To Know a Tree: Symbiotic Mutualism and Artistic Exploration against Anthropocentric Science

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Abstract

Looking across the art-science nexus, the contribution discovers an emerging symbiotic mutualism that goes against mere inter-species tolerance of the posthuman perspective. This new understanding of symbiosis may be described as a transaction, both physical or factual in scientific terms, and arguably symbolical in the artistic sense. Therefore, different combinations of art-science and human-tree relationships shall be revealed along the treatment of one primary and four secondary cases of sciartistic practice, all revolving around trees as oldest, biggest, most globally spread life forms, still quite foreign to humans.

Taming the Forest is an ongoing interdisciplinary project, chartering a cross field among bioeconomy, cultural history, policy, and art(ivism). In the context of this paper, it acts as the case for researching the conflicting narratives of history and economy about biodiversity in general, and specifically on forests that represent a most massive entity of manifold exchange, and thus a field of inevitable symbiosis with humans (as well). The contribution further shows how different blends of methodologies in artistic-cum-scientific research can become truly relevant for both of their respective realms, opening new creative pathways that combine radical thinking and post-human research formats, embedded into critical use of technologies.

Keywords

Mutualism, symbiosis, art thinking, cosmopolitics, tree, forest, complexity, art and science.

Introduction: Towards the Cosmopolitics of Kin

In the current state of multiple and repeating planetary-scale crises, ranging from climate disasters to resource (and information) mismanagement, the complexity of problems increasingly takes humanity into exploring unknown unknowns. There we seek to find possible itineraries or at least speculative toolbelts for venturing into any kind of livable future, possibly such that might surpass the Anthropocene apories and find a new way of making (up to) kin. [1]

Therefore, combining a wide range of approaches from different domains and sectors, scientific as well as artistic, ranging from economy to policy making, or from philosophy to physics, has meanwhile become a common practice. Thus the article explores a new emerging form(at) of mutual individuation as reflected in selected artistic projects, that rejects interspecies hierarchies as the principle of posthuman politics (i.e. the management of power relationships between living or non-living entities), assuming a universal category and allowing modern scientific (as well as artistic) practices to coexist with other forms of knowledge – such as the specific forms of artistic-(research based) practice. The overview of such interdisciplinary practice shows that each segment and even each case takes its own combination of tools and methods, a correct(ly managed) mix of individual and joint thinking and doing that peacefully nurture each other – in terms of a sound symbiosis – with feeding relevant information and energy as well as inspiring (but without threatening or exhausting) each other.

Looking across the art-science research that has in the past decade grown to an established cross-field, a certain kind of *symbiotic mutualism* becomes apparent, going against mere interspecies tolerance of the posthuman era. It represents the central point of symbiosis, discussed in this article as a transaction, both physical or factual in scientific, and arguably symbolical in artistic terms. These new perspectives on symbiosis were convincingly condensed in the concept of *Cosmopolitics* by Isabelle Stengers who clearly argues against mere interspecies tolerance. Arguing for an "ecology of practices", Stengers explores the discordant landscape of knowledge derived from modern science. The author concludes her philosophical inquiry with a forceful critique of tolerance; it is a fundamentally condescending attitude that prevents those worldviews that challenge dominant explanatory systems from being taken seriously. Instead of tolerance, she proposes a concept and practice of Cosmopolitics that rejects politics as a universal category and allows modern scientific practices to peacefully coexist with other forms of knowledge. [2]

For the art-science nexus, it could be claimed that one side or the other often enters cooperation for the wrong or less than optimal reasons. For example, science uses art to visually interpret and communicate its complex scientific findings to a wider audience. With its potential to attract and mesmerize the masses, art is in principle made to render scentific content more interesting or tailor it to a specific audience. Moreover, scientists often want to increase their impact on the public and its awareness, create emotional connections that enable memorization, and strengthen learning. [3]

Art can on the other hand take advantage of this type of collaboration to add weight (or at least data relevance) to its artistic research by relying on scientists to develop their study relatively independently with possible creative contributions. But also, it is important for artists to have a voice and that their opinions are also recognized in matters that are important to the general public (e.g. climate change, migration management, burning social or epidemic issues etc.). Art-science experiments and similar multidisciplinary collaborations have never been a simple process, which is also a result of disciplinary boundaries that do not include *artistic thinking* on eye-level with more pragmatic, e.g. so-called *design thinking* approaches that have by now found their ways into both economy, education, policy-making and across the natural sciences. [4,5]

Knowing a Forest through Artistic Research

This paper will gradually present the idea, process and outcomes of the art-science collaborative project **Taming the Forest** (TTT), which served as a platform for interdisciplinary research in the cross field among the emerging specialist realm of bioeconomy, cultural history, policy, and art(ivism). [6] The aim of the TTT project was to give attention to real differences of thinking and approach in art (new media, animation, music) and science (history and ecology, critical theory, philosophy), and eventually manifest this in (collectively) experienced physical situations, as well as speculative artwork, and not least scientific outputs like this paper as such. Finally, the project also brought about meaningful transformations in top-level scientific thinking, such as the one conducted at the Joint Research Center of the European Commission.

As an open-ended project that began in early 2022, without having specified an endpoint, TTT approaches the discussion on differences in both methodologies and semiotics between art and science, in a processual way. From its onset, the process has been encouraging evident synergies between artistic and scientific approaches in research that significantly contribute to the enrichment and contextualization of the artistic creation on the one hand, and the optimization and widening of scientific research results, on the other. The project joins artists, students and researchers from the fields of arts and humanities, including external collaborators in some of its episodes. The art-science research group consists of students from BA, MA and PhD programmes, ranging from artistic practice to humanities as well as researchers in those fields, including a high-profile JRC-based researcher of bioeconomy,

specialized on European forest management. Importantly, in the development of the video interim product, an artificial- intelligence based concreative entity (Dall–E 2, by Open AI) was included into the process: prompts of key phrases from the research process were used to generate further visual material for the emerging video. During the investigation of secondary data as well as primary data-gathering artistic work and embodied presence in the forest as a physical space, the group consistently reflected on the importance of remaining sensitive to the contrasting yet complementary positions that art and science are taking in their interaction. The goal was to integrate both quite radically, surpassing the usual dominance of science, for which art is useful (only) when it illustrates already established scientific theories, or simply represents beauty, reduced to a tool for illustration of scientific findings.

The 4-month initial research stage brought about a video that was presented at the *Resonances IV SciArt* summer school organized in June 2022 (in Ispra, Italy) by the Joint Research Center (JRC) of the European Commission, in response to the theme *NaturArchy: Towards a Natural Contract*. [7] This video, representing an interim result of the research process, also provides an interpretation of archival sources about forest management in the Karst (a plateau in South-Western Slovenia, partly stretching into Italy) at the turn of the 19th and 20th centuries. At the same time, it also brings new findings about forest management during the afforestation of the Karst, and timely reflections on human-nature relationship. The complexity of experiencing the forest is mediated both through maps and photographs as well as in original illustrations of

local birds and recordings of their singing, complemented by images created with artificial intelligence. They are connected into a whole by a sound composition that intertwines with spoken theory on complex systems: "And if 'we' are to survive the Anthropocene — this indeterminate epoch of ours in which the world beyond the human is being increasingly made over by the all-too-human — we will have to actively cultivate these ways of thinking with and like forests." [8]

The further stage of the artistic investigation resulted in a biosonification performance process *Symphotree*, presented in September 2022 at the international festival of new media culture Speculum Artium (Trbovlje, Slovenia). The project thus premiered its performative phase that involved signal inputs by dripping water and a living plant (as concreative) entities, co-steering the audiovisual output, both factual (coded, verbalised) and emotional (midi-interfaced, modular audio synthesizer based). The most recent presentation of the entire research process took place in October 2022 at the *RETHINKABLE Festival of Transformative Economies and Regional Communities* in Nova Gorica/Gorizia (Slovenia/Italy) where the video was presented as a part of the photo and video exhibition on *Composing Local Ecologies* that was linked to a scientific panel on *Ecological Crisis and Criticism*.

Performing to Individuate

In her project **Plantportation** (2019–20) the Ukrainian artist and curator Olena Kasperovich first transported plants from Ukraine to Slovenia physically: each plant came with its own history from a Ukrainian donor joined by scientific data about its origin and type. Along community art like events in Slovenia locals had the opportunity to choose a plant and take it home with them, signing a pledge to care for it. A further collaboration step with the local artist collective BridA focused on how space is perceived differently among species in terms of real and virtual coexistence: as plants can only move under certain metamorphic conditions, the project sought to transposition them into the virtual domain, in terms of a televised, visual presence of plants and the possibilities of caring for them remotely. While in the resulting speculative and collaborative "interspace" (presented in different installation setups at two festivals, one in Slovenian and the other in the Ukraine) people could temporarily assign to themselves a plant's identity. [9]

By addressing the sublime, the cutting-edge, the unthink-able, even ad-absurdum, all along to formal and methodological disturbance, art seems to have finally become an essential and well-balanced ingredient in the established Art- Science-Technology blend – perhaps too often believed to be the world saving formula par excellence. Both science and art operate through questioning, critical thinking, observation, trial and experimentation, evaluation and repetition, however art does employ more radical "data-generation" methods such as intuition, imagination, inspiration, abstract sensing, embodiment, over-sensitivity, serendipity, storytelling, over-identification, radicalism, over-consistency, non-work, disnovation, etc. According to Peter Sloterdijk it is precisely thinking art, science and technology together that has the potential to generate an expanded knowledge consciousness. [10] Thus, artists often seem mischievous or even counter-culture minded, but in reality, due to their questioning nature, they tend to rethink what seems to be obvious.

Be-coming Tree is "a grass-roots community, creating, sharing and documenting close entanglement with trees and barefoot technology through collective global live-streamed events." In the context of the present paper, it represents a radically different, yet globally connected way of exploring artificial autonomies of different artistic (and non-artistic) approaches of being (with, and in tight exchange) with trees, which was particularly efficient if not downright viral during the pandemic year of 2020. By way of a radical practice in the above-mentioned sense of cosmopolitics this live-art streaming series tunes artists from all over the world onto an internet audio-visual platform, where each of them engages simultaneously "with a local tree or woodland, and livestream their actions via a shared screen for one hour". Audiences are invited to experience a plethora of live art forms that range from "stillness, dance and ritual" to more radical and conceptually intricate body-art and contemporary art performance pieces. The event series aims at "a creative entanglement creating a sense of global kinship and shared well-being. Tickets include a donation to plant rainforest trees, engaging audiences and artists in a restorative ecological action creating awareness of the mutuality of all life." [11]

Research through art makes us think about specific scientific questions not only in terms of "What is the answer?" but more importantly "What could be the answer?", which means that the aim is at broadening of the cognitive field. [12] What becomes central here is the ability of artists to "see themselves as both actors and objects of research, their willingness to live experimentally, and their desire to generate their own

experiences rather than just analyze them." [13] This is exactly one of the virtues that a scientist can adopt from an artist with a fair probability for a positive im- pact on the scientific research process and the resulting outcomes.

By taking the interdisciplinary approach that is not burdened by a goal or one strict path, but rather posing a challenge to constantly question our perspectives and chosen methodologies, ultimately resulting in manifold (research and artistic) outputs, not only the previously mentioned two cases, but also the TTT project may be considered true "chimeras." We borrow this concept from Natalie Loveless' book *How to Make Art at the End of the World. A Manifesto for Research-Creation* which postulates "research-creation as an institutional remaking practice" and moreover and aims at "mobilizing research-creation for (and in) the Anthropocene." The TTT project highlighted exactly this kind of acquiring knowledge "by bringing research and creation together in such a way that they unpredictably contaminate and remake each other, in such a way that they render each other uncanny". Quite in tune with the premises of all the here presented artistic-scientific practices, Loveless further argues "for artistic production as de facto research. [...] In doing so, in failing to fully belong, and allowing that nonbelonging to denaturalize, emergently, its givens, research-creation tells other stories, uncanny stories, that (have the potential to) carry within them the other ethics." [14]

Symbiotic Mutualism as an Artistic Act

A highly topical and scientifically well-founded case of artistic research into trans-species individuation, Agnes Meyer-Brandis' project ***One Tree ID – How to Become a Tree for Another Tree*** gathers the volatile organic compounds (VOC) of a selected tree and synthesizes them into a perfume that the visitors can apply to their body and with this "speculatively enter non-verbal communication between" the human and the plant entity. Similarly to humans and, in fact, to all living beings, every individual tree features a characteristic VOC print as a distinctive olfactory identity with which plants can be differentiated from each another, both by scientific tools as well as by their own sensory apparatus. In a close collaboration between the art production NGO Kersnikova Institute and its Kapelica Gallery with the scientists from the Jožef Stefan Institute (the national scientific institute of Slovenia), the team measured the etheric cloud of the volatile

molecules in the tree's roots, trunk and leaves. Based on the spectral chromatography, molecular quantities were defined closely. Yet regardless of the extremely demanding biotechnological methods, the volatile molecules could not be precisely measured in order to synthesize the individual smell of the concrete "katsura" tree (also known as the caramel tree) that moved between the science laboratory and the art gallery premises from spring to autumn 2022. A professional perfumer was brought in to help define the scents more precisely, upon which the art-science team merged the machine-gathered and sensory data into distinct perfumes "Root Cloud", "Tree Trunk Cloud" and "Tree Top Cloud", which were eventually synthesized to the "One Tree ID" perfume. [15]

As the last here presented comprehensive example of an artistic practice that radically questions the relationship between a technologically extended human and natural ecosystem, the **terra0** collective has since 2018 been building various prototype environments that are based on the decentralized (peer-to-peer) blockchain platform Ethereum, which aims to provide automated frameworks for the resilience of a given ecosystem. By establishing a "Decentralized Autonomous Organization" on the upper layers of the earth to govern them, *terra0* research team (as a group of developers, theorists and researchers "studying hybrid ecosystems in the technosphere") aims to create technologically augmented ecosystems that are both more resilient and more capable of operating within a predetermined set of rules in the economic sphere, as independent agents: e.g. the forest independently mines cryptocurrency and decides how it will change its material base. The group believes that modern technologies such as remote sensing and machine learning provide an opportunity to rethink existing inefficient governance and regulatory structures. Moreover, they also seem to suggest how, with appropriate art-thinking and speculative design-based assumptions and interventions, these could play a key role in creating a sustainable, resilient and biodiverse future. Along the line of above-mentioned cosmopolitics, the dominance of the human explanatory and decision-making system that dedicates natural resources within an anthropocentric economy (of both material, financial and symbolic orders), is juxtaposed by a radical scenario of self-governance of the analog (networked) forest, supported by (in deed human-developed) digital (network) technologies. [16]

Conclusions

The above discussion presents different kinds as well as different grades of symbiotic relationships reflected in artistic works, and the research these are based on – such that is combined from different (blends of) scientific and artistic tools and methodologies.

To focus one last time on this contribution's pivotal project; at the JRC's Resonances IV Art-Science Summer *School* event the TTT video premiere owed its fond reception assumingly to an audience *a priori* knowledgeable about the treated topics, and with a generally positive attitude toward art-science collaborations. In discussions around the video audiences would often try to get behind the methodology of the combined art-cum-scientific research as allegedly reflected in the directing and editing approach to the video. By contrast, at the *RETHINKABLE Festival of Transformative Economies and Regional Communities* the concept of close cooperation between art and science – let alone radical post-anthropocentric critical thinking – was not known to the audience, thus their feedback revolved around the "intricate" combinations of photographs of archival documents, artistic drawings, "controversial text and perplexing sounds" that all took them "to a mystical forest", as one of the (art) exhibition visitors concluded. By contrast, the audience of the scientific panel *Ecological Crisis and Criticism* discussed the video's verbal messages ("theoretical poetry") on the background of the festival's topics such as biodiversity, commoning policies, or transformative economies.

Furthermore, the TTT video and its research supported an important further step of the process as featured in the *Symphotree* performance at the *Speculum Artium* festival of new media culture, where the artistic and the scientific approach were quite transparently set up on stage as well as verbally explained both before and after the half-hour audio-video performance, to open up the research process underlying the artwork presented. After the performance, discussions emerged mostly about the scientific data and methodologies used in the process that lead up to the artistic act, continuing into considerations of both policies and popular practices of conceiving, understanding and eventually using the forest. In the TTT project's performative extension, the plant and the water could be seen as considerably foregrounded in terms of knowledgeable entities, delivering key informational impulses to the live artistic audiovisual score, working with and along (if not in front of) the two human artists on stage.

Not only individual trees standing (growing, or indeed performing) vis-à-vis humans, but also forests (as multitudes of trees) may be the most complete

metaphor for both a process and a phenomenon of growth that is systemically orchestrated, circular and long-term balanced – among different stakeholders and their types of information (energy) processing that, in order to bear both ethical and aesthetical positive value, must be kept in a dynamic and polyphonic dialogue between body and space, be it electronic or physical. [17] The TTT project poetically boiled down to a chorus of three imperatives, echoing throughout the audio narrative within the video: *Rewire Art:Science // Demystify Nature // Resettle Forest*. Combining artistic and scientific methods, cross-pollinating them both in the educational and in the cultural sector, on local as well as on systemic (policy, economy etc.) levels, the TTT project process so far brought about artistic derivatives such as an experimental video and a performance, as well as important scientific insights and even policy influencing moments.

Along with the four above presented secondary cases of media art manifesting different forms of symbiotic mutualism, it might be claimed that the forest eventually emerged as a new (kind of) metaphor for a self-regulating system that the human (kind) should probably think twice before considering to have understood it by any form of (human) knowledge, either by technology or policy, let alone aesthetics or ethics. The need for a radically new sensibility and complex knowledge appreciation thus becomes evident, moving beyond objective study and becoming attentive to different dimensions of research and its outputs that emerge through the introduction of artistic thinking, as well as interspecies transactions on equal terms. Only such radical form of inter-sectoral discourse can bring about viable models of conviviality among different species of life, forms of knowledge and creativity, be it intellectual or purely material. Surpassing the commonly assumed scientific objectivity where (especially non-human) entities are considered mere objects of research, such an approach opens toward (perceiving) their subjective agency, and their true individuation, as well as their potential to eventually change the eye of the beholder.

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