'.⁶ Nowadays, one would say that it is 50 years behind the visual arts. Goldsmith's notion of uncreative, anti-expressive and conceptual writing rests on this hypothesis. Gysin referred, in the late 1950s, to the collage and montage techniques of Dada and surrealism that were the forerunners of his and William S. Burroughs' cut-up texts. Goldsmith writes from the perspective of a creative writing professor who rebels against the unbroken romantic subjectivism in contemporary poetry and psychological realism in prose writing. In that sense, most literature is now running 100 years behind the visual arts while e-literature – just like sound poetry and visual poetry – keeps up rather well.

But Goldsmith advocates more than simply collage, he promotes an aggressive plunderphonics. It is media pirate writing that, while firmly rooted in a Western avant-garde canon, takes more from the situationist *détournement* than from Picasso's or Schwitter's classical collage. Goldsmith advocates a 'post-identity literature',⁷ yet he does not, for example, include Internet culture like the memes and image/text 'macros' of 4chan and the Anonymous movement in this example. Where is the philology and iconology of the grotesque visual poetry of 4chan image macros, a subculture arguably as vital and, on closer look, complex as punk and post-punk culture in the 1970s and 1980s?

Goldsmith's book reads much like a postmodernist writing manifesto of the Internet revolution. In that aspect, it surprisingly resembles Mark Amerika's 1993 'Avant-pop manifesto' – which he doesn't refer to – and Raymond Federman's 'play-giarism', one of Amerika's pre-Internet sources. Amerika's point of departure, however, was prose writing and the Brown University school of hyperfiction, Goldsmith's poetics on the other hand is founded on experimental poetry and a post-Fluxus tradition of intermedia arts. Neither of the two writers answers the question that John Barth brought up in his 1967 manifesto 'The Literature of Exhaustion': Whether it wouldn't be more elegant if a prose writer

like Jorge Luis Borges simply imagined and fictionalized these poetic practices rather than actually performing them – like the writers of Dick Higgins' Something Else Press that Barth criticized. The ultimate uncreative writer would therefore be Pierre Menard, the man who literally rewrote *Don Quixote* in Borges' short story from 1939.⁸ Unlike Goldsmith's students who had to do the same in class, the mere fiction of the act is more economical – and, as a metatext, actually closer to (instruction-based) conceptual art.

Goldsmith's poetics has two shortcomings: firstly, it risks treating the Internet as a poetic plunderground without really feeding back into it.⁹ Thus remaining at a safe distance, it doesn't actually question the ontological status of 'literature'. Secondly, 'uncreative writing' boils down to the dialectical opposite of creative writing. As a mere negation, it does not ontologically question creativity. From my practice of teaching at an art school, I can report that most artists and designers despise the word creative; 'uncreative' would force them back into a wrong frame of reference just as 'unpainting' would not be a desirable description for contemporary visual artists. The people calling themselves creative would be either naive artists – decorative potters, wildlife painters and the like – or creative industries executives, from creative directors in advertising to creativity coaches for corporate executives.

But lately there has been a shift of meaning in the word 'creative', triggered by Richard Florida's concept of the 'creative class' and the European, increasingly fuzzy notion of the creative industries: 'creative' has become an umbrella term for any kind of professional artistic work, whether it is applied or fine art. To use a piece of anecdotal evidence, the editor-in-chief of a commercial magazine for Super 8 filmmaking for which I occasionally do freelance work now differentiates between classical home movie amateurs (typically men in their sixties and seventies) from young 'creatives', a notion that encompasses experimental artists, visual designers and advertisers who use Super 8 as a post-digital medium. In Europe, the notion of the 'creative industries' is now gradually replacing that of arts and culture. It simultaneously encompasses the arts, commercial design and media technology. This is a textbook example of how neoliberalism can be brutally progressive. What Russian constructivism, Bauhaus, De Stijl, Fluxus and situationism tried but failed to accomplish, to do away with the difference between fine and applied arts,

is now done by globalized capitalism for even more materialist reasons.

It is tempting to maintain notions of 'literary writing' or '(un)creative writing' out of resistance to these developments. This would be the same conservative-dressed-up-as-progressive resistance that Adorno and Horkheimer had in the 1940s when they lived in Hollywood and wrote the *Dialectics of Enlightenment*. Even the 'creative' in 'creative industries' remains a piece of romanticist legacy. If all contemporary concepts of literary, creative and uncreative writing were abandoned, this could bring back the notion of creativity to its original meaning, clever inventiveness – where a fraudulent tax return qualifies as a piece of creative writing but not a novel by Toni Morrison.

4.

Goldsmith's 'uncreative' poetics reads, in large parts, like Andy Warhol's pop art recipes applied to writing. Warhol's art, however, reflects a 1960s consumerist culture, programmed by the old media and creative industries that is now retro fiction on *Mad Men*. Goldsmith is well aware of this issue when he writes:

I'm part of a bridge generation raised on old media yet in love with and immersed in the new. A younger generation accepts these conditions as just another part of the world: they mix oil paint while Photoshopping and scour flea markets for vintage vinyl while listening to their iPods.¹⁰

It is the same trend as in the contemporary boom of artists' handmade books and zines – the post-digital trend that is just as thriving among my own art and design students in the Netherlands.

The word 'post-digital' was coined by Canadian composer Kim Cascone in 2000. In his paper 'The Aesthetic of Failure', he referred to the 'emergent genre' of electronic glitch music as

... 'post-digital' because the revolutionary period of the digital information age has surely passed. The tendrils of digital technology have in some way touched everyone. With electronic commerce now a natural part of the business fabric of the Western world and Hollywood cranking out digital fluff by the gigabyte, the medium

of digital technology holds less fascination for composers in and of itself.¹¹

In the 2010s, this phenomenon has solidified into a renaissance of vinyl and of cassette tape labels in music, of Super 8 and VHS in film and video, and of DIY Risograph printmaking within graphic design, visual art and poetry. The DIY aspect is most crucial here, and explains why this is more than a retro phenomenon: the analog media that are newly being embraced are those that are the most tangible and most easily self-makeable. In that sense, the digital maker movement (manifesting itself, among others, in Fablabs and the magazine *MAKE* published by O'Reilly Media) and the neo-analog media DIY are one and the same post-digital culture.

Conversely, with the rise of Web 2.0, social media and mobile apps, 'user-made content' has been locked into corporate templates and data mining systems. While the World Wide Web was a DIY publishing medium in the 1990s, digital DIY has become difficult in a medium defined by only four corporate players (Google, Apple, Amazon and Facebook) just like TV was defined by a few networks in the past. The publishing of self-made books and zines thus becomes a form of social networking that is not controlled or data-mined by those companies. On top of that, the system crisis of global capitalism and rise of highly diverse forms of activism worldwide has phased out the Warhol paradigm of happy consumerism and replaced it with a DIY ethics and maker culture, particularly in Western countries.

These developments give the word 'post-digital' a more profound meaning than in Cascone's paper. Cascone drew on a *Wired* column by Nicholas Negroponte from 1998 that stated that digital technology was no longer futuristic and revolutionary because it had become ubiquitous:

Now that we're in that future, of course, plastics are no big deal. Is digital destined for the same banality? Certainly. Its literal form, the technology, is already beginning to be taken for granted, and its connotation will become tomorrow's commercial and cultural compost for new ideas. Like air and drinking water, being digital will be noticed only by its absence, not its presence.¹²

5.

Today's artists' books and zines indeed reflect digitality by its absence. A good example is Annette Knol's self-printed booklet *Colors – Simply Hip-hop*. Knol is a member of Kotti Shop, an artist collective that runs a small DIY printmaking space at Berlin's Kottbusser Tor, the most troubled part of the Kreuzberg neighbourhood, comparable to New York's Lower East Side in the 1980s. Just like other artist-run printmaking spaces, Kotti Shop works with a Risograph stencil printer whose use for carefully crafted, multicolour DIY art publications was pioneered by the Dutch artist and printer collective Extrapool.

Colors consists of a montage of single lines from hip-hop songs in which one or more colours are mentioned. It is a simple but effective piece of conceptual poetry, a perfect example of Kenneth Goldsmith's poetics of uncreative writing. If this booklet had appeared in the 1960s, using rock 'n' roll instead of hip-hop lyrics, it would also have been a perfect candidate for inclusion in Maciunas's Flux Store, as an affordable, accessible, working class and popular culture-conscious piece of contemporary art.

In 2012, however, the meaning of such a book has shifted just as much as that of Pierre Menard's *Don Quixote* as opposed to Cervantes's *Don Quixote*. Nowadays, the medium of the paper book printed on a Risograph is no longer chosen because it is the most simple and inexpensive means of democratic mass reproduction, but on the contrary because it embodies craftsmanship, materiality, tangibility and personal exchange. This book is a book because it's intentionally not a website or a blog. Its choice of the medium makes it a fine art (or fine art graphic design) product. It is graphic design in the anti-industrial tradition of the Arts and Crafts movement, not in the industrial tradition of Russian constructivism, Bauhaus and De Stijl.

At the same time, *Colors* is a piece of electronic literature. Its text has likely been assembled through keyword searches of online song lyrics databases. (In this sense, a lot if not most contemporary art has become Internet art; which video artist doesn't steal from YouTube?) The stencil printer has the same function as the servers of online communities like The Well or EchoNYC in the 1980s and 1990s: it is a DIY community building tool. While Apple went from its first computer sold as a DIY construction kit in the Whole Earth Catalogue to the opposite

extreme of mass-produced shrink-wrapped consumer gadgets that can't be opened, and while the online community concept behind The Well turned into the monster of Facebook, the DIY printmaking community goes back to where home computing began, and to home pages in the literal sense of the word.

Such developments put electronic literature as it is practiced by the ELO at a crossroads between two tendencies: literary intermedia writing for electronic (display) media in which work like *Colors* has no place, or a post-digital poetics defined by a DIY media practice rather than the choice of a particular medium, which is broadly orientated towards writing rather than literature. The larger question is whether literature studies in general shouldn't change in the same way in which visual culture studies developed from art history – which, as they have demonstrated, can be done without tossing out the baby of arts (and, by analogy, poetics) with the media and creative industries bathwater.

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Thomas Pynchon, The Crying of Lot 49

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The Literature of Exhaustion)

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Notes

Introduction

1. Alix Rule and David Levine, 'International Art English. On the Rise – and the *Space* – of the Art-World Press Release', *Triple Canopy*, Issue 16 (30 July 2012), http://canopycanopycanopy.com/16/international_art_english.
2. Very clearly, for example, in George Maciunas 1963 Fluxus manifesto: 'Promote NON-ART REALITY to be grasped by all peoples'.
3. Thomas Kellein and George Maciunas, *The Dream of Fluxus* (London: Thames & Hudson, 2007).
4. Chuang Tzu, *Basic Writings*, translated by Burton Watson (this text is also hosted on the website of the Situationist Bureau of Public Secrets).
5. Lucy Lippard, *Six Years. The Dematerialization of the Art Object from 1966 to 1972* (Berkeley: University of California Press, 1997 [1973]); Gene Youngblood, *Expanded Cinema* (Boston: E.P. Dutton, 1970).
6. Raymond Williams, *Marxism and Literature* (Oxford: Oxford University Press, 1977), 158.
7. Rule and Levine, 'International Art English', op. cit. (note 1).
8. Matthew Fuller, *Behind the Blip* (New York: Autonomedia, 2003), 30.

I. ANTI

I

The Foul Promises of 'Interactivity' and 'Openness'

Rereading 'Art, Power and Communication' in 2008

1. Alexei Shulgin, *Art, Power and Communication* (1996), <http://sunsite.cs.msu.su/wwwart/apc.htm>.
2. Ibid.
3. According to Geert Lovink in his 1997 article for the Nettime ZKP4, the 'Soros Foundation is the money source for the time being, particularly in the field of culture and media ... There it became really visible what the NGO was in essence all about: downsized government replacing bureaucracies, typical to the post-ideological times of the digital', <http://www.ljudmila.org/nettime/zkp4/11.htm>.
4. Alexandra Weltz's documentary film *Digitale Handarbeit* (Digital Handwork), <http://www.weed-online.org/themen/wk/786221.html> gives a no-nonsense, devastating insight into these labour conditions.
5. Thomas Pynchon, 'Is it O.K. to be a Luddite?', *The New York Times Book Review*, 28 October 1984, 1, 40-41.

2

Anti-Copyright in Artistic Subcultures

1. Quoted from Dmytri Kleiner, 'The Creative Anti-Commons and the Poverty of Networks', <http://info.interactivist.net/article.pl?sid=06/09/16/2053224>.
2. 'Tous les textes publiés dans "INTERNATIONALE SITUATIONNISTE" peuvent être librement reproduits, traduits ou adaptés même sans indication d'origine', *Internationale Situationniste, Édition augmentée* (Paris: Librairie Arthème Fayard, 1997 [1958-1969]), 148.
3. Harald Welte's initiative <http://www.gpl-violations.org> is about tracking such cases and bringing them to court.
4. *VAGUE* no. 18/19, Control Data Manual (London, 1986).
5. *SMILE* no. 6/7 (Baltimore, 1986).
6. 'From Lautréamont onwards it has become increasingly difficult to write, not because we lack ideas and experiences to articulate – but due to Western society becoming so fragmented that it is no

-
- longer possible to piece together what was traditionally considered "good" prose.' Stewart Home (ed.), *Mind Invaders* (London: Serpent's Tail, 1997), 133.
7. Raymond Federman, *Imagination, an Unfinished Paper* (New Literary History, 1976), 565-566.
 8. <http://downlode.org/Etext/plagiarism.html>.
 9. <http://www.vgpolitics.fg.co.uk/00505.htm>.
 10. Former URL: <http://www.phutyleinternational.com/acright/acright.htm>.
 11. Thanks to Lloyd Dunn's heroic work, all *PhotoStatic/Retrofuturism* and *YAWN* issues can be freely downloaded in meticulously reconstructed PDF files from <http://psrf.detrinus.net>.
 12. Marcel Mauss, *The Gift* (London: Cohen & West, 1954).
 13. Richard Barbrook, *The Hi-Tech Gift Economy*, http://firstmonday.org/issues/issue3_12/barbrook/; Eric S. Raymond, *Homesteading the Noosphere*, http://www.firstmonday.org/issues/issue3_10/raymond/.
 14. Martial I, 52.
 15. I am plagiarizing unpublished critical thoughts of the literary scholar Martin von Koppenfels.
 16. 'Incidentally, I called SMILE that name for a number of reasons, one being a play with/on General Idea's FILE. When I picked the name, I was not aware of VILE or BILE. If I had been more rigorous in thinking, I would have named it FILE, but it's too late now', in: Monty Cantsin (ed.), *Neoism Now* (Berlin: Artcore Editions, 1986).
 17. Which, of course, includes the Torah and the Bible.
 18. *SMILE* no. 23 (Doncaster, 1986).
 19. Also cited by Paul Mann, 'Stupid Undergrounds', *Postmodern Culture*, issue 5 (1995), <http://www.iath.virginia.edu/pmc/text-only/issue.595/mann.595>.
 20. Improved English translation from: http://en.wikipedia.org/wiki/Comte_de_Lautreamont.
 21. Guy Debord, *Report on the Construction of Situations and on the International Situationist Tendency's Conditions of Organization and Action* (1957), <http://www.bopsecrets.org/SI/report.htm>.
 22. Michael Crane and Mary Stofflet (eds.), *Correspondence Art* (Toronto: Art Metropole, 1984).
 23. http://www.thing.de/projekte/7:9%23/tent_history_begins.html.
 24. 'Proletarian Posturing and the Strike that Never Ends', in: *SMILE* (Baltimore, 1989).

3

The Fiction of the Creative Industries

1. 'Ich habe mich immer gegen Selbstverwirklichung in der Kunst und gegen Kreativität gewandt. Ich habe immer gesagt: Kreativität ist was für Friseure', Gerhard Merz in the documentary *Measure Color Light*, 1991, statement at 3'41".
2. *Creative industrie in topvorm*, *Advies Topteam Creatieve Industrie* (2011), 4.
3. Ibid.
4. The latter point is also acknowledged in *ibid.*, 2.
5. Pierre Bourdieu, *The Field of Cultural Production* (Cambridge: Polity, 1993), 39.
6. John Harris, 'The Britpop Years', *The Independent*, 7 May 2003.
7. *Creative industrie in topvorm*, *op. cit.* (note 2), 2.

4

Rhizomatic Blitzkrieg

1. Christian Worch, *Über freien und autonomen Nationalismus* (2005), <http://www.worch.info/rund-briefe/05-01-25.htm> [translation by author].
2. Nationaldemokratischer Hochschulbund (NHB), 'Schafft befreite Zonen!', in: *Vorderste Front. Zeitschrift für politische Theorie & Strategie*, no. 2, 1991 [translation by author].
3. *ibid.* [translation by author].
4. Hakim Bey, 'T.A.Z. The Temporary Autonomous Zone', *Autonometia*, 1991, 98.
5. Gilles Deleuze and Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia* (Minneapolis: University of Minnesota Press, 1987), 23.

6. *ibid.*, 2.
7. Gilles Deleuze and Félix Guattari, 'Rhizom', (Berlin: Merve Verlag, 1977), 15: 'FASCHISMUS – schreckliche Vielheit'.
8. Thomas Pynchon, *The Crying of Lot 49* (New York: First Perennial Classics, 1999 [1966]), 37.

II. MEDIA

5

Literature on the Internet

1. This text was initially presented as a guest lecture at the Goethe Institute, Berlin in a seminar for international creative artists. A revised version was later published in ALG Umschau, edited by the Arbeitsgemeinschaft Literarischer Gesellschaften und Gedenkstätten e.V. (Sonderausgabe, 1999), 11-17.
2. El Lissitzky, 'Topographie der Typographie', in: *El Lissitzky Maler Architekt Typograf Fotograf* (Dresden: VEB Verlag der Kunst, 1976 [1923]), 360.
3. Robert Coover, 'The End of Books', *The New York Times Book Review* (21 June 1992).
4. In an interview, Heiko Idensen describes all of the various facets of the German net literature discourse http://www.dichtung-digital.de/Simanowski/6-Aug-99/Interview_Idensen.htm.
5. Reinhard Kaiser, *Literarische Spaziergänge im Internet* (Frankfurt am Main: Eichborn, 1996).
6. For example ffm inc femdom cons for 'two females and one male in an incestual relationship that is female-dominated and consensual'.
7. See, for example: libri, <http://www.bod.de>.
8. Per Cederqvist, *Version Management with CVS*. Link oping: Signum Support AB, 1992-1999. <http://www.lorai.fr/~molli/cvs-index.html>.
9. Trace online writing community, <http://trace.ntu.ac.uk>.
10. The Free Software Foundation: GNU General Public License, <http://www.gnu.org/copyleft/gpl.html>.
11. Introductory texts: the Jargon File created in 1975 and continuously updated, <http://www.tuxedo.org/~esr/jargon/>; Richard M. Stallman's remarks about recursive acronyms, http://kt.linuxcare.com/interviews/si199705_m.html; and Eric S. Raymond's work-in-progress, *The Art of Unix Programming*, <http://www.tuxedo.org/~esr/writings/taoup/>.
12. Lev Manovich, 'Database as Symbolic Form' (1998), <http://www.nettime.org/nettime.w3archive/199812/msg00041.html>.
13. Libraries of the Mind: *ELEX – Elektronischer LEXIXONROMAN einer sentimentalen Reise zum Exporteurtreffen in Druden* (Verlag Mediendesign OEG, 1998).
14. Milorad Pavić's novel *Dictionary of the Khazars*, uses a similar form, Milorad Pavić, *Das Chazarische Wörterbuch. Lexikonroman in 100000 Wörtern* (Munich: Carl Hanser Verlag, 1988 [1984]).
15. Robert Kendall's website Word Circuits, <http://www.wordcircuits.com>, is a good starting point for readings related to these texts.
16. For more on permutational poetry in literature outside of Europe, see Friedrich Rückert, *Grammatik, Poetik und Rhetorik der Perser* (1874), 168-170.
17. Julius C. Scaliger, *Poetices libri septem* (Lyon, 1561).
18. Georg P. Harsdörffer, *Mathematische und philosophische Erquickstunden*, vol. 3 Texte der frühen Neuzeit (Frankfurt am Main: Keip, 1990 [Nuremberg, 1636]).
19. Georg P. Harsdörffer, *Frauenzimmer Gesprächspiele*, vol. 2 (Tübingen: Niemeyer, 1968-1969 [1643-1657]) (German reprint: Reihe Barock).
20. Standard works by and about Oulipo are *The Oulipo Compendium* (London: Atlas Press, 1998), ed. by Harry Mathews; and *Oulipo, Atlas de littérature potentielle* (Paris: Gallimard, 1981).
21. Raymond Queneau, *Cent mille milliards de poèmes* (Paris: Gallimard, 1961).
22. *Ibid.*; Web adaptations of *A Hundred Thousand Billion Poems* are now forbidden by Queneau's estate.
23. Reinhard Döhl, 'Von der ZUSE Z 22 zum WWW. Helmut Kreuzer zum 70sten' (1998), http://www.stuttgart.de/stadtbuecherei/zuse/zuse_www.htm.

24. Abraham A. Moles, *erstes manifest der permutationalen kunst* (1963).
25. Heiko Idensen, 'Die Poesie soll von allen gemacht werden. Von literarischen Hypertexten zu virtuellen Schreibräumen der Netzwerkkultur', in: Friedrich Kittler and Dirk Matejowski (eds.), *Literatur im Informationszeitalter* (Opladen: Westdeutscher Verlag, 1996), <http://www.uni-kassel.de/interfiction/projekte/pp/poesie.htm>, 143-184.
26. Coover, *The End of Books*', op. cit. (note 3).
27. George Landow, *Hypertext* (Baltimore: Johns Hopkins University Press, 1992).
28. Michael Joyce, *Afternoon, A Story* (Cambridge, MA: Eastgate Systems, 1990).
29. Guido Grigat does this rather concisely in his guide to the basics of net literature, *Qu'est-ce que c'est Netzliteratur?* (1998).
30. Peter Faecke and Wolf Vostell, *Postversandroman* (Neuwied: Luchterhand, 1970).
31. Heiko Idensen likewise applies Lautréamont's demand to net literature in his essayistic manifesto, 'Poetry Should Be Made by All', which is well worth reading: Idensen, 'Die Poesie soll von allen gemacht werden', op. cit. (note 25), 143-184.
32. Important writings about Mail Art: Michael Crane and Mary Stofflet (eds.), *Correspondence Art* (Toronto, 1984); Chuck Welch, *Eternal Network* (University of Calgary Press, 1995); Géza Perneckzy, *The Magazine Network* (Cologne: Edition Soft Geometry, 1993).
33. Douglas R. Hofstadter, *Gödel, Escher, Bach* (New York: Basic Books, 1979).

6

Digital Code and Literary Text

1. Lawrence Lessig, *Code and Other Laws of Cyberspace* (New York: Basic Books, 2000).
2. On the reverse end of the chain, keyboards, mice, scanners and cameras are analog-to-digital converters.
3. While such a machine would operate more slowly than magnetic or optical media, it would, on the other hand, provide more robust and durable information storage.
4. Normally, this code is divided into three pieces, one – the so-called sound or image file – containing the machine-independent and program-independent abstract information, the second – the so-called display program – containing the instructions to mediate the abstracted information in a machine-independent, yet not program-independent format to the operating system, the third – the so-called operating system – mediating the program output to the output machine, whether a screen or a printer. These three code layers however are nothing but conventions. Theoretically, the 'digital image' file could in itself contain all the code necessary to make itself display on analog end devices, including the code that is conventionally identified as a boot loader and core operating system.
5. Such as the paper 'Warum es zuwenig interessante Computerdichtung gibt. Neun Thesen' (Nine points on why there is so little interesting computer net literature), published in: Hansgeorg Schmidt-Bergmann and Thorsten Liesegang (eds.), *Liter@tur. Computer – Literatur – Internet* (Bielefeld: Aisthesis, 2001).
6. No computer can reprogram itself; self-programming is only possible within a limited framework of game rules written by a human programmer. A machine can behave differently than expected, because the rules didn't foresee all of the situations they could create, but no machine can overwrite its own rules by itself.
7. Quoted from an e-mail message to the 'Rhizome' mailing list, 7 May 2001.
8. Galerie und Edition Hundertmark. George Maciunas und Fluxus-Editionen (1990), no page numbering.
9. Some historical examples have been adapted online on my website <http://permutations.pleintekst.nl>.
10. With the 'biennale.py' computer virus of the net art groups <http://www.0100101110111001.org> being the only exception to date.
11. Raymond Queneau, *Cent mille milliards de poèmes* (Paris: Gallimard, 1961), 3.
12. Ibid.
13. An exception being the the ALGOL computer programming language poetry written by Oulipo poets François le Lionnais and Noël Arnaud in the early 1970s, see *ibid.*, 47.

14. Such as Shockwave, QuickTime and Flash.
15. Boris Gröndahl's (German) *Telepolis* article 'The Script Kiddies Are Not Alright' summarizes the multiple, sometimes even antagonistic camps associated with the term 'hacker', <http://www.heise.de/tp/deutsch/html/result.xhtml?url=/tp/deutsch/inhalt/te/g266/1.html>.
16. http://www.poesis.net/poetics/symposion2001/a_cayley.html.

7

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1. This history culminates with N. Katherine Hayles and her classic high-culture, avant-garde expectations for net poetry. Olga Goriunova uses the example of a Russian internet forum to analyse forms of speech-like net writing similar to poetry slams. We can already predict that this analysis will influence future perspectives of net literature. N. Katherine Hayles, *Electronic Literature: New Horizons for the Literary* (Indiana: Notre Dame, 2008); and Olga Goriunova, 'Male literature' of Udaiff.com and Other Networked Artistic Practices of the Cultural Resistance', in: Henrike Schmidt, Katy Teubener and Natalja Konradova (eds.), *Control + Shift, Public and Private Usages of the Russian Internet* (Norderstedt, 2006), 177-197.
2. With a few exceptions, such as the mezangelle texts written by the Australian net artist mez breeze. Indeed, recent books on net literature (such as Hartling 2009) restrict themselves to a systemic analysis of the phenomenon of net literature and refrain from conducting close readings of individual works of net literature. See: Florian Hartling, *Der digitale Autor. Autorschaft im Zeitalter des Internets* (Bielefeld, 2009).
3. For example, the end of trAce and the Electronic Literature Masters programme led by Sue Thomas at De Montfort University, the partial dissolution of Zurich's leading Media Art program into a Fine Arts Masters program, and the shift in focus towards film at both Cologne's Kunsthochschule für Medien and in Peter Weibel's former class in Vienna.
4. Discussed at length in David Link, *Poesiemaschinen/Maschinenpoesie. Zur Frühgeschichte computerisierter Texterzeugung und generativer Systeme* (Munich, 2007) and Saskia Reither, *Computerpoesie. Studien zur Modifikation poetischer Texte durch den Computer* (Bielefeld, 2003).
5. According to net artist Olia Lialina, her early works were based on 'Bugs in Netscape'.
6. Jochen Hörisch and Hubert Winkels, *Das schnelle Altern der neuesten Literatur. Essays zu deutschsprachigen Texten von 1968-1984* (Düsseldorf, 1985).
7. See Rainer Kuhlen, *Hypertext. Ein nicht-lineares Medium zwischen Buch und Wissensbank* (Berlin, 1991); and Hartmut Winkler, *Docuverse. Zur Medientheorie der Computer* (Regensburg, 1997).
8. For example, Sandra Kegel writes in the *Frankfurter Allgemeine Zeitung*: 'Tim Berners-Lee invented the World Wide Web in 1989 as a way to facilitate data exchange among researchers. Just twenty years later, this noble intention has led into an abyss of unbridled exploitation of creative accomplishments. Copy and paste simply doesn't mean copy and pay. The expropriational machinery of the Internet drives out cds, films and books and hollows out copyright law. The European notion of authority through authorship is fading. Those who regard this loss as a trifle carelessly squander a central achievement of the Enlightenment.' Sandra Kegel, 'Unter Piraten', *Frankfurter Allgemeine Zeitung* 25 April 2009, 1, also available online at <http://www.faz.net/s/Rub5A6DAB001EA2420BAC082C25414D2760/Doc-eBoBCF2CAEA F146C29F4668106DF43986-aTPl-ecommon-scontent.html>.
9. <http://www.archive.org>.
10. 10 Million dollars for archive.org, according to Andy Potts, compared with a 'relatively small annual budget of 12 million euros' for the Pforzheim Theater, according to Nike Luber. Andy Potts, 'The internet's librarian', *The Economist*, 3 May 2009, also available online at http://www.economist.com/sciencetechnology/tq/displayStory.cfm?story_id=13174399 (access fee); Nike Luber, 'Kultur für Stadt und Umland. Ein Porträt des Pforzheimer Theaters', *Oper&Tanz. Zeitschrift für Opernchor und Bühnentanz*, vol. 6 (2005) no. 5, also available online at <http://www.operuntanz.de/archiv/2005/05/portrait-pforzheim.shtml>.

11. Heike Neuroth, Achim Oßwald, Regine Scheffel, Stefan Strathmann and Mathias Jehn (eds.), *Nestor Handbuch. Eine kleine Enzyklopädie der digitalen Langzeitarchivierung Version 2.0* (Boizenburg, 2009).
12. N. Katherine Hayles draws a similar conclusion: 'The situation is exacerbated by the fluid nature of digital media; whereas books printed on good quality paper can endure for centuries, electronic literature routinely becomes unplayable (and hence unreadable) after a decade or even less. The problem exists at both the software and hardware levels. Commercial programs can become obsolete or migrate to new versions incompatible with older ones, and new operating systems (or altogether new machines) can appear on which older works will not play. With a foreshortened canon limited to a few years and without the opportunity to build the kinds of traditions associated with print literature, electronic literature would be doomed to the realm of ephemera, severely hampered in its development and the influence it can wield.' N. Katherine Hayles, 'Electronic Literature: What Is It?', in: *Electronic Literature Organization*, <http://eliterature.org/pad/elp.html> 2 January 2007 (updated: 26 November 2009).
13. See Beat Suter and Michael Böhrer (eds.), *Hyperfiction* (Basel and Frankfurt am Main, 1999); Roberto Simanowski, *Interfictions. Vom Schreiben im Netz* (Frankfurt am Main, 2002); Christiane Heibach, *Literatur im elektronischen Raum* (Frankfurt am Main, 2003); and Friedrich Block, Christiane Heibach and Karin Wenz, *poes1s. Ästhetik digitaler Poesie / The Aesthetics of Digital Poetry* (Ostfildern-Ruit, 2004).
14. ... as opposed to Alt-X, the special character key command sequence programmatically transformed by early net writer Mark Amerika.
15. Thus, Friedrich Kittler's often misunderstood adage that there is no software describes the hidden crux of all computer technology. Friedrich Kittler, 'Es gibt keine Software', in: Hans Ulrich Gumbrecht and K. Ludwig Pfeiffer (eds.), *Schrift* (Munich, 1993), 367-378.
16. Alessandro Ludovico (Piet Zwart Institute, Rotterdam) is researching this topic and the discursive history of the repeatedly proclaimed death of paper since the late nineteenth century.
17. It is highly doubtful that a video DVD, for example, will technically still be able to play on hardware and software in 100 years, if it is not already physically destroyed. 35 mm is, without question, a more stable medium.
18. Georg Philipp Harsdörffer, *Mathematische und philosophische Erquickstunden*, (Frankfurt am Main, 1990 [1636]).
19. Raymond Queneau, *Cent mille milliards de poèmes* (Paris, 1961).
20. A programming project that is more interesting as a net phenomenon yet antithetical in terms of software politics is the work of the antiorp/Netochka Nezanova collective, whose audiovisual computer programs were marketed and received as cult objects in the 1990s. Written for the now deceased MacOS 9, absurdly expensive and sold with no less absurd proprietary licensing conditions, they now exist only as a legend of older net generations.
21. Hayles, 'Electronic Literature', op. cit. (note 12).
22. Nick Montfort and Noah Wardrip-Fruin, 'Acid-Free Bits', in: *Electronic Literature Organization*, <http://eliterature.org/pad/afb.html>, 14 June 2004, (updated: 26 November 2009).
23. Alan Liu, David Durand, Nick Montfort, Merrilee Proffitt, Liam R. E. Quin, Jean-Hughes Rety and Noah Wardrip-Fruin, 'Born Again Bits', in: *Electronic Literature Organization*, <http://eliterature.org/pad/bab.html>, 5 August 2005, (updated: 26 November 2009).
24. ... not to be confused with the open source text converter Xlit.
25. McKenzie Wark, 'Essay: Codework', *American Book Review*, vol. 22 (2001) no. 6, 1-5.
26. Dick Higgins, 'Intermedia', *Something Else Newsletter* 1 (New York, 1966).
27. Lev Manovich, *The Language of New Media* (Cambridge, MA, 2002).

8

The Creative Common Misunderstanding

1. Benjamin Mako Hill, 'Towards a Standard of Freedom: Creative Commons and the Free Software Movement', <http://www.advogato.org/article/851.html>.
2. <http://www.gnu.org/philosophy/free-sw.html>, http://www.debian.org/social_contract, <http://www.opensource.org/docs/definition.php>.

3. <http://www.linuxp2p.com/forums/viewtopic.php?p=10771>.
4. Ibid.
5. <http://www.fsf.org/blogs/rms/entry-20050920.html>.
6. <http://lists.debian.org/debian-legal/2004/07/msg01193.html>.
7. http://www.sourcejabs.com/blogs/ajb/2006/02/creative_commons_is_broken.html.
8. Dmytri Kleiner, 'The Creative Anti-Commons and the Poverty of Networks', <http://info.interactivist.net/article.pl?sid=06/09/16/2053224>.
9. <http://creativecommons.org/images/find.gif>, <http://creativecommons.org/license>.
10. <http://creativecommons.org/weblog/entry/5681>.
11. This scenario isn't too far-fetched considering Lessig's recent advocacy of the non-open file format Adobe/Macromedia's Flash, which he calls a 'crucial tool of basic digital education in a free culture' (quotation translated from the German article <http://www.heise.de/newsticker/meldung/78278/>, see also <http://lwn.net/Articles/199877/>). Since proprietary file formats cannot be universally accessed and lock information into technology whose availability is at the mercy of a single vendor, they restrain fair use.
12. <http://artlibre.org/licence/lal/en/>.
13. <http://www.opensource.org>.
14. It is not coincidental, for example, that the term 'Open Content' and the website <http://www.open-content.org> were launched in 1998 only a few months after the first propagation of 'Open Source', until its founder David Wiley sacked the initiative in 2004 in order to – ironically or not – become a director of Creative Commons.

9

Animals that Belong to the Emperor

1. User comment on [heise.de](http://www.heise.de): 'Ich hab irgendwie den Eindruck dass unser Bundesforschungsministerium in der irrigen Annahme ist, das 13 Millionen Euro eine Software schaffen die es jedem Computer-Analphabeten ermöglicht, ganz ohne den Extra Effort' seine Pisa-Versagen vermarkten und als hochinnovative Rettung des Wissens- und Wirtschaftsstandorts Deutschland (wers glaubt...).
2. Geert Lovink, 'Search Engines on the Move', 19 September 2007, <http://www.nettime.org/Lists-Archives/nettime-l-0709/msg00028.html>.
3. Quote from: 'An interview with Tim Berners-Lee', <http://www.simple-talk.com/content/print.aspx?article=321>.
4. 'Folksonomy (also known as collaborative tagging, social classification, social indexing, social tagging and other names) is the practice and method of collaboratively creating and managing tags to annotate and categorize content. In contrast to traditional subject indexing, metadata is not only generated by experts but also by creators and consumers of the content. Usually, freely chosen keywords are used instead of a controlled vocabulary', Wikipedia definition as of 18 December 2007, <http://en.wikipedia.org/w/index.php?title=Folksonomy>.
5. As a remnant of this tradition, the Diderot/d'Alembert encyclopaedia still contains such a knowledge tree.
6. Umberto Eco, *Kant and the Platypus* (1997), 68.
7. Ibid., 139.

10

\$(echo echo) echo \$(echo): Command Line Poetics

1. Roland Barthes, *S/Z* (New York: Hill and Wang, 1975), 200.
2. Ibid., 5.
3. Ibid., 4.
4. Alan Kay, 'User Interface: A Personal View', in: Brenda Laurel (ed.), *The Art of Human-Computer Interface Design* (Reading, MA: Addison Wesley, 1990), 203.

5. Codework by Alan Sondheim, posted to the mailing list 'arc.archive' on 21 July 2002.
6. Thomas Scoville, 'The Elements of Style: Unix As Literature' (1998), <http://web.meganet.net/yeti/PCarticle.html>.
7. Yet unpublished as of this writing, forthcoming on the site <http://www.cont3xt.net>.
8. David Bennahum, 'Interview with Richard Stallman, Founder of the Free Software Foundation, MEME (2.04), 5 1997.
9. Scoville, 'The Elements of Style', op. cit. (note 6).

II

Peer-to-Peer Services: Transgressing the Archive (and Its Maladies?)

1. Jacques Derrida, *Mal d'Archive* (Paris: Éditions Galilée, 1995), 17-18. 'Mais je privilégie aussi l'indice du E mail pour une raison plus important et plus évidente: parce que le courrier électronique est aujourd'hui, plus encore que le Fax, en passe de transformer tout l'espace public et privé de l'humanité, et d'abord la limite entre le privé, le secret (privé ou public) et le public ou le phénoménal. Ce n'est pas seulement une technique, au sens courant et limité du terme: à un rythme inédit, de façon quasi instantanée, cette possibilité instrumentale de production, d'impression, de conservation et de destruction de l'archive ne peut pas ne pas s'accompagner de transformations juridiques et donc politiques. Celles-ci affectent, rien de moins, le droit de propriété, le droit de publier et de reproduire.' English translation: *Diacritics*, vol. 25 (summer 1995) no. 2, 9-63.
2. Centralized in the sense of his concept of a universally agreed upon format for documents and metadata and a centrally controlled transcopyright as well as a centralized means of handling fees.
3. Steve Dietz, 'Reverse Engineering the Library, Simon Bigg's Babel', <http://hosted.simonbiggs.easynet.co.uk/babel/intro.htm>.
4. Derrida, *Mal d'Archive*, op. cit. (note 1), 9: 'le sens de, archive, son seul sens, lui vient de l'arkheion grec: d'abord une maison, un domicile, une adresse, la demeure des magistrats supérieurs, les archontes, ceux qui commandaient.'
5. Harald Szeemann, *Museum der Obsessionen* (Berlin: Merve, 1981), 125.
6. Ibid., 127 and 136.
7. Derrida, *Mal d'Archive*, op. cit. (note 1), 13: '... les documents, qui ne sont pas toujours des écritures discursives, ne sont gardés et classés au titre de l'archive qu'en vertu d'une topologie privilégiée.'
8. A more detailed analysis of the political regulation of the Internet has been written by political scientist Jeanette Hofmann in 'Und wer regiert das Internet?', in: Herbert Kubicek, Hans-Joachim Braczyk, Dieter Klumpp and Alexander Roßnagel (eds.), *Global@home. Jahrbuch Telekommunikation und Gesellschaft 2000* (Heidelberg: Hüthig, 2000), 67-78.
9. Which many assume, falsely, to be unique networks because their network protocol layers and user programs deviate from the topology of the underlying layer of the TCP/IP protocol.
10. The telnet specification RFC 318 dates back to 1973, the FTP specification RFC 454 to 1973.
11. The specifications of the Usenet protocol NNTP may be found in RFC 977, the IRC protocol was first specified in 1993 in RFC 1459.
12. One early document concerning this is Ursula Ott's article on pornography in university networks in the feminist magazine *Emma* in December 1991.
13. Hans M. Enzensberger, 'Baukasten zu einer Theorie der Medien', in: *Kursbuch 20* (1970), 159-186; and Bertolt Brecht, 'Der Rundfunk als Kommunikationsapparat', in: *Werke* (Frankfurt am Main: Suhrkamp, 1992 [1932]), 552-557.
14. For more on the analogy of software code and law, see Lawrence Lessig, *Code and Other Laws of Cyberspace* (New York: Basic Books, 2000).
15. <http://www.minitasking.com>.
16. The World Wide Web, on the other hand, has no real-time index; its search engines attempt one via their full-text indices, but confuse the difference between indexed data and indexed metadata by assuming a one-to-one relationship between the latter and the former.
17. Derrida, *Mal d'Archive*, op. cit. (note 1), 13.

18. <http://www.freenetproject.org>.
19. <http://www.gnu.org/software/GNUnet/>.

12

What Is Interface Aesthetics, or What Could It Be (Not)?

1. For an encyclopaedic historical overview of aesthetic theory, see Götz Pochat, *Geschichte der Ästhetik und Kunsttheorie* (Cologne: DuMont, 1996). At the time of this writing, I am not aware of any comprehensive research of the meanings, applications and history of the term 'interface'. A taxonomy was attempted in the article 'Interface' that I co-authored with Matthew Fuller for the volume *Software Studies* (Cambridge, MA: MIT Press, 2008), 143-149.
2. Alexander Gottlieb Baumgarten, *Aesthetica* (1750-1758); Jean-François Lyotard, *Lessons on the Analytic of the Sublime* (Stanford: Stanford University Press, 1994).
3. G.W.F. Hegel, *Aesthetics, Lectures on Fine Art* (Oxford: Clarendon, 1975 [1831]); Theodor W. Adorno, *Ästhetische Theorie* (Frankfurt am Main: Suhrkamp, 1970).
4. Jacques Rancière, *Aesthetics and Its Discontents* (Cambridge: Polity, 2009).
5. Some useful practical research work has been done on various GUI history websites for which the Wikipedia article *History of the Graphical User Interface* (http://en.wikipedia.org/wiki/History_of_the_graphical_user_interface) delivers up-to-date pointers, and in Olia Lialina's research on the 'Vernacular Web', <http://art.teleportacia.org/observation/vernacular>.
6. Wendy Hui Kyong Chun, *Control and Freedom* (Cambridge, MA: MIT Press, 2006), 249.
7. Christian Ulrik Andersen and Søren Pold (eds.), *Interface Criticism: Aesthetics Beyond Buttons* (Aarhus: Aarhus University Press, 2011).
8. For a deeper analysis, see John C. Searle, 'Minds, Brains, and Programs', in: *The Behavioural and Brain Sciences*, Vol. 3 (Cambridge: Cambridge University Press, 1980), 417-456.
9. 'Betriebssystem Kunst', as coined by Thomas Wulffen in *Kunstforum International*, issue 125 (January/February 1994).
10. Brenda Laurel (ed.), *The Art of Human-Computer Interface Design* (Reading, MA: Addison-Wesley, 1990).
11. Lev Manovich, 'The Interface as a New Aesthetic Category', in: Patrick Lichty (ed.), *Through the Looking Glass* (Cleveland: Beachwood Center for the Arts, 2000), <http://www.voyd.com/ttlg/textual/manovichtext.htm>.
12. As, for example, in Athanasius Kircher's *Ars Magna Lucis et Umbrae* (1646) and Jan Amos Comenius' *Labyrinth of the World and Paradise of the Heart* (1631).
13. 'The interface shapes how the computer user conceives the computer itself. It also determines how users think of any media object accessed via a computer', Manovich, 'The Interface as a New Aesthetic Category', op. cit. (note 11).
14. Or, in Manovich's words: 'In short, far from being a transparent window into the data inside a computer, the interface bring with it strong messages of its own.' This is a variation of the classical media theoretical paradigm, from Innis to Kittler, that the medium determines (or is) the message.
15. Manovich, 'The Interface as a New Aesthetic Category', op. cit. (note 11).
16. Gerard Genette, 'La rhétorique restreinte', *Communications*, no. 16 (1970), 158-171. The similarity to contemporary media studies is all the more striking since the restraint of interface to graphical human-to-software-user interfaces has led researchers to focus on the visual metaphors implemented in those interfaces, such as in Laurel, *The Art of Human-Computer Interface Design*, op. cit. (note 10).
17. API = application programming interface.
18. An example: As of November 2009, the source code comments of the current Linux operating system kernel (version 2.6.30) contain 382 mentions of the word 'ugly' versus 14 mentions of 'beauty' or 'beautiful'.
19. Donald E. Knuth, *The Art of Computer Programming* (Reading, MA: Addison-Wesley, 1973-1998); Steven Levy, *Hackers* (Champaign, IL: Project Gutenberg, 1986 [1984]), www.gutenberg.org/text/729.
20. Nicolas Bourriaud, *Relational Aesthetics* (Paris: les presses du réel, 2002 [1998]).
21. As documented on the site <http://www.textfiles.com>.

22. Alexei Shulgin's 'FuckU-FuckMe', <http://www.mediaartnet.org/works/fuck-u-fuck-me>, with its designed obscenity of the hardware-to-user interface, is a good example.
23. Edmund Burke, *A Philosophical Investigation into the Origin of our Ideas of the Sublime and Beautiful* (Oxford: Oxford University Press, 1990 [1757]), Section VII.
24. Jean-François Lyotard, *The Postmodern Condition* (Minneapolis: University of Minnesota Press, 1984), 79.
25. Such as: interventionist and activist media art, and Internet art that strongly related to the language and system of twentieth-century and contemporary art.
26. As, for example, reflected in the song 'Art Is a Luxury' by the Rotterdam-based music group Coolhaven: 'Art is a luxury / starving people don't paint / maybe they scream a lot / art is a luxury / but as far as expression is concerned / that's very meagre / art is a luxury / throw the poop shot on the canvas / colorful society can't put them in a square / when you talk to me / you talk to yourself / art is a luxury / because it only talks to itself.'
27. Curator Marius Babias accordingly defined art as a 'para science' building 'upon the history of art and styles, on preceding developments' to which 'everyone wanting to do art has to relate to'; translated from a German interview in the Berlin paper *Zitty*, 30 July 2008, <http://www.zitty.de/kultur-kunst/16840/>.
28. Rirkrit Tiravanija, whose 1990s cooking performances are quite second-hand in comparison to Matta-Clark in the 1970s and subcultural artists like Gordon W. Zealot in the 1980s, comes to the same conclusion in an interview with Ben Lewis for the BBC Documentary *Art Safari: Relational Art*, 8 July 2004, <http://www.ubu.com/film/relational.html>.
29. See, for example, the contemporary art website <http://www.postmedia.net>.
30. This tone was set by the techno-deterministic media theory of the 1990s and became the theme of such events as the 'Takeover' edition of the *ars electronica* festival in 2001.
31. If experimental digital art is merely content with aesthetic debasement or subversion of computer interface subversions, it is in danger of ending up as the court jester of those industries.
32. Martin Heidegger, 'The Question Concerning Technology', in: Martin Heidegger, *Basic Writings* (San Francisco: HarperCollins, 1977 [1953]), 283-317.
33. 'That which is purely subjective in the representation of an object, i.e., what constitutes its reference to the subject, not to the object, is its aesthetic quality. On the other hand, that which in such a representation serves, or is available, for the determination of the object (for or purpose of knowledge), is its logical validity', Immanuel Kant, *Critique of Judgment* (Oxford: Oxford University Press, 2007), 23.
34. 'Interesseloses Wohlgefallen', Immanuel Kant, *Kritik der Urteilskraft* (Berlin: Akademie-Verlag, 2008 [1790]).
35. Jacques Rancière, *The Politics of Aesthetics* (London: Continuum, 2006), 20.
36. *Ibid.*, 21.
37. As covered and put into historical relation in Oliver Grau, *Virtual Art* (Cambridge, MA: MIT Press, 2003).
38. 'Food design' most commonly refers to the visual styling of food rather than its preparation and taste.
39. Filippo Tommaso Marinetti, 'Manifesto of Futurist Cooking' (1930).
40. Bourriaud, *Relational Aesthetics*, op. cit. (note 20), 25 and 30
41. *Ibid.*, 112. Compared to Bourriaud, Adorno's posthumously published *Aesthetic Theory* is surprisingly fresh in its refusal to bless either practices or objects, respectively autonomy or sociality of art: 'The dual nature of artworks as autonomous structures and social phenomena results in oscillating criteria: Autonomous works provoke the verdict of social indifference and ultimately of being criminally reactionary; conversely, works that make socially univocal discursive judgments thereby negate art as well as themselves', Theodor Wiesengrund Adorno, *Aesthetic Theory* (London: Continuum, 2005 [1970]), 323.
42. Coined by IBM researcher Edgar Codd in 1970 according to Wikipedia, http://en.wikipedia.org/w/index.php?title=Relational_database&oldid=326505871, Edgar Codd, 'A Relational Model of Data for Large Shared Data Banks', *Communications of the ACM*, vol. 13 (1970) no. 6, 377-387.
43. Joseph Weizenbaum, *Computer Power and Human Reason* (San Francisco: W.H. Freeman, 1976).
44. For examples and elaborations: Matthew Fuller, *Behind the Blip, Essays on the Culture of Software* (Brooklyn: Autonomedia, 2003); Wendy Hui Kyong Chun, *Control and Freedom* (Cambridge, MA: MIT Press, 2006).
45. Unless one is still a hardcore believer in artificial intelligence.

III. EPHEMERA

13

BNADJT PD

1. One could write a postcolonial study about Boney M., the awful fake American disco band that bussed Dutch Antilleans into the studio along with high schools kids from GI schools as choir singers, shamelessly grinding together all sorts of exotic, racist clichés about black culture. Remarkably enough, Boney M.'s music never had any success in the USA, but is still rampantly popular in African countries.

IV. SPECULATIVE

19

Language and Software Studies

1. Hugh Kenner, 'Beckett Thinking', in: Hugh Kenner, *The Mechanic Muse* (Oxford: Oxford University Press, 1988), 83-107.
2. Ferdinand de Saussure, *Course in General Linguistics, Chapter I: Nature of the Linguistic Sign*, edited by Charles Bally and Albert Sechehaye, translated by Roy Harris (La Salle, IL: Open Court, 1983 [1916]).
3. See the section 'Saussurean Signs and Material Matters', in: N. Katherine Hayles, *My Mother Was a Computer. Digital Subjects and Literary Texts* (Chicago: University of Chicago Press, 2005), 42-45.
4. For example, Steve Wozniak's design of the Apple I mainboard was considered 'a beautiful work of art' in its time according to Steven Levy. See Levy, *Insanely Great: The Life and Times of Macintosh, the Computer that Changed Everything* (Penguin Books, 2000 [1994]), 81.
5. Joseph Weizenbaum, 'ELIZA - A Computer Program for the Study of Natural Language Communication between Man and Machine' (1966), <http://www.csee.umbc.edu/courses/331/papers/eliza.html>.
6. Marsha Pascual, 'Black Monday, Causes and Effects' (1998), <http://www.ncs.pvt.k12.va.us/ryersburg/pasc/pasc.html/>.
7. Among them, concrete poetry writers, French Oulipo poets, German poet Hans Magnus Enzensberger and Austrian poets Ferdinand Schmatz and Franz Josef Czernin.
8. Jef Raskin, *The Humane Interface: New Directions for Designing Interactive Systems* (Reading, MA: Addison Wesley, 2000).
9. According to Nelson Goodman's definition of writing in, *Languages of Art: An Approach to a Theory of Symbols* (Indianapolis: Hackett Publishing, 1976), 143.
10. Alan Kay, an inventor of the graphical user interface, conceded in 1989 that 'it would not be surprising if the visual system were less able in this area than the mechanism that solves noun phrases for natural language. Although it is not fair to say that 'iconic languages can't work' just because no one has been able to design a good one, it is likely that the above explanation is close to truth'. This status quo hasn't changed since. Alan Kay, 'User Interface: A Personal View' (1989), <http://proteus.fau.edu/practicum/texts/kay.pdf>.
11. See Wolfgang Hagen, 'The Style of SourceCodes', in: Wendy Hui Kyong Chun and Thomas Keenan (eds.), *New Media, Old Media* (New York: Routledge, 2005).

20

Poetic Art of Wisdom: Quirinus Kuhlmann's '41st Kiss of Love'

1. Translation by Christopher Johnson; reprinted with his friendly permission.
2. Walter Mönch, *Das Sonett* (Heidelberg, 1955), 151 ff.
3. According to computer scientist and Oulipo author Paul Fournel, the poem's first adaptation as a computer program occurred as part of an exhibition at the Centre Pompidou in Paris, Paul Fournel, 'Ordinateur et écrivain', in: Oulipo (ed.), *Atlas de la littérature potentielle* (Paris, 1977), 299.
4. Julius Caesar Scaliger, *Poetices libri septem* (Lyon, 1561), 73.
5. Georg Philipp Harsdörffer, *Poetischer Trichter* (Nürnberg, 1648-1653), 5.
6. Ibid.

7. 'Gesetz, König, Herde, Sache, Hoffnung, Recht, Weihrauch, Salz, Sonne, (sind gut) Licht, Lob / Krieg, Tod, Los, Betrug, Qual, Styx, Nacht, Kreuz, Eiter, (sind schlecht), Gewalt, Streit', Thomas Lansius, *Consultatio de principatu inter provincias Europae* (Tübingen, 1621), n.o.s.
8. Scaliger, *Poetices libri septem*, op. cit. (note 4).
9. The six words 'perfidie sperasti divos te fallere Proteu' can be permuted $6! = 720$ times. In Alsted's *Encyclopaedia*, however, the relatively free 'hexameter' of the verse yields only 240 permutations; Johann Heinrich Alsted, *Encyclopaedia* Vol. 1, (Herborn, 1630/Faksimile Stuttgart, 1989), 565. A classical hexameter would reduce the permutations to 96.
10. Athanasius Kircher, *Ars Magna Sciendi sive Combinatoria* Vol. 4 (Amsterdam, 1669), 157.
11. Justus Georg Schottelius, *Ausführliche Arbeit Von der Deutschen HauptSprache* Vol. 1 (1663/Faksimile Tübingen, 1967), 36. Harsdörffer attempts to split the stem words into even smaller morphemes, using these together with a mechanism of his own design, the 'Fünffachen Denckring der deutschen Sprache' (Fivefold thought ring of the German language), to determine a system of universal word formation. Kuhlmann was already writing laudatory poems to Schottelius during his secondary school years in Jena. In 1672, a fellow student reports to Sigmund von Birken: 'Weil Schottelij opus in 4t. unvollkommen, wolle Er in foliö eines ediren, und den Grund der deutschen Sprache, auf eine Lullianische Art, heben', cited in Blake Lee Spahr, 'Quirin Kuhlmann: The Jena Years', *MLN*, 72 (1957), 609 ff.
12. Quirinus Kuhlmann, *Himmliche Libes-küsse* (Jena, 1671/Faksimile Tübingen, 1971), 59.
13. Together with Schottelius, Harsdörffer pursued his poetic study of language as part of the Fructiferous Society. Kuhlmann dedicated his '41st Kiss of Love' to a patron in Breslau who is likewise a member of this literary society.
14. Kuhlmann, *Himmliche Libes-küsse*, op. cit. (note 12), 59 ff.
15. 'The certainty of this change was attempted to be shown by Hieronymus Cardanus / Athanasius Kircherus / Johann Buteo / Nicolaus Tartalius / Thomas Lansius / Hieremias Drerelius / Daniel Schwenter / Georg Philip Harßdörffer / Christoph Clavius / George Henisch / Marin Mersenne / Hegias Olynthius / Hieronymus Isquierdo and many others, all of whom followed in the old footsteps / and from a far distance they alluded to / what they thought to be impossible / and too large to represent.' Quirinus Kuhlmann, *Lehrreicher Geschichte-Herold*, Foreword (Jena, 1673), Section 19, no page numbers.
16. 'Although they pleased themselves with this shadow / I was not pleased / and invented a changing wheel / through which my rhyme / which was never exchanged within one century / within some days was fully exchanged / and I saw with greatest dismay / how a thirteen-fold change occurred at once. Before this, a change of thirteen words / was impossible for mankind / now no longer.' Ibid., Section 20.
17. John Neubauer, *Symbolismus und symbolische Logik* (Munich, 1978), 33.
18. Kuhlmann, *Lehrreicher Geschichte-Herold*, op. cit. (note 15), Section 20.
19. Even if it were possible to design the machine in such a way that only permissible permutations were shown, it would have to make $12! =$ almost half a billion (479,001,600) calculations. At one-second intervals, this would take 5544 days.
20. Although a thousandfold *Wechselrad* may be able to calculate 1,000 permutations at a time, this leaves 999! further permutations to be determined manually. From the epilogue to '41st Kiss of Love' we might conclude, however, that Kuhlmann's inability to calculate permutations beyond what is already listed in Kircher's table may be evidence that he is not a very good mathematician.
21. Wie wir zu den wechselversen ein wechselrad eronnen / um solches auch werkstellig zu machen: So wollen wir gleichfalls Dir den ganzen Naturwechsel in seinen Wechselrade ausführen und entlarvet di wahre Weltweißheit besichtigen.
22. Emphasis mine.
23. Emphasis mine; *Gregorii Theologi Opera quae exstant omnia, Patrologia Cursus Completus*, Volume 35 (Turnhout, 1965), 155; Kuhlmann, *Himmliche Libes-küsse*, op. cit. (note 12), 57.
24. Hans-Martin Kaulbach and Reinhart Schleier (eds.), *Der Welt Lauf. Allegorische Graphikserien des Manierismus*, Exhibition catalogue for the Staatsgalerie Stuttgart (Ostfildern-Ruit, 1997), Illustration 42.9, 164.

25. Denn der Allmächtige Himmels- und Erdenschöpfer hat Himmel und Erden wie ein Wechsellad eingerichtet / die Geschöpfe stat der Wechselwörter genommen: Alle Welt Dinge wechseln / alle lieben / alle hassen
26. This interpretation of Kulmann's poem is shared by Andreas Kilcher. Andreas Kilcher, *Die Sprachtheorie der Kabbala als ästhetisches Paradigma* (Stuttgart, 1998).
27. Kuhlmann, *Lehrreicher Geschichte-Herold*, op. cit. (note 15), Section 24.
28. *Ibid.*, Section 27.
29. 'Si puer ingenium versificatorium possideret, versificatorium in paucis tabellis inclusam interpretaretur, methodumque docerem extemporales versus fundendi, sed versus, non poema,' Quirinus Kuhlmann, *Epistolae duae* (Amsterdam, 1674), 4.
30. Die Verskunst aber wird weder gelernt / weil sie satzunglos; und ist nicht unwissend / weil sie am vollkommensten. Darum lernet ein Poete alles / von dem die Menschen handeln. Und was ein Poet weiß / lernen weder die Menschen noch er selbst.
31. Kuhlmann, *Himmelliche Libes-küsse*, op. cit. (note 12), 54 ff.
32. *Ibid.*, title page.
33. See Birgit Biehl-Werners 'Vorwort zu Kuhlmann', in: *Ibid.*, 10.
34. In *A Hundred Thousand Billion Poems*, Raymond Queneau quotes Alan Turing's remark that only a machine can understand a sonnet written by another machine: 'Seule une machine peut apprécier un sonnet écrit par une autre machine.' Raymond Queneau, *Cent mille milliards de poèmes* (Paris, 1961).
35. Frances Yates, *The Art of Memory* (London, 1965), 135.
36. Johann Amos Comenius, *Das Labyrinth der Welt und das Paradies des Herzens* (Munich, 1970), Chap. XXXI-XXXV, 196-219.
37. Francis Bacon, 'Neu-Atlantis', in: Klaus J. Heinisch (ed.), *Der utopische Staat* (Reinbek, 1960), 193-195.
38. Yates, *The Art of Memory*, op. cit. (note 35), 316.
39. 'FAMA FRATERNITATIS, Oder Entdeckung der Bruderschaft des löblichen Ordens des Rosenkreutzes / Beneben der CONFESSIO Oder Bekantnuß derselben Fraternität / an alle Gelehrte und Häupter in Europa geschrieben' (Kassel, 1616), n.o.s.
40. *Ibid.*
41. Johann Valentin Andreae, 'Fama Fraternitatis, Confessio Fraternitatis, Chymische Hochzeit, Christiani Rosencreutz Anno 1459', edited by Richard van Dülmen (Stuttgart, 1973), 21.
42. *Ibid.*, 23. Roland Edighoffer, in *Die Rosenkreuzer* (Munich, 1995), 20 ff, analyses the Lullist and alchemical intertextualities at play within 'Fama'.
43. Quirinus Kuhlmann, *Der neubegeisterte Böhme* (Stuttgart, 1995 [1674]).
44. *Ibid.*, 389 ff.

21

'Alternative Porn' and Aesthetic Sensibility

1. 'Sex ist das Spiel der Erwachsenen', interview in *Der Tagesspiegel*, 2 July 2006.
2. Cf. Mark Terkessidis, 'Wie weit kannst du gehen?', *Die Tageszeitung*, 18 August 2006.
3. Peter Gorsen, *Sexualästhetik* (Reinbek, 1987), 481 ff.
4. Porn and art are fused in Otto Muehl, who on the one hand anticipated the imagery and rhetoric of mainstream and scat fetish porn with his formulaic sexist and voyeuristic material Actions, and on the other hand took part in the making of the sexploitation movies *Schamlos* (Shameless, 1968) and *Wunderland der Liebe - Der große deutsche Sexreport* (Wonderland of Love - The Great German Sex Report, 1970); a similar path was taken in 1981 by pop singer and future sex guru Christian Anders in his movie *Die Todesgöttin des Liebeslagers* (The Love Camp's Goddess of Death).
5. It is a less well-known fact that Hustler publisher Larry Flynt started a porn magazine called *Rage*, styled as 'Alternative pop' in its photography, typography and copy, already in 1997; its publication was soon discontinued. Joanna Angel, host of indie porn website burningangel.com, now works for Flynt's 'Hustler Video'.

6. Or they are fused, as in Catherine Breillat's movies, in the synthesis that sexuality's being per se sexist can be made a source of infernal pleasures.
7. See Barbara Vinken's preface in Drucilla Cornell, *Die Versuchung der Pornographie* (Frankfurt am Main, 1997).

22

mez, _Viro.Logic Condition[ing] 1.1_

Text Analysis

1. Compare this and the following analysis of mez's text to boehmig:magister, 31-50.
2. See *ibid.*
3. William S. Burroughs, *The Electronic Revolution* (Bonn: Expanded Media Editions, 1970), 59.
4. Richard Dawkins, *The Selfish Gene* (Oxford: Oxford University Press, 1976).
5. See schulze:aleatorische, 241.
6. A technical description of the SirCam virus can be found at <http://www.symantec.com/avcenter/venc/data/w32.sircam.worm@mm.html>.
7. See, for example, John Leyden:sircam.
8. Loss Pequeno Glazier, in *A Digital Poetics* (Tuscaloosa, AL: University of Alabama Press, 2001), 96-102, discusses 'grep poetry' in detail.
9. Roman Jakobson, 'Two Aspects of Language and Two Types of Aphasic Disturbances', in: *Fundamentals of Language* (Mouton, 1971), 258.
10. J.G. Frazer, *The Golden Bough* (New York: MacMillan, 1950), 6.
11. *Ibid.*, 38.
12. Jakobson, 'Two Aspects of Language', *op. cit.* (note 8), 258.
13. William S. Burroughs, *The Electronic Revolution* (Bonn: Expanded Media Editions, 1982), 5 and 258.
14. Morton Feldman, 'Give My Regards to Eighth Street', liner notes to *The New York School*, HatArt CD 6176 (1994 [1968]), 7.

24

In Some Respects Reversed: Georg Philipp Harsdörffer's *Frauenzimmer Gesprächspiele*

1. Referring to the most important German literary society of the seventeenth century: Karl F. Otto, *Die Sprachgesellschaften des 17. Jahrhunderts* (Stuttgart: Metzler, 1972); Herzog August Bibliothek (ed.), *Im Garten der Palme. Kleinodien aus dem unbekannten Barock: die Fruchtbringende Gesellschaft und ihre Zeit* (Berlin: Akademie Verlag, 1992).
2. Theodor Verwey, *Georg Philipp Harsdörffer – ein Nürnberger Barockautor im Spannungsfeld heimischer Dichtungstraditionen und europäischer Literaturkultur* Vol. II, <http://www.phil.uni-erlangen.de/~p2gerlw/ressourc/hars2.html>; Irmgard Böttcher, 'Zum Neudruck', in: Georg Philipp Harsdörffer, *Frauenzimmer Gesprächspiele* Vol. 1, facsimile reprint by Irmgard Böttcher (Tübingen: Niemeyer, 1969), 4 ff.
3. Herbert Jaumann, 'Die Kommunikation findet in den Büchern statt. Zu Harsdörffers Literaturprogramm in den Gesprächspielen', in: Italo Michele Battafarano (ed.), *Georg Philipp Harsdörffer. Ein deutscher Dichter und europäischer Gelehrter* (Bern/Berlin/etc.: Peter Lang, 1990), 171.
4. Rosmarie Zeller, *Spiel und Konversation im Barock* (Berlin/New York: de Gruyter, 1974), 61 ff.
5. See later writings by Harsdörffer and writings by his acquaintance and fellow Fruitbearing Society member, Justus Georg Schottelius, both of whom propagate German as the standard, universal language of the sciences.
6. Zeller, *Spiel und Konversation im Barock*, *op. cit.* (note 4), 113 ff.
7. This is documented on the website <http://www.wayney.pwp.blueyonder.co.uk/games.htm>.
8. Wau Holland, Meinungsfreiheit – das wichtigste Grundrecht: 'The first recursive collection of knowledge was the encyclopaedia of Diderot and d'Alembert' (1998).
9. Jaumann, 'Die Kommunikation findet in den Büchern statt', *op. cit.* (note 3), 175.
10. Umberto Eco, *The Search for the Perfect Language* (Hoboken: Wiley-Blackwell, 1997).

11. Both texts, for example, include a combinatoric systematization of the German lexis in the form of a 'Thought Ring'. This ring has five manoeuvrable concentric circles that combine morphemes to build all words within the German language (in the ideal case, not in actuality).
12. Johann Heinrich Alsted, *Encyclopaedia* (Herborn, 1630 / Stuttgart, 1989).
13. Not taking into account the exception proven by Gödel.
14. <http://www.jodi.org>.
15. For example in 'Multi-User Dungeons' (MUDs) or games centring on textual dialogues, like 'NetHack' (developed in 1980).
16. François Le Lionnais, 'À propos de la littérature expérimentale', in: Raymond Queneau, *Oeuvres complètes* Vol. 1 (Paris: Gallimard, 1989), 345-347.
17. Discussed at length in Zeller, *Spiel und Konversation im Barock*, op. cit. (note 4), 115.
18. I. Von den Künsten . . . II. Von gewisser Begebenheit / Geschichten / Erzehlungen / Fragen und Antworten / etc. . . . III. Von denen Sachen / welche wir für Augen sehen / als da ist von den Blumen / von Wein / Wax / etc; Georg Philipp Harsdörffer, *Frauenzimmer Gesprächspiele* Vol. 1, facsimile reprint by Irmgard Böttcher (Tübingen: Niemeyer, 1969), 460.
19. John Cage, 'Lecture on Nothing' (1950), in: *Silence* (Middletown: Wesleyan University Press, 1961).

V. ARTS

25

With Perhaps the Exception of Rhythm:

1. Alvin Lucier, 'I Am Sitting in a Room' (CD, 1990); all playing time specifications refer to this recording.
2. Literally 'space acts as a filter', in: Alvin Lucier, *Reflexionen / Reflections* (Cologne: Edition MusikTexte, 1995), 96, repeated on 434 and 444.
3. As obvious in the mere number of its live performances and critical reviews.
4. Alvin Lucier, *Reflexionen / Reflections*, op. cit. (note 2), 300; James Tenney writes on p. 16: 'Most of Lucier's scores are verbal, with only occasional use of standard staff notation'.
5. Howard Slater, *The Spoiled Ideals of Lost Situations. Some Notes on Political Conceptual Art, Infopool 2* (2000), 10: 'Although neither [Luc] Ferrari or Lucier were associated with Fluxus there is still a sense of their raising the problem of the musical avant-garde: the focal point for a musical activity is dispersed away from the institution into an outgrowth of reception contexts made invisible to that institution.'
6. Norbert Wiener, *Kybernetik* (Reinbek: Rowohlt, 1968 [1961]), 136-137.
7. Barbara Naumann (ed.), *Die Sehnsucht der Sprache nach der Musik. Texte zur musikalischen Poetik um 1800* (Stuttgart: Metzger, 1994), 49; almost literally quoted from Schelling's *Philosophie der Kunst*, 157.
8. Walter R. Fuchs, *Knaurs Buch der Denkmaschinen* (Munich, Zurich: Knaur, 1968), 317.
9. Gustav Metzger, *Manifeste Schriften Konzepte* (Munich: Verlag Silke Schreiber, 1997), 122.
10. Justin Hoffmann, *Destruktionskunst* (Munich: Verlag Silke Schreiber, 1995), 147-167.
11. Metzger's vision of art works as autonomous, self-controlling systems anticipates later concepts of processual arts but differs from cybernetic aesthetics (like those of Hans Haacke and Jack Burnham) in its emphasis on instability and temporality rather than equilibrium.
12. Gustav Metzger, *Manifest Schriften Konzepte*, op. cit. (note 9), 122.
13. Douglas R. Hofstadter, *Gödel, Escher, Bach* (Stuttgart: Klett-Cotta, 1989 [1979]), 137-169, 728-738.
14. John Barth, *Lost in the Funhouse* (New York, London, Toronto, Sydney, Auckland: Doubleday, 1988 [Anchor Books, 1968]), 117.
15. *ibid.*, 1-2.
16. There have been countless examples of this phenomenon in computer programming ever since the von Neumann computer architecture removed the separation between programming logic and input/output data.
17. Eric Visscher, 'Alvin Lucier, der Phänomenologe', in: *Chambers* (Kiel: Stadtgalerie im Sophienhof, 1996), 23-29; p. 28 and 24 sees in Lucier's Music for Solo Performer as a 'completely different attitude

towards making and listening to music . . . which I would call a phenomenological attitude' ('eine vollkommen anderen Haltung dem Musikmachen und - hören gegenüber . . . , die ich eine phänomenologische Haltung nennen möchte'). In the liner notes to the CD edition of 'I Am Sitting in a Room', Lucier's student Nicolas Collins states that 'Lucier has often been described as a "phenomenological composer", but to do so strips his music of much of its richness'.

18. Alvin Lucier, *Reflexionen / Reflections*, op. cit. (note 2), 12.
19. *ibid.*, 16. He calls the language of Lucier's scores 'Whitmanesque' and compares them to Haikus.
20. *ibid.*, 322.
21. *ibid.*, 100.
22. Translation by Walter A. Aue, see: <http://myweb.dal.ca/waue/>.
23. Alvin Lucier, *Reflexionen / Reflections*, op. cit. (note 2), 322.
24. Walter Benjamin, *Ursprung des deutschen Trauerspiels* (Frankfurt am Main: Suhrkamp, 1973 [1928]), 175.
25. Alvin Lucier, *Reflexionen / Reflections*, op. cit. (note 2), 98.
26. 'Romanticist poetry is still in the making; indeed, it is its true essence that it's internally in the making and never complete' ('Die romantische Dichtart ist noch im Werden; ja, das ist ihr eigentliches Wesen, daß sie ewig nur werden, nie vollendet sein kann'), Friedrich Schlegel, *Athenäums-Fragment 116*.

26

Pataphysical Music Machines

1. Kathleen Freeman, *Ancilla to the Pre-Socratic Philosophers, A Complete Translation of the Fragment in Diels, Fragmente der Vorsokratiker* (Cambridge, MA: Harvard University Press, 1948), 132.
2. Raymond Queneau, *Cent mille milliards de poèmes* (Paris: Gallimard, 1961).
3. 'The Collège de Pataphysique and the Oulipo', in: Warren F. Motte (ed.), *Oulipo, A Primer of Potential Literature* (Champaign, London, Dublin: Dalkey Archive Press, 2007), 50.
4. *Ibid.*
5. Alfred Jarry, 'Gestes et opinions du Docteur Faustroll, pataphysicien', in: *Oeuvres complètes* Vol. 1 (Paris: Gallimard, 1972 [1911]), 669.
6. Athanasius Kircher, *Neue Hall- vnd Thonkunst* (Weinheim: Schaper & Brümmer, 1983 [1684]).
7. Martin Gardner, 'Melody-Making Machines', in: *The Colossal Book of Mathematics* (New York: Norton, 2001), 627 ff.
8. It is also included in the CD and book anthology, *Pataphysics*, produced in 2005 by London's sonic arts network.
9. Marcel Duchamp (ed.), *The Bride Stripped Bare by Her Bachelors Even. A typographic version by Richard Hamilton* (Stuttgart, London, Reykjavik: Edition Hansjörg Meyer, 1960).
10. See Holger Schulze, *Das aleatorische Spiel* (Munich: Fink, 2000), 128 ff.
11. Duchamp, *The Bride Stripped Bare*, op. cit. (note 9).
12. *Ibid.*
13. Petr Kotik and S.E.M. Ensemble, *The Entire Musical Work of Marcel Duchamp*, (CD, not dated [1976]); Mats Persson and Kristine Scholz, *Ives / Duchamp / Cage* (LP, 1982).
14. See Daniel Charles, *Für die Vögel. John Cage* (Berlin: Merve, 1984 [1982]), 177 ff; and, as an anti-thesis, Dieter Mersch, *Ereignis und Aura. Untersuchungen zu einer Ästhetik des Performativen* (Frankfurt am Main: Suhrkamp, 2002), 280 ff.
15. Klaus K. Hübner, 'Und doch bin ich Mensch geworden' and Karlheinz Stockhausen, 'Oder der Komponist als "Gottessohn"', in: Gabriele Förg (ed.), *Unsere Wagner* (Frankfurt am Main: Fischer, 1984), 88.
16. *Ibid.*
17. *Ibid.*, 97.
18. Libraries of the Mind, *ELEX Elektronischer LEXIXONROMAN einer sentimental Reise zum Exporteur-treffen in Druden* (Vienna: Mediendesign Hanten & Hauptfeld OEG, 1998).
19. <http://www.ess.at/bibliogr/lexson-struktgen.html>.
20. See Oliver Marchart, *Neoisimus* (Vienna: Edition Selene, 1997).

21. tENTATIVELY a cONVENIENCE, the portable booded usic busking unit nuclear brain physics school lab philosopher's union member's mouthpiece blatnerphone hallucinomat. In Robin James (ed.), *Cassette Mythos* (Brooklyn: Autonomedia, 1992).
22. Raymond Queneau, *Batôns, chiffres et lettres* (Paris: Gallimard, 1963), 52.
23. <http://www.esslat.com/works/rtc.html>.
24. Quirinus Kuhlmann, *Epistolae duae* (Amsterdam: Lotho de Haes, 1674), 13.
25. Gerald Gillespie, *Garden and Labyrinth of Time* (New York, Bern, Frankfurt am Main, Paris: Peter Lang, 1988), 93.
26. Kuhlmann, *Epistolae*, op. cit. (note 24), 4; compare with Gillespie, *Garden and Labyrinth*, op. cit. (note 25), 94.
27. See the interview <http://www.sukothai.com/X.SA.07/X7.Jones.fr.html>.
28. This is already the case in Pierre Bastien's earlier piece, 'Lipophone' (1982) on his audio CD *les premières machines*.
29. In both senses of Kant's definition: the dynamical as well as the mathematical sublime.
30. This interpretation is not merely hypothetical; Vuc Cosic, who coined the term 'net.art', explicitly refers to Oulipo. See: Vuc Cosic (ed.), *Contemporary ASCII* (Ljubljana: Galerija S.O.U. Kapelica, 2000).
31. Asger Jorn, 'La création ouverte et ses ennemis', *Internationale situationniste*, édition augmentée (Paris: Librairie Arthème Fayard, 1997 [1958-1969]).

27

Social Hacking, Revisited

1. Cornelia Sollfrank, 'Women Hackers – a report from the mission to locate subversive women on the net', in: *Next Cyberfeminist International* (Rotterdam, 1999), <http://www.obn.org/hackers/text1r.htm>.
2. Gorgias, 'Encomium on Helen', <http://capone.mtsu.edu/jcomas/gorgias/helen.htm>.
3. Friedrich Nietzsche, *On Truth and Lie in an Extra-Moral Sense*, compiled from translations by Walter Kaufmann and Daniel Breazeale, <http://www.geocities.com/thenietzschechannel/tls.htm>.
4. This form of 'social engineering' is extensively described as well in 'RFC 2504', the security user manual of Internet standardization organizations, <http://www.faqs.org/rfcs/rfc2504.html>.
5. bernz, 'THE COMPLETE SOCIAL ENGINEERING FAQ!', <http://www.morehouse.org/hin/blckcrwl/hack/soceng.txt>.
6. John Palumbo, 'Social Engineering: What Is It, Why Is So Little Said about It and What Can Be Done?', <http://www.sans.org/rr/social/social.htm>.
7. 'Hacking the Art Operating System, Cornelia Sollfrank interviewed by Florian Cramer', [http://www.artwarez.org/aw/content/rot\(_jflo.html](http://www.artwarez.org/aw/content/rot(_jflo.html).
8. Anon., 'THE COMPLETE SOCIAL ENGINEERING FAQ!', <http://www.morehouse.org/hin/blckcrwl/hack/soceng.txt>.
9. Like they were, in a first and still very incomplete attempt, researched by Stefan Römer in his (German) book *Fake* (Cologne: DuMont, 2001).

28

Post-Digital Writing

1. This lecture was written after having been out of touch with the field of electronic literature as it is represented by the Electronic Literature Organization for half a decade. The author's work has shifted from literary studies to applied design research, and towards modes of electronic publishing where the experiment lies in production and distribution, such as in libre graphics and open source book sprints. Nevertheless, this might help to reframe electronic literature within larger cultural developments in writing and publishing.
2. McKenzie Wark, 'From Hypertext to Codework', *Hypermedia Joyce Studies*, vol 3 (2002) no. 1.
3. Josephine Bosma, *Nettitudes* (Rotterdam: NAI Publishers, 2011).
4. Michel Foucault, *Archeology of Knowledge* (London, New York: Routledge, 2002 [1969]), 26.

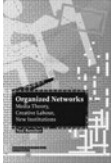
-
5. Franz Kafka, *Amliche Schriften, Kritische Ausgabe* (Frankfurt am Main: S. Fischer Verlag, 2004).
 6. Kenneth Goldsmith, *Uncreative Writing* (New York: Columbia University Press, 2011), 11.
 7. *Ibid.*, 85.
 8. *Ibid.*, 109-110.
 9. Despite contrary claims on page 202 of *ibid.*
 10. Goldsmith, *Uncreative Writing*, op. cit. (note 6).
 11. Kim Cascone, 'The Aesthetics of Failure: Post-Digital Tendencies in Contemporary Computer Music', *Computer Music Journal*, 24:4 (2000), 12-18; Alessandro Ludovico, publisher of *Neural* magazine, explores this issue for the area of publishing in his book *Post-Digital Print* (Eindhoven: Onomatopee, 2012).
 12. Nicholas Negroponte, 'Beyond Digital', <http://www.wired.com/wired/archive/6.12/negroponte.html>.

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Eric Kluitenberg is a Dutch media theorist, writer and organizer. Since the late 1980s, he has been involved in numerous international projects in the fields of electronic art, media culture and information politics. Kluitenberg heads the media programme of De Balie, Centre for Culture and Politics in Amsterdam. He is the editor of the *Book of Imaginary Media* (NAi Publishers, 2006) and the theme issue 'Hybrid Space' of *OPEN*, journal on art and the public domain (2007).

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Matteo Pasquinelli is an Amsterdam-based writer and researcher at the Queen Mary University of London and has an activist background in Italy. He edited the collection *Media Activism: Strategies and Practices of Independent Communication* (2002) and co-edited *C'lick Me: A Netporn Studies Reader* (2007). Since 2000, he has been editor of the mailing list Rekombinant (www.rekombinant.org).

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aesthetics. Drawing from aesthetic philosophy, new media and art theory, *Web Aesthetics* opens the field of new media studies to consider the profound cultural and social impact of the global diffusion of Web-related forms. As Campanelli argues, when the Web is located inside sociocultural practices, processes and expressions, it becomes a powerful agent in the aestheticization of life on a global scale. Vito Campanelli is a new media theorist and lectures on the theory and technology of mass communication at the University of Naples – L'Orientale. His essays on media art are regularly published in international periodicals such as *Neural*. He is a freelance curator of events in the domain of digital culture. He was also co-founder of the Naples non-profit organization MAO – Media & Arts Office.

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276 pages

Josephine Bosma
Nettitudes
Let's Talk Net Art



During the 1990s, net art burst onto the scene as a radical reflection on the role of technology in contemporary art. In *Nettitudes*, Dutch art critic Josephine Bosma catalogues the tumultuous history of art as it became situated in the material dimensions of the Internet, from the spectacular interventions of the first decade to today's dispersed practices, including online acoustics, poetry and archiving. Never the darling of the media art institutions and ignored by many curators and critics since its emergence, net art still persists as a 'non-movement', residing in the cracks of contemporary media culture. *Nettitudes* provides an analytical foundation and

an insider's view on net art's many expressions as it grapples with the aesthetic, conceptual and social issues of our times.

Josephine Bosma is an Amsterdam-based journalist and critic who has commented on the fields of art and new media since 1993. One of the first to probe into and engage with the domain of net art, her pioneering work is published internationally in books, periodicals and catalogues.

ISBN 978-90-5662-800-0

272 pages

