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Other Discourses in Poetry: Christian Bök's *Crystallography* and *The Xenotext (Book 1)*

Abstract: A characteristic feature of contemporary poetry is the interaction with other, non-literary discourses. In conceptual works, material is adopted from external sources and the artwork is extended to include the surroundings in what Nicolas Bourriaud has termed "relational aesthetics." Christian Bök's writing can be seen as a continuation of avant-garde practices concerned with the medium and materiality of the literary text. In *Crystallography* (1994), elements from scientific discourse such as tables, graphs and fractal geometry are incorporated into concrete poems and in his most recent project *The Xenotext (Book 1)* (2015) the interaction with other forms is taken a step further as Bök moves the text away from the literary medium and into the field of biotechnological research. A matrix sonnet is encoded into the DNA of a bacterium, and the protein of the bacterium produces a new text in the form of a sequence of amino acids. This process makes the resulting text inaccessible to the general reader who is left with the description of the work in the accompanying book and the project thus radically challenges the status of the literary artwork.

Keywords: Conceptual poetry, relational art, materiality, concrete poetry, avant-garde

The appropriation of new media and technologies has always been central to the practices of avant-garde art. Within the poetic genre this has been synonymous with a challenge to established forms and the invention of new ones. Experimental aesthetic practices from the early avant-garde, such as sound poetry, concrete poetry, and collage continue to play an active part in contemporary writing practices. The neo-avant-garde of the post-war period developed these approaches including new technology as it became available.[1] More recently, the interactive medium of the Internet has been adopted and explored in digital artworks by for instance John Cayley and Kristin Lavers ("E-Poetry"). The introduction of various media-based procedures has contributed to a reconsideration of the literary text by giving prominence to the fact that artworks are always representations in a medium determining the conditions of its material form. These experiments have been crucial to changes in the perception of aspects such as authorship, subjectivity and readership, and concern the literary text as artwork and discourse.

In the twenty-first century, this development has been taken a step further and the interaction with other media and discourses has become central to the poetic

1 See for instance the introduction in *Media and Materiality on the Neo-Avant-Garde* (Ingvarsson and Olsson).

text. Within the field of conceptual poetry, a dominant strategy has been to adopt non-literary material from discourses belonging to other spheres or manipulate this found material within the context of the literary text. Marjorie Perloff has given the following characteristic of this type of poetry:

> In the climate of the new century... we seem to be witnessing a poetic turn from the resistance model of the 1980s to dialogue—a dialogue with earlier texts or texts in other media, with 'writings through' or *ekphrases* that permit the poet to participate in a larger, more public discourse. *Inventio* is giving way to appropriation, elaborate constraint, visual and sound composition, and reliance on intertextuality. (*Unoriginal Genius* 11, original emphasis)

Well-known examples of conceptual poetry are Kenneth Goldsmith's appropriation of newspaper texts, traffic reports and sports results, and Vanessa Place's use of legal documents in her work. It is characteristic of these works that they investigate and call attention to places, discourses and conventions that ordinarily appear as naturalized and invisible. In this way, the incorporation of material that does not belong to the domain of art can be viewed as a political gesture. This form of writing is related to other, non-literary discourses and produces meaning in relation to these.

In this study, I will try to show how this established practice of experiments with new technology and media within avant-garde poetics has been radicalised in recent poetic works using Christian Bök's writing as an example. It is my argument that the inclusion of non-literary material in the text involves a questioning of the status of the text as literature and art involving fundamentally changed conditions for readership. This is a continuation of the critique of the institution of art as an avant-garde legacy but also reflects general aspects of the status of art in contemporary society. The theoretical basis of my argument are Nicolas Bourriaud's concepts of relational art and postproduction both of which concern the interaction of the artwork with external factors.

Bök's project positions itself within the context of conceptual poetry. Where the approach of the preceding language poetry was based on a critical approach to language and implied ideals of democratisation and inclusion in the reading experience, conceptual poetry operates on a meta-textual level and the critical potential consists in the manipulation of the material within the framework of the literary text. What characterises Christian Bök's project is that it takes as its starting-point a poetics that draws on the historical avant-garde and moves on to an increasingly complex interaction with external idioms that are entirely foreign to the literary text and thus constitute a challenge to literary readership. By moving the literary experiments into the field of biotechnology and conducting research within this framework Bök radically changes the premises for reading it as a text. In *Xenotext*, the actual artwork is no longer accessible to the ordinary reader and the printed version only serves as a guide to and description of this.

The French curator and art critic Nicolas Bourriaud has used the term "relational aesthetics" to describe art "dealing with the interhuman sphere: relationships between people, communities, individuals, groups, social networks, interactivity, and so on" that in this way become aesthetic objects in themselves (*Postproduction* 7). He has termed this artistic practice "postproduction," which stresses the fact that the artwork is not an original invention but a rewriting of already existing material. Bourriaud describes it in this way: "All these artistic practices, although formally heterogeneous, have in common the recourse to already produced forms. They testify to a willingness to inscribe the work of art within a network of signs and significations, instead of considering it an autonomous or original form" (*Postproduction* 16). This view of the production of art obviously has consequences for the status of the artwork itself. As Bourriaud argues: "The possibility of a *relational* art (an art taking as its theoretical horizon the realm of human interactions and its social context, rather than the assertion of an independent and *private* symbolic space), points to a radical upheaval of the aesthetic, cultural and political goals introduced by modern art" (*Relational Aesthetics* 14, original emphasis). The aesthetic form of the artwork can no longer be seen in isolation. Referring to the sociologist Emile Durkheim, who considers the "social fact" as "a thing," Bourriaud insists on the "instability and the diversity of the concept of 'form.'" This means that the idea of form is extended from the isolated object to a wider context. Bourriaud concludes that "[t]he contemporary artwork's form is spreading out from its material form: it is a linking element, a principle of dynamic agglutination. An artwork is a dot on a line" (*Relational Aesthetics* 21).

Another way of looking at the relationship between the artwork and its surroundings is by defining it as an encounter: "Unlike an object that is closed in on itself by the intervention of a style and a signature, present-day art shows that form can only exist in the encounter and in the dynamic relationship enjoyed by an artistic proposition with other formations, artistic or otherwise" (*Relational Aesthetics* 21). These reflections on the aesthetic object in dialogue with other forms seem pertinent to Christian Bök's work. The interest in media and procedural forms is a central concern and his books explore several formats ranging from experiments in sound poetry inspired by the early avant-garde, across concrete poetry, to the appropriation of cutting-edge contemporary technology.

Christian Bök has performed sound poetry by Hugo Ball and excerpts from Kurt Schwitters' *Ursonate*.[2] His own project *The Cyborg Opera* includes the performance of sound poetry directly in line with the experiments of the Dada

2 Bök's performance of Hugo Ball's "Sea Horse and Flying Fish" (Seepferdchen und flugfische) is available at Penn Sound at: https://media.sas.upenn.edu/pennsound/authors/Bok/Carnivocal/Bok-Christian_02_Sea-Horses-And-Flying-Fish_Carnivocal_1999.mp3. The excerpt from Kurt Schwitter's *Ursonante* can be heard at: https://media.sas.upenn.edu/Pennsound/groups/Getty/Explodity-Part-2/Explodity2_16_Bok-First-Mov-Ursonate_Getty-Research-Institute_2-4-09.mp3.

movement. While relating directly to the tradition of sound poetry within the early avant-garde, Bök places his own experiment with sound poetry in the context of contemporary technology: "My composition *The Cyborg Opera* is a long poem in progress—a linguistic soundscape that responds to the chatter of technology by arranging words, not according to their semantic meanings, but according to their phonetic valences" ("When Cyborgs Versify" 129). At the centre of the project is the idea of the cyborg as "the updated subject" who addresses other non-human readers and listeners defined as "beasts, robots and clones" ("When Cyborgs Versify" 129). This, of course, constitutes a radical move away from the idea of poetic voice. Characteristically, Bök's use of the term "opera" does not refer to "a genre of musical drama so much as the term abbreviates a technical "operation"—a procedure by which to imagine a hitherto undreamt poetics of electronica" ("When Cyborgs Versify" 129). Bök discusses his own text in relation to various positions within the sound poetry of the early avant-garde and characterizes the poetic strategy of the works of Kurt Schwitters as "outbursts of organic orality" intended to save language from "the utilitarian constraints of bourgeois discourse" ("When Cyborgs Versify" 130). He sees his own project more as a continuation of Marinetti's "phonic poetry, whose onomatopoeia gives voice not to the ecstatic impulses of an organic anatomy but to the electric impulses of an operant machine" ("When Cyborgs Versify" 131). It is clear from his presentation of the ideas behind *The Cyborg Opera* that Christian Bök is very conscious of the avant-garde tradition as a precondition for his own work.

Another established avant-garde strategy that Christian Bök uses in his work are constraints often applied with the purpose of inserting an agency between the lyric subject and the production of text which is then determined by other factors than individual expression. Referring to the rule-governed texts by Oulipo, Bök gives this description of the constraint in *Eunoia* (2001):

> 'Eunoia' is the shortest word in English to contain all five vowels, and the word quite literally means 'beautiful thinking.' Eunoia is a univocal lipogram, in which each chapter restricts itself to the use of a single vowel. Eunoia is directly inspired by the exploits of Oulipo... —the avant-garde coterie renowned for its literary experimentation with extreme formalistic constraints. (103)

This primary constraint is combined with other rules referring to different aspects of the text:

> All chapters must allude to the art of writing. All chapters must describe a culinary banquet, a prurient debauch, a pastoral tableau and a nautical voyage. All sentences must accent internal rhyme through the use of syntactical parallelism. The text must exhaust the lexicon for each vowel, citing at least 98% of the available repertoire (although a few words do go unused, despite efforts to include them: parallax, belvedere,

> gingivitis, monochord, and tumulus. The text must minimize repetition of substantive vocabulary (so that, ideally, no word appears more than once). The letter Y is suppressed. (*Eunoia* 103-104)

Perhaps surprisingly, *Eunoia* was awarded the Griffin Poetry Prize in 2002, although the work is certainly not easily accessible. Over the appendix explaining the constraint is this quotation by Darren Wershler: "The tedium is the message." The quotation clearly evokes Marshall McLuhan's phrase "The medium is the message"[3] and perhaps alludes to the reading (or writing) experience produced by this type of work. At any rate, it indicates Bök's preoccupation with different medial aspects of the literary text, here in combination with the incorporation of impersonal agencies in the form of a complicated set of formalised restrictions.

Crystallography: Dialogue with Other Discourses

In *Crystallography* (1994), Bök moves from the exploration of already established strategies of avant-garde art to a dialogue with discourses that are external to the artwork. The book opens with an extract from the artist Maurits Cornelis Escher's (1998-1972) book *The Regular Division of the Plane* (1958) that accompanied a series of Escher's drawings. In the quoted text, Escher introduces the "crystallographers" who have "opened the gate," and describes his own experiences in their domain:

> Long ago during my wanderings, I happened to chance upon the neighbourhood of this domain. I saw a high wall, and because I had a presentiment of some enigma that might be hiding behind it, I climbed the wall with difficulty. On the other side, I landed in a wilderness through which I had to make my way with much effort until I arrived via detours at the open gate—the open gate of mathematics, from which many clear paths extended in all directions[.] (*Crystallography* 7)

Escher cooperated with the crystallographer Friedrich Haag and his use of tessellation in his graphic art can be considered as original research. Bök thus places his own writing in continuation of art that is inspired by and actively interacts with scientific research.

Crystallography is the science of identifying the structure of atoms. Bök repeatedly compares language as an object to crystals. In the poem "CRYSTALS," the structural quality of the crystal is described as parallel to the ability of entities of language, such as "compound words," to be dissolved and reassembled in new combinations whose artificial perfection is comparable to that of the crystal (*Crystallography* 12).

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3 Introduced in his 1964 book *Understanding Media: The Extensions of Man*.

A compound (word) dissolved in a liquid

supercooled under microgravitational
conditions precipitates out of solution
in (alphabetical) order to form crystals
whose structuralistic perfection rivals
the beauty of machine tooled objects.

An archaeologist without any mineralogical
experience
might easily mistake a crystal
for the artificial product of a precision
technology.

A word is a bit of crystal in formation.
(*Crystallography* 12)

Bök is concerned with material transformations involving language. The word, which is itself a compound consisting of separate elements (letters), is dissolved in a liquid, which is then transformed into crystals. There is no distinction between language and the sphere of chemical components, between language and nature. The idea of language is far from the human voice and closer to the processes of nature and to manufacturing. The perfection of the crystals is parallel to the beauty of the "machine tooled objects," and there is no barrier between nature and the artificial; language itself is presented as part of nature: "A word is a bit of crystal in formation" (*Crystallography* 12).

The book contains a number of examples of poems that appear as physical objects of language in the tradition of concrete poetry. The poem "CRYSTALS" is followed by a concrete poem with the same title (*Crystallography* 13). The poem is based on a single word "crystals" and in each line of the poem one of the letters of this word becomes visible. Each letter keeps its place in the typographical sequence of the word:

crystals

a
s
t
r
a
l

s
a
l
t

c
a
s
t

a
s
t
r
a
y

The concrete poem illustrates the fixed quality of language in the form of the sequence of letters in the individual word which is not a flexible structure. Emphasising this particular aspect of language calls attention to its materiality and shows its comparability to other systems and discourses that are not normally associated with literary text.

Other concrete poems appear throughout the book. "CRYSTAL LATTICE" (*Chystallography* 19) shows a regular pattern formed by the word "crystal" placed horizontally and vertically across the page. Also, the series "FRACTAL GEOMETRY" contains a number of concrete poems in which the concept of the fractal is combined with letters and language. Each poem shows a letter of the alphabet made up of capitals of this particular letter. Together the three poems depict the letters A, S, and K forming the word ask.

In the introductory poem titled "fractal geometry," Bök connects fractals to language and text:

> Fractals tell their raconteurs
> to counteract at every point
> the contours of what thought
> recounts (a line, a plot): recant
> the chronicle that cannot coil
> into itself—let the story stray
> off course, its countless details,
> pointless detours, all en route
> towards a tour de force, where
> the here & now of nowhere is.
> (*Crystallography* 20)

The poem draws a parallel between the forms of nature, as they are presented in the idea of the fractal, and the conditions of language, thought, and narrative. The line of the plot with its "countless details, pointless detours" is comparable to the infinitely complicated coastline often used as an illustration of fractal geometry. Like

the phenomena of nature, the text is also a self-referential object, "the chronicle" is described as coiling into itself.

Another series of poems "EXPERIMENT #1" introduces the experiment as a format for the process of writing and, in the last section of the series, the chemical process taking place in the scientific experiment is viewed as parallel to the interaction of language and meaning in a line of a poem:

> 3.Textbooks teach
> you that to lock
>
> solutions in your
> icebox overnight
>
> can precipitate
> from water, candy
>
> on a cord, words
> accreting meaning
>
> so that the line
> can end at last
>
> in the sweetest
> of stalactites.
>
> Crystallization.
> (*Crystallography* 18)

Towards the end of the book charts and models are introduced that describe literary phenomena in the language and mindset of science with a humorous twist. One chart aims to identify "the meteorological conditions necessary for the crystallization of poetic forms" (*Crystallography* 114). The central trope of crystallography is combined with the project of artistic production using the parameters "semiotic saturation (humidity)" on the vertical axis and "aesthetic detachment (temperature)" on the horizontal axis. Along the vertical axis are categories such as "NEAR RIME" and "TRUE RIME," using the word "rime" which is a homonym to the literary term "rhyme." The chart presents the conditions determining the chemical crystallisation of water as a metaphor for the materialisation of the artwork.

Throughout *Crystallography* the discourse of mineral science is combined with reflections on writing. The book explores the boundary between science and poetry in an artistic idiom that includes a large number of references and loans from scientific discourse. At the same time the work draws on avant-garde traditions such as concrete poetry. The interaction with the scientific discourse can be perceived as a chosen constraint that challenges the literary medium to renew itself.

The Xenotext—Book 1: Interaction with Another Paradigm

The Xenotext is the name of a research project conducted by Bök that has lasted more than a decade, and it is also the title of the book *The Xenotext—Book 1,* published in 2015. In this project, Bök moves the text away from the literary medium and into the field of biotechnological research making it inaccessible to the general reader who is left with the description of the work in the accompanying book. In this way, it radically challenges the status of the text. The project had been discussed in several articles and Bök had given interviews about the progress of the project for several years before the publication of the book in 2015.[4] The ideas behind the technology on which the project is based date back to the 1960s and were developed for quite different purposes than aesthetic experimentation. It is called DNA digital data storage and consists in storing digital data in the base structure of DNA. The technology has the ability to preserve information almost indefinitely, as DNA can last for thousands of years, and this aspect in particular has attracted attention to the archival possibilities of this technology. Several projects have been created to store historical literary text in DNA. One is a project led by Nick Goldman of the European Bioinformatics Institute in which all of Shakespeare's sonnets have been encoded in DNA (Young 2013), and the idea of DNA as literary archive received attention from popular media such as *nature—International weekly journal of science* and CNN. In his paper "The Xenotext Experiment, So Far," Darren Wershler mentions a number of literary works in this medium that precede Bök's *The Xenotext*. These include a project by Joe Davies, who encoded visual poetry into the DNA of E coli in 1990, aiming to replicate the genes and send them into space, and "Biopoetry" by Brazilian poet and visual artist Eduardo Kac, whose experimental work *Genesis* (1998) consisted of biblical verse translated into Morse, encoded in DNA, and then edited by exposing the gene to radiation (Werschler 48). Another source of inspiration for Bök's project came from the scientist at the Pacific North West National Laboratory, Pak Chung Wong, who translated the lyrics to the Disney song *It's a Small World After All* into the four-letter nucleotide alphabet of DNA, which he then inserted into the extremely resilient bacterium *Deinococcus radiodurans* (Wershler 49). It is the same bacterium that Bök has chosen for his project and that he describes as "an extremophile, capable of surviving, without mutation, in even the most hostile milieus, including the vacuum of outer space" ("The Xenotext works").

Whereas all these works and projects are based on already existing texts that are stored in the DNA, Bök's ambition was to make the bacterium respond to the implanted poem, and produce its own poems in the form of a protein that the bacterium would *write* in response. Bök introduces the project in this way:

4 See for instance "The Xenotext works" posted by Christian Bök on April 2, 2011.

> *The Xenotext* is an experiment that explores the aesthetic potential of genetics, making literal the renowned aphorism of William S. Burroughs, who claims that 'the word is now a virus.' Such an experiment strives to create a beautiful, anomalous poem, whose 'alien words' might subsist, like a harmless parasite, inside the cell of another life form. Many scientists have already encoded textual information into genetic nucleotides, thereby creating 'messages' made from DNA—messages implanted, like genes, inside cells, where such data might persist, undamaged and unaltered, through myriad cycles of mitosis, all the while saved for recovery and decoding. The study of genetics has thus granted these geneticists the power to become poets in the medium of life. (*The Xenotext* 150)

Bök further explains that *The Xenotext* consist of a sonnet "Orpheus" that is integrated into a gene and causes the cell to *read* this poem and interpret it as an instruction for building a protein. The protein's sequence of amino acids produces another sonnet "Eurydice." In this way, the bacterium becomes not only an archive for the original text but also a machine for producing a new poem.

The actual product of the experiment are the poems created by the protein in response to the encoded text. These poems are not presented in the printed book, and in a sense the reader is cut off from the result of the process. The decoding of the information or text produced by the protein is a highly specialised process requiring knowledge, skills and equipment available only to a professional scientist working in a laboratory. This can be viewed as a limitation but it also reflects the comparable conditions of many other phenomena in daily life in the society of the information age, where the average person is confronted with technology that he or she has no chance of really understanding. Framing this general experience in an artwork can be seen as a way of exposing or highlighting the conditions of living in a society based on advanced technology. This would be consistent with the critical dimension of Nicolas Bourriaud's concept of relational art. According to Bourriaud, some of the practices of relational art aim at producing an ambiguity in relation to already existing social structures:

> Other practices are aimed at recreating socio-professional models and applying their production methods. Here the artist works in the real field of the production of goods and services, and aims to set up a certain ambiguity, within the space of his activity, between the utilitarian function of the objects he is presenting, and their aesthetic function. (*Relational Aesthetics* 35)

In *The Xenotext*, Bök transfers the type of practice that Bourriaud has identified within the field of production to the domain of science.

The book that accompanies the project contains many different types of text. The first section, titled "The Late Heavy Bombardment," describes an apocalyptic

scenario, whereas in the appendix "Vita Explicate" Bök explains: "'The Late Heavy Bombardment' refers to the Hadean period in the history of the Earth (3.8 billion years ago), during which the world undergoes collisions from numerous meteoric impacts, all of which create a baleful, hostile environment that coincides with the genesis of all living things on the planet" (*The Xenotext* 151-152). This section introduces a backdrop for the project that includes apocalyptic visions of destructions as well as the creation of new life. The threat of the destruction of the environment and the extinction of life caused by climate changes is a widespread trope in contemporary culture. This theme links to the core idea of language as a virus or bacterium that is able to survive in an otherwise hostile environment, and these are the concerns that form the background of *The Xenotext*.

The matrix poem "The Nocturne of Orpheus" is an alexandrine sonnet in blank verse. It is a classical form, but Bök also uses several additional constraints in the sonnet, which places it in a contemporary, avant-garde framework: "Each line contains thirty-three letters, and together the lines form a double acrostic of the dedication; moreover, the text is a perfect anagram of the sonnet "When I Have Fears That I May Cease to Be" by John Keats" (*The Xenotext* 152). The dedication of Keats' sonnet is to "the maiden in her dark pale meadow" and the double acrostic means that the first letters of each line, when read vertically, form the words "the maiden in her," while the last letters of each line form the words "dark pale meadow." The choice of Orpheus and Eurydice as the agents of the matrix-poem and the poem generated by the bacterium is a reference to classical art and mythology, and the choice of Keats' sonnet as source poem is a reference to classical English poetry. The poem includes a number of themes that resonate in Bök's project. The title of Keats' poem refers to mortality, and the text includes meta-references to writing, space, and the durability of fame. Bök's matrix-sonnet looks like this:

> THIS COVENANT OF LOVE IN A DIRGE ROF A GOD
> HAS DELIGHTED AN ANGEL WHO OBEYS MY PLEA,
> EACH SONNET A RHYTHM FOR HER TO DECIPHER,
> MAKING LEGIBLE A KEY IN HER DREAM OF DUSK:
> A REDNESS THAT DARKENSTHE HUE OF A TULIP
> IS RICHENING HER VIEWON THE HILL OF A LEA,
> DAPPLING HER VISTA AT THE END OF MY VIGIL,
> EVEN IF HAVOC CALLS FORTH RUIN TO KILL ME.
> NO CHURCH, NO CHAPEL, IS A REFUGE IN A STORM,
> IF WE BEG TO BE WARM, YET LET DIE THE CANDLE.
> NO HERDER, NO HERMIT, ENCHANTED BY THE SEA,
> HAS HITHERTO KNOWN THE ENNUI OF A COWARD,
> EVEN WHEN INFERNOS IN HELL BURN THE HERO:
> RADIANT AS FLINT, BE THE ACHE OF MY SORROW.

Several processes of postproduction are involved in the use of the matrix sonnet. Initially, Keats' sonnet has been transformed through Bök's rewriting of it, applying

the described rules and constraints and producing the new sonnet "The Nocturne of Orpheus." This rewriting of the classical source text is then further transformed through the process of *Xenotext,* where it is encoded into the DNA of the bacterium, which is a new form and this time also another medium for the text. Finally, the protein of the bacterium will produce a completely new text of the same linguistic material. This sonnet, titled "Eurydice," is still a processing of Keats' original sonnet. Finally, this new text, produced as an amino acid, can be decoded into the medium of language. The manipulation of text is very much at the centre of the very ingenious frame of this work and places it in the context of avant-garde writing strategies.

The various elements of scientific aspects of the *Xenotext* project are explored as the basis of poems in the printed book, and the atomic models for DNA are used as material for concrete poetry in the section "Nucleobasis" (*The Xenotext* 86). The poems are based on the figure of the acrostic, just as the matrix-sonnet, in which the first letter of each line spells out a word. The vocabulary is restricted allowing only words of nine letters beginning with the first letter of four elements: C for Carbon, H for hydrogen, N for nitrogen, and O for Oxygen. Each poem consists of a concrete poem on the left-hand page and a drawing of a molecule and a short poem composed of restricted vocabulary defined for this section on the right-hand page. In this way, the drawings that belong to a purely scientific discourse are placed in the context of the concrete and procedural poems.

Another sequence shares its title with a poem by Emily Dickinson, "Death sets a thing Significant" (*The Xenotext* 109). The title is transformed by a computer which interprets the words "as a series of amino acids in which each letter indicates a specific molecule" (*The Xenotext* 155). This results in four computer-generated models: a folded sequence, the atomic backbone, the entire molecule, and a charge envelope (*The Xenotext* 109-112). These concepts are briefly explained in the previous poem (*The Xenotext* 104), but to the uninitiated reader they mainly appear as quite beautiful illustrations. These are just a few examples of the types of texts included in the book. As it appears, the formats of the poems in *The Xenotext* all work with combinations of elements from the literary and the scientific domain, thus adding new perspectives to both.

Conclusion

In the conceptual design of the project, Christian Bök includes a number of strategies characteristic of experimental avant-garde poetry. The idea of producing new text and new meaning by subjecting an original text—in this case the sonnet written by Bök himself—to random procedures belongs in this framework. What is extraordinary about Bök's project is not so much its conceptual approach to the poetic text as its use of biotechnology as a new and thought-provoking medium for the literary text. Many conceptual writing projects have included the production of text by a non-human agent, such as a computer or simply mechanical manipulation of an existing text. The

exceptional thing about *The Xenotext* is that this agent is a form of life, a bacterium. The choice of a bacterium as the vehicle of the poetic text comments on the classical idea of the immortality of art as opposed to the transitoriness of life. As Bök explains in the appendix to the book: "A poem stored in the genome of such a resilient bacterium might outlive every civilization, persisting on the planet until the very last dawn, when our star finally explodes" (*The Xenotext* 151). He further states: "All poets pay due homage to the immortality of poetry, but few imagine that we might write poetry capable of outlasting the existence of our species, testifying to our presence on the planet long after every library has burned in the bonfires of perdition" (*The Xenotext* 151). Where procedural and conceptual poetry are connected to a critical approach to the institution of art and the traditional role of the artist as individual genius, the poem as artwork seems in some ways to maintain its status and value as an aesthetic object at the centre of this otherwise very radically thought out experiment. Contrary to other examples of conceptual writing, it maintains an aesthetic negotiation of the poetic expression, using language in a way that belongs exclusively to the literary text.

A final aspect worth consideration is the demands made by this work on its reader. In this respect, *The Xenotext* project presents particular challenges. Conceptual poetry in general is often characterized as unsuitable for reading. Reading the results of the manipulation of large amounts of found text belonging to an external context can often be quite boring and the value of this type of work lies mainly in the appreciation of the idea behind its execution. What is striking about the experience of reading the book version of *The Xenotext* is that it requires several and very different reading competences. A great deal of the material in the book has literary and aesthetic qualities and the appreciation of these requires certain conventional literary competences. One example is the references to Classical and Romantic poetry that call for general knowledge of literary history. The scientific part of the project, especially the actual biochemical research that exceeds the frame of the book and places the literary work in a completely foreign framework, will be beyond reach for most readers of literary texts. The scientific premises can be explained to the general reader, but his or her knowledge is likely to be superficial. In any case, the text requires a reader who is willing to make an effort to combine the two separate discourses and fields of knowledge. Not only is *The Xenotext* an ambitious project, but it also presupposes an equally ambitious reader.

What Bök aims to do is to relocate the poetic practice from writing to the biochemical processes of nature in the form of the bacterium. At the centre of this process is the original sonnet written by Bök and the whole project is viewed from the perspective of art. The spectacular interactive character of the work calls attention to the role of art in contemporary culture that is threatened by ecological disaster and ultimately extinction, as implied in the work. On another level, it also demonstrates how art itself as a discourse is involved in negotiations with other discourses, and how it is challenged to maintain its status as a viable paradigm that possesses specific qualities and can contribute to understanding existence. In its radical approach *The*

Xenotext places itself in the context of science reflecting the optimism of scientific progress as well as its opposite, simultaneously maintaining the idea of the unique poetic text at the center of its construction.

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