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“No Preexistent World”

On “Natural” and “Artificial” Forms of Poetry

1 Natural Forms of Poetry

In his *Theorie der Texte* [*Theory of Texts*] (1962) Max Bense presented his thoughts on the differences between “natural” and “artificial” poetry for discussion:

Unter der natürlichen Poesie wird hier die Art von Poesie verstanden, die . . . ein personales poetisches Bewußtsein . . . zur Voraussetzung hat; ein Bewußtsein, das Erlebnisse, Erfahrungen, Gefühle, Erinnerungen, Gedanken, Vorstellungen einer Einbildungskraft etc., kurz, eine präexistente Welt besitzt und ihr sprachlichen Ausdruck zu verleihen vermag. . . . Unter der künstlichen Poesie hingegen wird hier eine Art von Poesie verstanden, in der es, sofern sie z. B. maschinell hervorgebracht wurde, kein personales poetisches Bewußtsein mit seinen Erfahrungen, Erlebnissen, Gefühlen, Erinnerungen, Gedanken, Vorstellungen einer Einbildungskraft etc., also keine präexistente Welt gibt, und in der das Schreiben keine ontologische Fortsetzung mehr ist, durch die der Weltaspekt der Worte auf ein Ich bezogen werden könnte. Infolgedessen ist auch aus der sprachlichen Fixierung dieser Poesie weder ein lyrisches Ich noch eine fiktive epische Welt sinnvoll abhebbar. Während also für die natürliche Poesie ein intentionaler Anfang des Wortprozesses charakteristisch ist, kann es für die künstliche Poesie nur einen materialen Ursprung geben. (“Über natürliche und künstliche Poesie” 143)

By natural poetry, a sort of poetry is understood that . . . requires a personal poetical consciousness; it requires a consciousness that possesses encounters, experiences, feelings, memories, thoughts, imaginations, etc.; in short, a preexistent world and the ability to express it. . . . Contrary to this, artificial poetry is a sort of poetry which does not possess—if it has been created for example by a machine—any personal poetical consciousness with encounters, experiences, feelings, memories, thoughts, imaginations, etc., in other words, where no preexistent world exists and in which writing is no longer an ontological continuation by which the world-aspect of the words could be

related to a subject. Thus, neither a lyrical I nor a fictitious epic world can be meaningfully set apart from the linguistic specification of this poetry. Therefore, while for natural poetry an intentional beginning of the process of words is characteristic, only a material origin can exist for artificial poetry.

Without being able to refer to the differences between natural and artificial poetry already here—this idea is not one of the inventions provoked by Bense’s and his collaborators’ experiments with computer-generated stochastic texts of the 1960s. Rather, it is affiliated to a known—not to mention eternal—aesthetic argument, even though under new conditions. In the process, Bense’s definitions, through their very abstract juxtaposition, quite substantially establish an identification of the poetic or the literary as they had been formulated in tradition. The difference between the natural and the artificial not only constitutes a *Leitdifferenz* (‘operative distinction’) in occidental philosophy from the Enlightenment to the current debates on genetic surgery and artificial intelligence—also in literature it establishes the connection from the Enlightenment to today’s electronic literature. Already introduced mainly through the critical writings of Johann Christoph Gottsched (*Versuch einer kritischen Dichtkunst vor die Deutschen* [Essay on a German Critical Poetic Theory], 1730) and Gotthold Ephraim Lessing (*Briefwechsel über das Trauerspiel* [Correspondence about Tragedy], 1756/57); *Hamburgische Dramaturgie* [Hamburg Dramaturgy], 1767) in the 18th century, the Aristotelian principle of the imitation of nature, i.e., “of action, life, happiness and unhappiness” (Aristotle 472) is brought to bear against the lifeless “dolls” of the feudal class-conscious theater with the criticism of the mechanistic *Regelpoetik* (‘prescriptive poetics’) of the Baroque and the demand for everyday, live people on stage. *Empfindsamkeit* (‘sentimentalism’) and *Sturm und Drang* (‘storm and stress’) radicalize this criticism, turning against the Enlightenment itself, against the rational, cold 18th century, the age of the machine. Taking up Jean-Jacques Rousseau’s programmatic writings, especially the *Discours sur l’origine et les fondements de l’inégalité parmi les hommes* [Discourse on the Origin and Basis of Inequality Among Men] (1755) and the educational novel *Émile* (1762), nature itself is supposed to make nature talk (again). In Goethe’s epistolary novel *Die Leiden des jungen Werther* [The Sorrows of Young Werther] (1774), in which Werther in many letters gives an account of his unhappy love for Lotte, who is engaged to someone else, “donnerte [es] abseitswärts, und der herrliche Regen säuselte auf das Land, und der erquickendste Wohlgeruch stieg in aller Fülle einer warmen Luft zu uns auf” (‘it was still thundering at a distance: the blessed rain was falling on the land, and a most refreshing scent rose up to us with a rush of warm air’) (*Die Leiden des jungen Werther* 27 [The Sorrows of Young Werther 41f.]).

Here, however, nature appears profoundly reflected. The two lovers stand at the window and the rising scent does not melt them together into one heart. Rather, this “nature” also only quotes literature, quotes famous poetic phrases through which it is perceived:

. . . sie sah gen Himmel und auf mich, ich sah ihr Auge tränenvoll, sie legte ihre Hand auf die meinige und sagte: “Klopstock!”—Ich erinnerte mich sogleich der herrlichen Ode, die ihr in Gedanken lag, und versank in dem Strome von Empfindungen, den sie in dieser Losung über mich ausgoß. (*Die Leiden des jungen Werther* 27)

. . . she looked up at the sky, at me, and I could see tears in her eyes. She laid her hand on mine and said, “Klopstock.” I knew at once about what she was thinking—his magnificent ode—and was lost in the emotions that this one word aroused in me. (*The Sorrows of Young Werther* 42)

Thus, it is not the direct perception of the “soft rain” that opens up their own senses, moves their stiff bodies or releases the flood of tears and feelings. These emotions are only activated or even only made possible by naming the “magnificent ode.” Only poetry can soften a person in such a way, can free him or her from the conventionalized social bonds and guide back to external and especially one’s own internal nature.

On a first glance it then seems to be poetry in the more narrow sense of the English usage, namely “lyrical poetry,” that most subjective of the three main genres, the one activating the emotions most directly. But on the one hand, it is quoted here in a prose text, and quite distanced at that: the pure name of the poet Friedrich Gottlieb Klopstock, the most important representative of the sentimental poetry of the 18th century, has to be sufficient for stirring the flood of emotions. *Werther*—with its complex nesting of letters and narrative commentaries of the fictitious editor—had already as a whole transcended the rules of the novel, or even better, had finally helped to establish the novel as a “wild” genre that does not abide by any rules. And indeed, “poetry” does not refer to the individual genre here; rather, the term refers to *belles lettres* in general, to the specific literary or aesthetic perception and experience as a whole. But, this perception as a “natural” one is opposed by all other “artificial,” i.e., conventionally regulated forms as they rule the rest of the everyday world. Reflected in the three genres are only different forms of a poetry that as such is supposed to be natural, having quasi emerged with mankind itself. Thus, in any case, here is Goethe’s own definition that will appear from now on in every subsequent discussion of genres: “Es gibt nur drei echte Naturformen der Poesie: die klar erzählende, die enthusiastisch aufgeregte und die

persönlich handelnde: Epos, Lyrik und Drama” (“Noten und Abhandlungen” 187) (“There are only three natural forms of poetry: The clearly telling, the enthusiastically excited, and the personally acting: Epic, Lyric, and Drama”; qtd. in Kennedy et al. 125).

Only as poetic ones are the three “true natural forms”; poetry and nature here correspond to each other, intensifying each other: Nature furnishes the examples for poetry, but only poetry makes nature talk, like the sound of the flute by the child in Goethe’s *Novelle* or the song of Mignon in his educational novel *Wilhelm Meisters Lehrjahre* [*Wilhelm Meister’s Apprenticeship*].¹ In this way, at any rate, Romanticism reads his texts, reads them already as transcending the “artificial” divisions pervading human conditions, divisions of the classes and degrees, of the institutions and activities, of nature and culture. The genre discussion, the questioning of the traditional literary genres, the transgression of traditional rules—the unities and time in drama, the constraints of verse in poetry, the mix of all forms in the novel—quasi exemplarily signifies the transcendence of the division between art and life as a whole, as Romanticism and following it all other avant-gardes had programmatically demanded. In his enthusiastic review of *Wilhelm Meister*, the Romantic Friedrich Schlegel had already sketched this program of a natural poetry of life:

Aber nicht bloß auf die Darstellungen des Schauspielers und was dem ähnlich ist, beschränkt sich diese Naturgeschichte des Schönen; in Mignons und des Alten romantischen Gesängen offenbart sich die Poesie auch als die natürliche Sprache und Musik schöner Seelen. Bei dieser Absicht mußte die Schauspielerwelt die Umgebung und der Grund des Ganzen werden, weil eben diese Kunst nicht bloß die vielseitigste, sondern auch die geselligste aller Künste ist, und weil sich hier vorzüglich Poesie und Leben, Zeitalter und Welt berühren, während die einsame Werkstatt des bildenden Künstlers weniger Stoff darbietet, und die Dichter nur in ihrem Innern als Dichter leben, und keinen abgesonderten Künstlerstand mehr bilden. (“Über Goethes Meister” (132)²

But this natural history of the fine arts is not restricted only to the actors’ skills and related arts. The romantic songs of Mignon and the Harper also reveal poetry as the natural language and natural music of beautiful souls. With this intention, the actor’s world was bound to become both the setting and the foundation of the whole work, because his art is not only the most versatile, but also the most sociable of all the arts, and because it makes the perfect meeting-place for poetry and life, for the world and the times; whereas the solitary studio of the painter or sculptor does not offer so much material, and

poets only live as poets within themselves, no longer forming a separate social guild of artists. (Qtd. in Bernstein 274)

Later, in the famous “116th *Athenaeum* Fragment,” Schlegel has more extensively formulated the widening of the genre-limits into a universal poetry, has declared art into a progressive, never-ending movement:

Die romantische Poesie ist eine progressive Universalpoesie. Ihre Bestimmung ist nicht bloß, alle getrennte Gattungen der Poesie wieder zu vereinigen, und die Poesie mit der Philosophie und Rhetorik in Berührung zu setzen. Sie will, und soll auch Poesie und Prosa, Genialität und Kritik, Kunstpoesie und Naturpoesie bald mischen, bald verschmelzen, die Poesie lebendig und gesellig, und das Leben und die Gesellschaft poetisch machen . . . Sie umfaßt alles, was nur poetisch ist, vom größten wieder mehre Systeme in sich enthaltenden Systeme der Kunst, bis zu dem Seufzer, dem Kuß, den das dichtende Kind aushaucht in kunstlosen Gesang. . . . Die romantische Dichtart ist noch im Werden; ja das ist ihr eigentliches Wesen, daß sie ewig nur werden, nie vollendet sein kann. (182f.)

Romantic poetry is a progressive, universal poetry. Its aim isn't merely to reunite all the separate species of poetry and put poetry in touch with philosophy and rhetoric. It tries to and should mix and fuse poetry and prose, inspiration and criticism, the poetry of art and the poetry of nature; and make poetry lively and sociable, and life and society poetical; . . . It [romantic poetry] embraces everything that is purely poetic, from the greatest systems of art, containing within themselves still further systems, to the sigh, the kiss that the poetizing child breathes forth in artless song. . . . The romantic kind of poetry is still in the state of becoming; that, in fact, is its real essence: that it should forever be becoming and never be perfected. (Qtd. in Bernstein 249)

2 The Reconversion of Culture into Nature

Such an ambitious, even presumptuous program was taken up by the subsequent avant-gardes and was further expanded. The *Leitdifferenz* (“operative distinction”) of the natural versus the artificial constitutes the basis and orientational horizon of these movements. Not only do they gain their motivation and energy for their aesthetic activities from this distinction; it can also concretely be found in the artistic forms and methods used or, to be more exact, in those methods that were regarded as “natural,” copied from life itself, and

which were confronted with the “artificial” ones, deadened through their constant repetition. This thought can be found in the early Romantic Novalis,³ who saw in it an activity of the soul (“Gemüt”): natural, associating the things themselves in a “peculiar,” magical-magnetic way:

In unserm Gemüt ist alles auf die eigenste, gefälligste und lebendigste Weise verknüpft. Die fremdesten Dinge kommen durch einen Ort, eine Zeit, eine seltsame Ähnlichkeit, einen Irrtum, irgendeinen Zufall zusammen. So entstehn wunderliche Einheiten und eigentümliche Verknüpfungen—und eins erinnert an alles—wird das Zeichen vieler und wird selbst von vielen bezeichnet und herbeigerufen. Verstand und Phantasie werden durch Zeit und Raum auf das sonderbarste vereinigt, und man kann sagen, daß jeder Gedanke, jede Erscheinung unsers Gemüts das individuellste Glied eines durchaus eigentümlichen Ganzen ist. (650f.)

In our [soul], everything is connected in the most peculiar, pleasant, and lively manner. The strangest things come together by virtue of one space, one time, an odd similarity, an error, some accident. In this manner, curious unities and peculiar connections originate—one thing reminds us of everything, becomes the sign of many things, and is itself signified by and referred to many things. Reason and imagination are united through time and space in the most extraordinary manner, and we can say that each thought, each phenomenon of our [soul] is the most individual part of an altogether individual totality.

Precisely these methods which transform the “nature-magical,” mesmeristic beliefs of the 18th century with their understanding of the “animal magnetism” (cf. Schott) of things poetically were what the subsequent avant-gardes attempted to expand. The methods of Surrealism have even been described as nothing short of encompassing “conversion of culture back into nature” (cf. Steinwachs):

- “finding” any objects anywhere, the *objet trouvé*, like the ladies’ glove in André Breton’s *Nadja* (1928) that initiates and organizes the search for the woman to whom it belongs and therefore the whole narrative;
- the methods of collage, grattage, montage, etc., for example as practiced by Max Ernst in his graphics with his frottages of accidentally found, natural wood grain to be completed in the mind of the viewer which he subsequently expanded in *La femme 100 têtes* (1929) into complete collage-novels;

- the “cooperation” of natural forces in assembling poetical texts, for example when Jean Arp utilized gravitation and the movement of air for recombining ripped apart and re-glued poems, viewing them as if they were created by nature.⁴

This enumeration could continue. Even before Surrealism, Dadaism declared chance its decisive source of inspiration; Futurism aggressively demanded the destruction of museums and of the traditional art system—freedom for words, *parole in libertà*. Such a (re-)discovery of natural forces for aesthetic processes did not mean a new glorification of nature now, singing the praise of the woods or the moon—on the contrary: Filippo Tommaso Marinetti’s praise of the automobile instead of the statue of the “Victory of Samothrace” (Marinetti 13) has become proverbial, replacing the statue with technical energies like speed and war as liberators of creative forces. “Let’s Kill Off the Moonlight” is the heading of the *Second Futurist Proclamation* (22); the “Technical Manifesto of Futurist Literature” demanded an analogous literature (107-119). Against the dead museum-culture, natural processes are claimed, processes that inexhaustibly recreate themselves. Art in this context then means deployment of nature for aesthetics; it sees itself as a continuation of nature with its own means, quite within the antique meaning of *aisthetike technē*, art as a specific technique of perception. Thus, André Breton’s definition of Surrealism in 1924 with its plea for “neglected forms of association” almost reads like a translation of Novalis’ idea of the activity of the soul with its “odd similarity” into magical-technical categories:

SURRÉALISME, n. m. Automatismes psychique pur par lequel on se propose d’exprimer, soit verbalement, soit par écrit, soit de toute autre manière, le fonctionnement réel de la pensée. Dictée de la pensée, en l’absence de tout contrôle exercé par la raison, en dehors de toute préoccupation esthétique ou morale.

ENCYCL. *Philos.* Le surréalisme repose sur la croyance à la réalité supérieure de certaines formes d’associations négligées jusqu’à lui, à la toute-puissance du rêve, au jeu désintéressé de la pensée. Il tend à ruiner définitivement tous les autres mécanismes psychiques et à se substituer à eux dans la résolution des principaux problèmes de la vie. (*Œuvres complètes* 328)

SURREALISM, *n.* Psychic automatism in its pure state, by which one proposes to express—verbally, by means of the written word, or in any other manner—the actual functioning of thought. Dictated by the thought, in the absence of any control exercised by reason, exempt from any aesthetic or moral concern.

ENCYCLOPEDIA. *Philosophy.* Surrealism is based on the belief in the

superior reality of certain forms of previously neglected associations, in the omnipotence of dream, in the disinterested play of thought. It tends to ruin once and for all all other psychic mechanisms and to substitute itself for them in solving all the principal problems of life. (*Manifestoes of Surrealism* 26)

3 “For the rain it raineth every day”: *Text Rain and Talking Heads*

It is only a small step from the “psychic automatism” to the pure “material origin” of Bense’s artificial poetry; it needs the translation or transfer of internal mental to external mechanical, of “half-automatic” to “full automatic” processes. Bense as well differentiates natural poetry as an “intentional” activity that is based on a “personal poetic perception” from one that is “produced by a machine” and therefore operates without all these preconditions:

Jedenfalls ist künstliche Poesie als reine, absolute Poesie möglich, sofern in ihr keine präfixierten Bedeutungen, die hervorrufenden Charakter haben, vorausgesetzt werden können; sie hat gewissermaßen, wie die Zahlen, *nur eine existenzsetzende, keine essentielle Kraft*, sie realisiert die Worte und ihre Konnexionen als linguistische Materialien, nicht als sprachliche Bedeutungsträger. Damit ist aber völlig klar, daß die künstliche Poesie im Prinzip infolge ihrer nichtkommunikativen Bestandteile pure Realisationspoesie ist. (“Über natürliche und künstliche Poesie” 146)

In any case, artificial poetry is possible as pure, absolute poetry provided that no prefixed meanings of a provoked character have to be presumed; it quasi—like numbers—*only activates existence, it has no essential force*, it realizes words and its connections as linguistic material, not as linguistic morpheme. This means that artificial poetry, because of its non-communicative components, in principle is pure poetry of realization.

As “pure” poetry it is supposed to be freed from the “arbitrary” interpretations of the recipients; it is supposed to finally detach its aesthetic processes from the ballast of metaphysical, hermeneutical, and/or ideological traditions. Where the classical avant-garde wanted to make pure and unconscious human nature speak, the first digital avant-garde searched for ways to help the nature of the machine articulate itself in order to finally make art freely “dissectible”:

. . . was auch immer in der künstlichen Poesie eine episch fiktive oder lyrisch reale Welt andeuten mag, beide bleiben unwillkürlich. Durch den Modus der Unwillkürlichkeit unterscheidet sich die aus der künstlichen Poesie präparierbare Welt von der aus der natürlichen Poesie präparierbaren. (Bense, “Über natürliche und künstliche Poesie” 147)

. . . whatever may indicate an epic fictitious or lyrical real world in artificial poetry, both remain involuntary. Through the mode of involuntariness the world to be dissected from artificial poetry differs from that to be dissected from natural poetry.

Now it is no longer the chance of found objects, the power of gravitation, or the automatically associating neurons that represent nature and that activate poetic activity; they are superseded by statistical procedures, Markov algorithms, and pure mathematics:

Die analytische Beschreibung von Texten mit mathematischen Mitteln statistischer und topologischer Art legte von Anfang an den Gedanken nahe, die exakten Verfahren der Zerlegung in technische Verfahren eines synthetischen Aufbaus der Texte umzukehren. Verstärkt wurde der Gedanke, als es möglich wurde, datenverarbeitende Rechenanlagen mit ihrer Fähigkeit zur programmierbaren Speicherung, Selektierung, Sortierung, Repetierung und Verknüpfung von eingegebenen Daten heranzuziehen. . . . Damit drang die Idee einer *künstlichen* Poesie in die experimentelle Literatur der Avantgarde ein, die zugleich als *synthetische* oder sogar als *technologische* Poesie definiert werden konnte. (*Einführung in die informationstheoretische Ästhetik* 109)⁵

The analytical description of texts via mathematical means of a statistical or topological kind from the beginning suggested reversing the procedures of separation into the technical procedures of synthetically structuring the texts. The idea became more obvious when it became possible to use information-processing computers with their ability to program saving, selection, classification, repetition and connection of entered data. . . . With this, the idea of an *artificial* poetry entered the experimental literature of the avant-garde, which now could be defined as *synthetic* or even *technologic* poetry.

This synthetic “or even” technologic poetry keeps at its core—especially through information processing—what Romanticism had so much admired in nature or in Goethe as its true mirror, and what the avant-gardes at the beginning of the 20th century had wanted to restore to art: a productivity that was self-contained, uncontrolled by any external intention or conscious aim: “Wir

können solche Programme materiale Programme nennen, sofern ihre 'Themen' ganz und gar der Eigenwelt des Materials, also dem aus Worten als Elementen bestehenden Textraum, angehören" ("We can call such programs material programs if their 'subjects' belong entirely to the world of the material, i.e., belong to the textual space consisting of words as elements") (Bense, "Über natürliche und künstliche Poesie" 145). Only thus do they unfold a wonderful autopoiesis in which no volitional but only true surprises are possible, only thus is "künstliche Poesie als reine, absolute Poesie möglich, sofern in ihr keine präfixierten Bedeutungen, die hervorrufenden Charakter haben, vorausgesetzt werden können. . . . Künstliche Poesie kann durchaus die Züge der natürlichen annehmen" ("artificial poetry possible as pure, absolute poetry provided that no prefixed meanings of a provoked character have to be presumed. . . . Artificial poetry decidedly can take on the characteristics of natural poetry") (146f).

Also here, like in the development of a "natural language" in Romanticism and like in the attempt of Surrealism "to create like the plant creates its fruit," the attempt to transcend traditional cultural conventions and abstract divisions of art and society initially dissolves the known genres and the expectations we have in them in order to, in the next step, quite literally "go beyond" certain limits. Quite in terms of Schlegel's "universal poetry" and after the classical avant-garde had already left the libraries, museums, and galleries and had entered the streets with the slogan "freedom for words," digital avant-garde now detaches the letters from the book in a different way, enters Bense's "textual space" and connects human and machine thought and action in such a way that they cannot be cleanly dissected any longer. Bense knows only too well that the computers used by his group do not generate the "absolute" poetry aimed at, that they in no way write their programs themselves, and that it is always a matter of impure mixtures of "menschliches oder maschinelles Schreiben (Selektieren)" ("human or machine writing (selecting)") (145): "Selbstverständlich gelten die angeführten Differenzen in erster Linie nur idealtypisch. Wirklich existent sind jedoch wahrscheinlich nur die Annäherungen" ("Of course, the differences mentioned above in the first place are valid only ideal-typically. Probably only the approximations are really existent") (144).

It is just this path of such approximations that the "artificial," now computer-aided poetry of the following decades takes, thereby consistently continuing the impulse of the aesthetic tradition outlined above or, rather, realizing it first of all "materially"—"pure poetry of realization" as it is called by Bense in contrast to art of interpretation: The goal is not simply dissolving the separation of the genres and of the arts alone; rather, it is aimed at deleting the

difference between art and nature, transferring art into everyday life and thereby transforming it aesthetically so that it finally can become "universal poetry."

I have already quoted that the "blessed rain" of an ode can release a huge "flood of sensations," thus melting human with natural movements. And that literature at all possesses such releasing, moving forces can be found in much earlier, very early times. Rabelais had already formulated this around 1530, even though not with the meaning of "to give words [is] the part of a lover," but on the contrary:

Lors nous jecta sus le tillac plenes mains de parolles gelées, et sembloient dragée perlée de diverses couleurs. Nous y veismes des motz de gueule, des motz de sinople, des motz de azur, des motz de sable, des motz d'orez. Les quelz estre quelque peu eschauffez entre nos mains fondoient, comme neiges, et les oyons realement. Mais ne les entendions. Car c'estoit language Barbare. Exceptez un assez grosset, lequel ayant frere Jan eschauffé entre ses mains feist un son tel que font les chastaignes jectées en la braze sans estre entonmées lors que s'esclattent, et nous feist tous de paour tressaillir. "C'estoit (dist frere Jan) un coup de faulcon en son temps." Panurge requist Pantagruel luy en donner encores. Pantagruel luy respondit que donner parolles estoit acte des amoureux. . . . Et y veids des parolles bien picquantes, des parolles sanglantes, les quelles le pillot nous disoit quelques foys retourner on lieu duquel estoient proferées, mais c'estoit la guorge couppée, des parolles horrificques, et aultres assez mal plaisantes à veoir. (*Œuvres complètes* 670)

He then threw us on the deck whole handfuls of frozen words, which seemed to us like your rough sugar-plums, of many colours, . . . some vert, some azure, some black, some or (this means also fair words); and when we had somewhat warmed them between our hands, they melted like snow, and we really heard them, but could not understand them, for it was a barbarous gibberish. One of them only, that was pretty big, having been warmed between Friar John's hands, gave a sound much like that of chestnuts when they are thrown into the fire without being first cut, which made us all start. This was the report of a field-piece in its time, cried Friar John.

Panurge prayed Pantagruel to give him some more; but Pantagruel told him that to give words was the part of a lover. . . . However, he threw three or four handfuls of them on the deck; among which I perceived some very sharp words, and some bloody words, which the pilot said used sometimes to go back and recoil to the place whence they came, but it was with a slit weasand. (*Gargantua and Pantagruel* 629f.)

Falling, dissolving words that in their falling release their own affective nature constitute not only one—apart from many other—recurring literary motifs. In this motif the effort of the literary in contrast to the social or cultural semiosis described above is concentrated on creating signs “like the plants” of nature; it is a completely paradoxical effort, namely, to escape, to break free of the sign as a mere empty shell transferring meaning—or rather to once and for all “drop out,” becoming *real*.

When Bense opposes the “ästhetische Informationsbeiträge” (‘aesthetic information-values’) (“Über natürliche und künstliche Poesie” 146) of artificial poetry that in the ideal case are not “semantische Träger im üblichen Sinne (Aussagen, Vorstellungen etc.)” (‘providers of semantics in the habitual sense (statements, conceptions, etc.)’) (146) with the traditional one that only represents an in principle transposing entity that translates “Seiendes in Zeichen” (‘being into signs’) (143), then he formulates exactly this claim to generate a world of its own and not only to continue a preexistent one. If in the later systems-theoretical and constructivist concepts the so-called “autopoiesis” is framed as the central model that Niklas Luhmann has developed from the neurobiological theories of Humberto Maturana and Francisco J. Varela, then this “animated” poetry already realizes just such an immanent aesthetics that literature repeatedly and innovatively keeps evoking. The falling and dissolving “absolute poetry” then figures as an “absolute metaphor” in the sense of Hans Blumenberg’s metaphorology, i.e., an image that cannot be dissolved further, that is ineluctable (cf. *Paradigmen zu einer Metaphorologie*).

At the end of the 19th century, Naturalism for example formulates the wish “to closely nestle against” nature programmatically. It is animated to this by the new media phonography and photography which can directly record nature’s phenomena. Heinrich Hart calls this narrative mode that was first developed by the Naturalists a *Sekundenstil*, “second-by-second style,” in which people’s movements or the phenomena of nature were to be described second by second. He expresses it exemplarily with the image of depicting a falling leaf:

Die alte Kunst hat von dem fallenden Blatt weiter nichts zu melden gewußt, als daß es im Wirbel sich drehend zu Boden sinkt. Die neue Kunst schildert diesen Vorgang von Sekunde zu Sekunde; sie schildert, wie das Blatt, jetzt auf dieser Seite vom Licht beglänzt, rötlich aufleuchtet, auf der andern schattengrau erscheint, in der nächsten Sekunde ist die Sache umgekehrt, sie schildert, wie das Blatt erst senkrecht fällt, dann zur Seite getrieben wird. . . . Eine Kette von einzelnen, ausgeführten, minutiösen Zustandsschilderungen, geschildert in einer Prosasprache, die unter Verzicht auf jede rhythmische oder stilistische Wirkung der Wirklichkeit sich fest anzuschmiegen

sucht, in treuer Wiedergabe jeden Lauts, jeden Hauchs, jeder Pause—das war es, worauf die neue Technik abzielte. (68f.)

The old kind of art could only say of the falling leaf that it sinks to the ground in a spiraling motion. The new art describes the process second by second; it describes how the leaf, illuminated on one side, appears red, on the other a shadowy grey, and how, a second later, this is reversed; it describes how the leaf first falls vertically, then is blown to one side. . . . A chain of individually executed, minute descriptions of situations, outlined in a prose language that seeks to cling steadfastly to reality by renunciation of every rhythmic or stylistic effect, in true reproduction of every noise, every breath, every pause—that was what the new technique aimed for. (Qtd. in Lodato 110)

Still to be found on the pages of the book, but with the same intention of abandoning the limits of two-dimensionality, Stéphane Mallarmé allows the words to “fall” from the upper left to the lower right of the page and already in the title “A throw of the dice will never abolish chance” (“Un coup de dés jamais n’abolira le hasard”) he announces the trust in the perfect naturalness of chance that above was attributed to the classical avant-garde.⁶

That literature has to leave the flatlands of books in order to return to nature as its original realm, back into the book of nature (e.g., in Timm Ulrichs’ *Buchschlager Buchstaben-Buche*, fig. 1) or to first of all represent it as such, thus making it into an experience, to let poetry become real, “naturalistic,” “visual,” “concrete,” “realization poetry” (or whatever the respective poetic movements may have called themselves),⁷ this development becomes surprisingly possible through the use of the recent and latest technical media and is now also being “realized” by respective projects. Mobilizing letters in three-dimensional space now becomes possible for example by software becoming more “autonomous.” The “half-automatic” processes of subconsciousness that were used by the Surrealists are abstracted from the human cognitive systems here and transferred into comparative feedback processes. This kind of “autonomization” of communication is very far advanced in the projects of the AI-scholars working with Luc Steels. In the *Talking Heads* project, for example, programmed agents get into simulated situations that force them into the development of a “dialogue” with a rudimentary syntax and grammar the “semantics” of which we as observers can decode:



Fig. 1. Timm Ulrichs: *Buchschlager Buchstaben-Buche*. Text Performance using letter cookies at Frankfurt Book Fair, 1973/19 Sept. 1976. Photograph by Burkhard Heiß. Courtesy of Timm Ulrichs.

Die Agenten spielen ein Sprachspiel, das wir Ratespiel nennen. Dabei übernimmt ein Agent den Part des Sprechers, ein anderer den des Zuhörers. Die Agenten wechseln sich in diesem Rollenspiel ab, so dass am Ende jeder beide Fähigkeiten entwickelt hat. Das Spiel kann so erweitert werden, dass ein menschlicher Mitspieler eine der beiden Rollen übernimmt und an die Stelle des Künstlichen Agenten tritt. (Steels 181)⁸

The agents play a language game that we call guessing game. An agent takes over the part of the speaker, another, the one of the listener. The agents take turns in this role-playing game (RPG) so that in the end all of them have developed both skills. The game can be expanded so that a human gamer can take over one of the two roles thereby taking over the place of the artificial agent.

The literary installations developed with the current electronic digitalized media can indeed also be called experiments in the sense of such language games. Initially and despite its increasing flexibility the activating of word- and text-processors for poetic aims was limited to a two-dimensional level. From the famous *Apfel* by Reinhard Döhl in which on the screen the word *Wurm* (worm) began to eat its way through the image composed of the words "Apfel" ('apple') to the so-called Code Poetry, the claim of a true literature was finally renewed; namely, a literature that realized the technical possibilities of the respective current software poetically or aesthetically as well (cf. Cramer).

However, all this is still moving within the two-dimensionality of the monitor. Quite in the sense of the Romantic intention of "universal poetry," the latest projects leave it, moving into the synaesthetic realm between computer-aided but three dimensional projection "screens" and the human bodies moving there interacting with the moving letters, words, and texts.

Again the falling, dissolving words appear, like in Rabelais, Goethe, the Naturalists, Mallarmé, or in e.e. cummings' poem "1(a... (a leaf falls on loneliness)" (672) but now they are not only metaphors for "absolute" poetry; rather, they "realize" this metaphor materially, they verbally create a language-light-game in which the movements of the hands, arms, and the whole body interact with the programmed movements of the letters in a quite unexpected way (cf. Cayley).

In this process, the completed text of the poem on which the installation is based does not simply disintegrate now into its pre-semantic elements (as did its intertextual and intermedial predecessors), and into non-sense (as the early computer-generated poetry mostly did). Here, the interplay of programmed algorithms with the body indeed allows for initial sense-making combinations of texts; here all of a sudden an alert language-player "catching"

the falling letters with his or her arm or the skillful dancer “cuddling” with the projections can grab a hold of his or her own elementary poem, melting body with technology, book of nature with the code of the machine.

4 Light Shows

Camille Utterback’s web site already expressly stresses such a “magical” playful relationship of the body with something that does not really exist: “*Text Rain* is an interactive installation in which participants use the familiar instrument of their bodies, to do what seems magical—to lift and play with falling letters that do not really exist.”

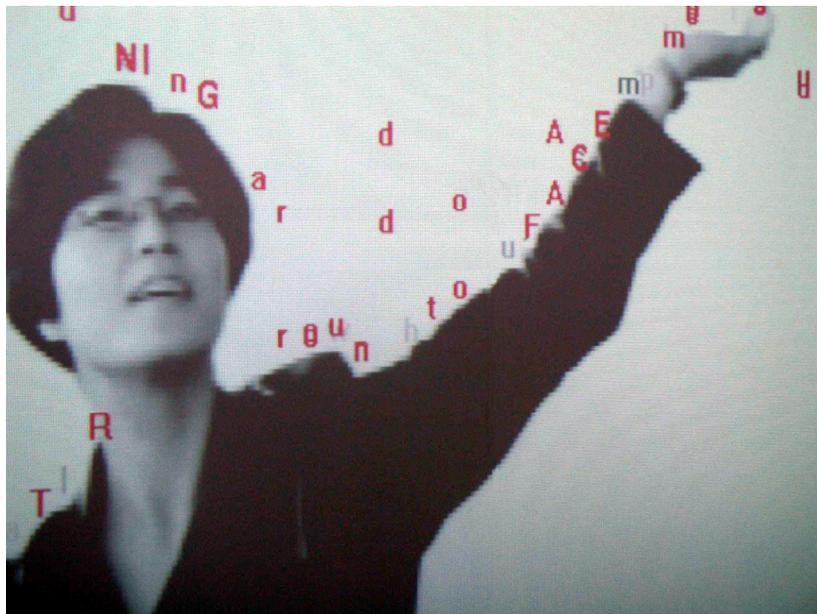


Fig. 2. *Text Rain* (1999) by Camille Utterback and Romy Achituv. Interactive installation. Image courtesy of the artists.

The installation does not simply leave all control to the user, since arbitrary movements would only create meaningless falling letters as well. Only directed choices can generate whole words or even phrases: “If a participant accumulates enough letters along their outstretched arms, or along the silhouette of any dark object, they can sometimes catch an entire word, or even a phrase” (Utterback).

It is precisely these movements that now eliminate chance—in contrast to the act of reading that still imaginatively took place in Mallarmé’s text between the printed sheet and the brain of the reader. But now, in the linkage between the physical and the neuronal event, the entire technology, the completed program, and the physical and mental involvement are supposed to merge into a single, “magical” experience: “The falling letters are not random, but form lines of a poem about bodies and language. ‘Reading’ the phrases in the *Text Rain* installation becomes a physical as well as a cerebral endeavor.”

Bense’s tenet that there could be no pure natural and no pure artificial poetry, no preconditioned *Interpretationsdichtung* (‘poetry of interpretation’) versus a pure *Realisationsdichtung* (‘poetry of realization’) without a “preexistent world,” and that only approximations alone could exist also becomes apparent in this quite advanced example of a literature moving from the pages of the book into space. The basis of the installation, the “poem about bodies and language” entitled “Talk, You” by Evan Zimroth is here precisely the “preexistent world.” Only if we know this poem and the many associations already possible in it can the experience in the projected space become a specifically aesthetic experience.⁹ If we understand it quite traditionally—as a perception of the way in which we perceive something and in what way possible semiosis is taking place there—then it is just the experience of the difficulties of the real “physical” communication formulated in this poem that is “realized” in the installation. Only in the physical-neuronal blending of the different layers of letters—the silent ones of the original poem and its resigned “It’s just talk” with the moving light projections and possible other series of words—does the perception of aesthetic difference then emerge without which there would be no poetry. Only the “natural” light falling onto the printed page that in the installation as “artificial” light releases the letters from the sheet and makes them move can enlighten the memory-realm of imagination.

Moreover, it is literally the interaction of natural and artificial light with the, since Bense’s time, much faster and more complex electronics based on the underlying computer programs that in one single physical movement separate and again merge the natural and the artificial poetry in a new and surprising way.

On a first glance, the installation *text.curtain* by Daniel C. Howe only seems to be another realization of literature’s immemorial drive described here to act, to return to the organic processes of nature. Like the cookie-letters in Timm Ulrichs’ *Buchschlager Buchstaben-Buche* (fig. 1) snuggle to the tree, the letters snuggle into the soft movements of the curtain and the “readers” can attempt to look behind it with just such soft movements of the body. But “behind it” there is nothing to read; the interplay of human being and machine only functions as a paradox since human intention and programmed textual develop



Fig. 3. Daniel C. Howe: *text.curtain* (2005). Courtesy of Daniel C. Howe.

ment interrupt each other. Only with the direct “inter-activated” opposition, with the incompatibility of the natural ludic drive and the cultural urge to read and interpret does a poetic tension arise:

text.curtain explores relationships between poetic text and ludic play via an interactively evolving recombinant text. Projected on a wall-size screen, *text.curtain* presents a physics-based “spring-mass” interface that organically responds to the interactions of multiple simultaneous users. As the piece is disrupted and letters wash back and forth, a granular synthesis engine provides realtime aural feedback. Tension is created through the simultaneous desire of users to both disrupt the existing text via “play” and to “read” the piece as it evolves and recombines in response. (Howe)

This means that aesthetic difference does not occur when literature expresses the wish to return to the autopoietic processes of nature simply through the use of the respective images and narratives. And it certainly does not evolve automatically, like in the radical variation practiced by Bense and his successors by letting machines create poetry. A return to nature is not at all possible—with the first symbolic action, the first cut of the first carved inscription on bone, wood or clay tablets the species has separated itself from it; with every letter, no matter in what medium, it keeps blocking its own way back to

nature, and thus culture, civilization, technology keep expanding. In contrast, aesthetic behavior is the paradoxical attempt to leave behind culture, civilization, technology by way of its own means, and to stop, to break or at least to interrupt the processes created by them (cf. Leroi-Gourhan, ch. 6: "Language symbols"). Just like Laurence Sterne's constant digressions from linear narration in the 18th century, Jean Paul's at the beginning of the 19th or, for example, David Foster Wallace's digressions in the 21st practice a specific art of interruption that stimulates the imagination of the recipient, the player of *text.curtain* also has to be interrupted in order to read, has to interrupt reading in order to play. It is precisely in this interruption that literature is taking place, in an interstice, a space between fixed meanings of everyday, institutional, functional communication and "the sigh, the kiss that the poetizing child breathes forth in artless song" (Schlegel). Aesthetic experience is only possible in open works of art, in which the firm attributions are broken. Thus, the programs of machines currently clash with the mental clichés in the heads and the movement-patterns of the bodies. For example, Jeffrey Shaw's early installation *The Legible City* (1989) was still festooned by the illusion that one could quickly and directly immerse oneself into cyberspace by pedaling a bicycle and have the ultimate poetic experience there.

Physically active, on his reading journey the viewer follows the logic of the text, moving further and further into virtual space: Driving, viewing and reading changes from exploring a conceptual system to immersing oneself in pictorial space, losing oneself in total immersion. (Shaw, *The Legible City*)

But no matter how strenuously the viewer pedaled, he or she always produced the same streams of texts only and did not make any cities readable, and when they exhaustedly stopped it only then became obvious that they were not dealing with new literature but rather with a new exercise bike. For the project itself, this was formulated a little more elegantly as a more or less wanted interruption, as becoming aware of a paradoxical experience: "The almost meditative involvement is opposed to the rational concept—at some point the structure breaks apart—the irritation about the paradoxical state of a machine-bound image-reception becomes apparent."¹⁰

If social experience could be conceived of as a field of permanent conflicts between external socio-cultural rules of behavior and internal wishes or desires, then literature (and probably music and art in general) can be understood as aesthetic cogitation, permanent battle, fragile compensation for these conflicts, as an experiment of different time-space-concepts. Of course, such experiments are also playing with the primal fear of the species of being replaced

by its own technical creations. They are pointing out that human beings are indeed aesthetically caught between a rock and a hard place and thus between the self-regulated creatures of nature and the automata becoming more perfected. Most recently, Bill Joy has triggered a pro and con debate in all media with his thesis of the end of mankind, of the post-human or -genomic era of societies made up of genetically manipulated clones, hybrid beings, cyborgs, autonomous robots who finally, globally linked, can peacefully attend to their business (cf. Joy; Rajan).

Computer-aided art, music and literature is already practicing an irritating “cohabitation” with the media-technological doubling of the genre vis-à-vis such fears. Such art is not driven by any technophobia; rather, it carries bewildering mixtures into the traditional oppositions of nature, technology and culture. Quite in accordance with Romanticism in the form of the “kiss exhaled by the child versifying in her artless song,” Björk, in her video clip *All is Full of Love* (1999), has presented a disturbing version of natural affection for our doubles. And Yasuaki Matsumoto’s *Gravity and Grace* (1995) again takes up the old literary motif of gravity setting leaves like the letters in natural motion. Now he does not allow the letters on a page to “fall.” Instead, the viewer gets caught in a unique interplay with “the dead”; that is, with the letters of the ASCII code, the silent lines of the program between his/her own body and the light beyond the monitor:

The viewer stands in front of a half-mirrored glass on which blinking red LED lights and the image of the viewer are mirrored. After a short time light rays appear on the glass around his mirrored image. With the help of a camera system that registers movements, it is suggested that these rays are following the movements of the viewer. Thus, the mirrored image of the body is united with the images of the digital motifs. . . . In the early years of the history of technology, innovations of the most varied types were connected to the supernatural and wonderful—for example, telegraphy and its much lauded ability to connect to the dead with its help. *Gravity and Grace* simulates the experience of transcendence and of the supernatural quite directly and openly as a spiritual event and does not hide it behind other, pretended subjects. The artist portrays the real body as a mixture of temporal states and invisible information. (Matsumoto)

Translated by Brigitte Pichon and Dorian Rudnytsky

Notes

- 1 With this, literature transfers probably one of the oldest metaphysical ideas into aesthetic perception: the idea—developed for example in the Kabbalah into a whole system—that god has written the world verbally, that nature is a materialized text, and the world a book. Cf. for this also Blumenberg, *Die Lesbarkeit der Welt*. On Romanticism cf. esp. ch. XVI, 233-266: "Die Welt muß romantisiert werden" ("The world has to be romanticized").
- 2 The consequences of such idealizations—that only the poet is the mouthpiece of this nature and thus also in reality its creator—the great admirer of Goethe, Heinrich Heine, then has put in a nutshell: "Wir schauen nemlich darin überall thatsächliche Auffassung und die Ruhe der Natur. Goethe hält ihr den Spiegel vor, oder, besser gesagt, er ist selbst der Spiegel der Natur. Die Natur wollte wissen, wie sie aussieht, und sie erschuf Goethe. . . . Ein Herr Eckermann hat mahl ein Buch über Goethe geschrieben, worin er ganz ernsthaft versichert: hätte der liebe Gott bey Erschaffung der Welt zu Goethe gesagt 'lieber Goethe, ich bin jetzt Gottlob fertig, ich habe jetzt Alles erschaffen, bis auf die Vögel und die Bäume, und du thätest mir eine Liebe, wenn du statt meiner diese Bagatellen noch erschaffen wolltest'—so würde Goethe . . . diese Thiere und Gewächse ganz im Geiste der übrigen Schöpfung, nemlich die Vögel mit Federn, und die Bäume grün erschaffen haben. Es liegt Wahrheit in diesen Worten, und ich bin sogar der Meinung, daß Goethe manchmal seine Sache noch besser gemacht hätte, als der liebe Gott selbst, . . ." (*Reisebilder* 61f.). (Everywhere in it we find a practical comprehension and the calm repose of nature. GOETHE holds the mirror up to—or to speak more accurately—is himself the mirror of nature. Nature wished to know how she looked, and therefore created GOETHE. . . . A certain MR. ECKERMANN once wrote a book on GOETHE, in which he solemnly assures us that if the LORD on creating the world had said to GOETHE, 'dear GOETHE, I am now, the Lord be praised, at an end. I have created everything except the birds and the trees, and you would oblige me by getting up these trifles for me'—then GOETHE would have finished them all in the spirit of the original design,—the birds with feathers, and the trees of a green color. There is some truth in all this, and I even believe that in some particulars GOETHE could have given the LORD a few valuable hints as to the improvement of certain articles') (*Pictures of a Travel* 282f.).

- 3 His full name was Georg Friedrich Philipp Freiherr von Hardenberg (1772-1801). Despite his not very extensive size of works (especially with the *Hymnen an die Nacht* (1800) [*Hymns to the Night*] and the novel *Heinrich von Ofterdingen* (posthum 1802) [*Henry von Ofterdingen*] that established the “blaue Blume” (‘blue flower’) as the central image of the movement of Romanticism) he became one of the most influential poets of Romanticism, whose influence far into the 20th century can hardly be underestimated.
- 4 Hans Arp notes: “Wir wollen bilden, wie die Pflanze ihre Frucht bildet, und nicht abbilden.” (‘We want to create like the plant creates its fruit. We don’t want to recreate’) (79).
- 5 Cf. for this also the paragraph on Bense in the contribution by Anna Katharina Schaffner in this book.
- 6 On chance as technique in the arts cf. Gendolla and Kamphusmann.
- 7 On the tradition of concrete poetry cf. Schaffner; on the context of this tradition in the intermedial field cf. Schäfer.
- 8 Steels continues: “Indem eine breite Öffentlichkeit hier erstmals direkt in die Interaktion mit Künstlichen Agenten involviert war, konnten alle Beteiligten für sich selbst entscheiden, inwieweit das, was die Agenten tun, sich tatsächlich mit unseren Vorstellungen von kognitiven Phänomenen wie Lernen, Wahrnehmen, Sprechen, Kommunizieren deckt und ob die Kohabitation zwischen Künstlichen Agenten und Menschen in der Praxis überhaupt durchführbar ist.” (‘By involving the general public for the first time directly into the interaction with artificial agents, all participants could decide themselves to what extent the actions of the agents really coincide with our ideas of cognitive phenomena like learning, perceiving, speaking, communicating and whether the cohabitation between artificial agents and human beings can at all in reality be realized.’) (183).
- 9 “Talk, You
I like talking with you, simply that:
conversing, a turning-with or -around, as in
your turning around to face me
suddenly, saying *Come*, and I turn
with you, for a sometime
hand under my under-
things, and you telling me
what you would do, where,
on what part of my body
you might talk to me differently.

At your turning,
 each part of my body turns to verb.
 We are the opposite of
tongue-tied, if there were such an
 antonym; we are synonyms
 for limbs' loosening of syntax,
 and yet turn to nothing:
It's just talk." (Zimroth 40)

- 10 The project nevertheless has lastingly inspired the first presentations of digital literature. Therefore, Shaw has not left it in this state; rather, ten years later he has presented a version in the net with three virtual text-cities (Amsterdam, Karlsruhe, Manhattan) that permit interactive movements not with a bicycle but with mobile computer-consoles; cf. Shaw, *The Distributed Legible City*.

Works Cited

- Aristotle. *The Philosophy of Aristotle*. Trans. J.L. Creed and A. E. Wardman. New York: Signet, 2003.
- Arp, Hans. "Konkrete Kunst." *Unsern täglichen Traum: Erinnerungen, Dichtungen und Betrachtungen aus den Jahren 1914-54*. Zürich: Arche, 1995. 79-83.
- Bense, Max. "Über natürliche und künstliche Poesie." *Theorie der Texte: Eine Einführung in neuere Auffassungen und Methoden*. Cologne: Kiepenheuer & Witsch, 1962. 143-147.
- . *Einführung in die informationstheoretische Ästhetik: Grundlegung und Anwendung in der Texttheorie*. Reinbek: Rowohlt, 1969.
- Bernstein, J.M., ed. *Classic and Romantic German Aesthetics*. Cambridge: Cambridge UP, 2003.
- Björk. *All is Full of Love*. Dir. Chris Cunningham. Video. 1999. 2. Oct. 2009 <<http://www.director-file.com/cunningham/bjork.html#>>.
- Blumenberg, Hans. *Die Lesbarkeit der Welt*. Frankfurt a.M.: Suhrkamp, 1981.
- . *Paradigmen zu einer Metaphorologie*. Bonn: Bouvier, 1960.
- Breton, André. *Œuvres complètes*. Vol. I. Ed. Marguerite Bonnet. Paris: Gallimard, 1988.
- . *Manifestoes of Surrealism*. Trans. Richard Seaver. Ann Arbor: U of Michigan P, 1972.

- Cayley, John. "The Gravity of the Leaf: Phenomenologies of Literary Inscription in Media-Constituted Diegetic Worlds." In this book. 199-226.
- Cramer, Florian. "Warum es zuwenig interessante Netzdichtung gibt." 2000. 2 Oct. 2009 <<http://www.xcult.org/texte/cramer/literatur.html>>.
- cummings, e.e. *Complete Poems, 1904-1962*. Ed. George J. Firmage. New York: Liveright, 1991.
- Ernst, Max. *La femme 100 têtes*. Paris: Carrefour du, 1929.
- Gendolla, Peter, and Thomas Kamphusmann, eds. *Die Künste des Zufalls*. Frankfurt a.M.: Suhrkamp, 1999.
- Goethe, Johann Wolfgang. "Noten und Abhandlungen." *Werke: Hamburger Ausgabe*. Vol. 2: *Gedichte und Epen II*. Ed. Erich Trunz. Hamburg: Wegner, 1981. 187-189.
- . "Die Leiden des jungen Werther." *Werke: Hamburger Ausgabe*. Vol. 6: *Romane und Novellen I*. Ed. Erich Trunz. Hamburg: Wegner, 1963. 7-124.
- . *The Sorrows of Young Werther and Selected Writings*. Trans. Catherine Hutter. New York: Signet, 1962.
- Hart, Heinrich. *Gesammelte Werke*. Vol. 3: *Literarische Erinnerungen/Ausgewählte Aufsätze*. Ed. Julius Hart. Berlin: Fleischel, 1907.
- Heine, Heinrich. *Historisch-kritische Gesamtausgabe der Werke: Düsseldorfer Heine-Ausgabe*. Vol. 7.1: *Reisebilder*. Ed. Manfred Windfuhr. Hamburg: Hoffmann & Campe, 1975.
- . *Pictures of Travel*. Trans. Charles Godfrey Leland. New York: Leopoldt & Folt, 1866.
- Howe, Daniel C. *text.curtain*. 2005. 1 Sep. 2009 <<http://www.mrl.nyu.edu/~dhowe/textcurtain/>>.
- Joy, Bill. "Why the future doesn't need us." *Wired* 8.4 (2000). <<http://www.wired.com/wired/archive/8.04/joy.html>>.
- Kennedy, George Alexander, Hugh Barr Nisbet, and Claude Rawson. *The Cambridge History of Literary Criticism*. Vol. 4. Cambridge: Cambridge UP, 1997.
- Leroi-Gourhan, André. *Gesture and Speech*. Trans. Anna Bostock Berger. Cambridge, MA: MIT P, 1993.
- Lodato, Suzanne M. "False Assumptions: Richard Strauss's Lieder and Text/Music Analysis." *Word and Music: Essays on Music and the Spoken Word and on Surveying the Field*. Ed. Suzanne M. Lodato and David Francis Urrows. Amsterdam: Rodopi, 2005. 103-124.

- Luhmann, Niklas. *Social Systems*. Trans. John Bednarz and Dirk Baecker. Stanford: Stanford UP, 1995.
- Marinetti, Filippo Tommaso. *Critical Writings*. Ed. Günter Berghaus. Trans. Doug Thompson. New York: Farrar, Straus and Giroux, 2006.
- Matsumoto, Yasuaki. *Gravity and Grace*. 1995. 2 Oct. 2009 <<http://on1.zkm.de/zkm/werke/GravityandGrace>>.
- Maturana, Humberto, and Francisco J. Varela. *Autopoiesis and Cognition: The Realization of the Living*. Boston: Kluwer, 1980.
- Novalis. *Schriften. Das philosophische Werk*. Vol. 3, 2nd ed. Ed. Richard Samuel with Hans-Joachim Mähl and Gerhard Schulz. Stuttgart: Kohlhammer, 1968.
- Rabelais, François. *Œuvres complètes*. Ed. Mireille Huchon. Paris: Gallimard, 2002.
- . *Gargantua and Pantagruel*. Ed. Tom Griffith. Trans. Thomas Urquhart and Peter Motteux. Hertfordshire 1999.
- Rajan, Kaushik S. *Biocapital: The Constitution of Post-Genomic Life*. Durham: Duke UP, 2006.
- Schäfer, Jörgen. “Gutenberg Galaxy Revis(it)ed: A Brief History of Combinatory, Hypertextual and Collaborative Literature from the Baroque Period to the Present.” *The Aesthetics of Net Literature: Writing, Reading and Playing in Programmable Media*. Ed. Peter Gendolla and Jörgen Schäfer. Bielefeld: Transcript, 2007. 121-160.
- Schaffner, Anna Katharina. “From Concrete to Digital: The Reconceptualization of Poetic Space.” In this book. 179-197.
- Schlegel, Friedrich. “Athenäum-Fragment 116.” *Kritische Friedrich-Schlegel-Ausgabe*. Vol. 2.1. *Kritische Neuauflage. Charakteristiken und Kritiken I (1796-1801)*. Ed. Hans Eichner. Munich: Schöningh, 1967. 182-183.
- . “Über Goethes Meister.” *Kritische Friedrich-Schlegel-Ausgabe*. Vol. 2.1. *Kritische Neuauflage. Charakteristiken und Kritiken I (1796-1801)*. Ed. Hans Eichner. Munich: Schoeningh, 1967. 126-146.
- Schott, Heinz, ed. *Der sympathetische Arzt: Texte zur Medizin im 18. Jahrhundert*. Munich: Beck, 1998.
- Shaw, Jeffrey. *The Legible City*. 1988-91. 2 Oct. 2009 <[http://on1.zkm.de/zkm/stories/storyreader\\$609](http://on1.zkm.de/zkm/stories/storyreader$609)>.
- . *The Distributed Legible City*. 1998-99. 2 Oct. 2009 <<http://on1.zkm.de/zkm/werke/TheDistributedLegibleCity>>.

- Steels, Luc. "Kognitive Roboter und Teleportation: Artefakte reagieren auf ihre Umwelt und erfinden sich eine Sprache." *Weltwissen/Wissenswelt: Das globale Netz von Text und Bild*. Ed. Christa Maar, Hans Ulrich Obrist, and Ernst Pöppel. Cologne: DuMont, 2000. 175-184.
- Steinwachs, Gisela. *Mythologie des Surrealismus oder Die Rückverwandlung von Kultur in Natur*. Neuwied: Luchterhand, 1971.
- Utterback, Camille, and Romy Achituv. *Text Rain*. Installation. 1999. 2 Oct. 2009 <<http://www.camilleutterback.com/textrain.html>>.
- Zimroth, Evan. "Talk, You." *Dead, Dinner, or Naked poems*. Chicago: Northwestern UP, 1993.