To be the wind for the tree: an experience of an interspecies translation

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ABSTRACT

To be the wind for the tree is a poetry generator that translates the physiological parameters of a tree or cluster of trees into verses. The project is based on the data collected by the TreeTalker+ sensor, which is designed to monitor trees and measures the quality of green infrastructure and ecosystem services that trees provide to the city. The generator translates the tree data collected by the sensors in real time into short poetic texts. The article describes the principles of analysing and translating the data and describes the development of the project from prototype to portable device, and then to the site-specific installation.

KEYWORDS

generative poetry, green infrastructure, interspecies translation

RESUMO

To be the wind for the tree é um gerador de poesia que traduz em versos os parâmetros fisiológicos de uma árvore ou de um conjunto de árvores. O projeto baseia-se nos dados recolhidos pelo sensor TreeTalker+, concebido para monitorizar árvores e medir a qualidade da infraestrutura verde e dos serviços ecossistémicos que as árvores prestam à cidade. O gerador traduz em tempo real os dados sobre as árvores recolhidos pelos sensores em pequenos textos poéticos. Este artigo descreve os princípios de análise e tradução dos dados e o desenvolvimento do projeto, desde o protótipo até ao dispositivo portátil e à instalação.

PALAVRAS-CHAVE

poesia generativa, infraestrutura verde, tradução interespécie.

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1. PROTOTYPE AND CONCEPT. *PANGARDENIA*, AN ARS ELECTRONICA GARDEN IN ST PETERSBURG

To be the wind for the tree
To be the sun for the leaves
To be a mineral for the roots
To be a bird or a pollinator insect. (*Pangardenia*, Natalia Fedorova)

Did you ever want to hear a tree talk? Did you ever want to feel how the water goes up the tree crown? How do the minerals feel for the root hair? How does the wind feel for the tree? This project is based on the idea of the Internet of Trees (IoT) verbalizing the tree sensibilities. In the summer 2020, I felt closer to the trees than ever, because of the immobility induced by the pandemics. The work I am going to discuss in this article translates the development of trees into readable data for the viewer by creating vocabulary for the physiological processes that happen inside them: the sap going up the crowns, the humidity of the trunk in connection with the humidity of the air and soil, their vertical position in three axes, how the tree feels gravity and wind, and the 12 spectra of light the leaves use for photosynthesis. The generated text is based on the data from the Tree Talker sensor developed by the Smart Urban Nature Lab (Moscow).

The concept of *To be the wind for the tree* (*TBTWFT*), the poetry generator, and its prototype, were created for the *Abandoned Gardens* section of *Pangardenia*, a *Kepler's Garden* presented at the Ars Electronica 2020. This project was co-curated by Artur Konstantinov, Laura Elidedt Rodrigues, Anna Kozlova and me. The festival was inspired by the pandemics and the absences it imposed on the artistic community. These absences were expressed by four paths: *Parniki* (in Russian, artists staying in their homes, indoor gardening, and other types of "encapsulated life"), *Abandoned Gardens* (semi-closed universities and ways for growing knowledge and art in lockdown), *Wandering Gardens* (an artistic boat trip in collaboration with boat drones) and *Post (non)human Gardens* (new types of life forms, combining both human and non-human agents). The festival's name, "Pangardenia," which is a natural chimera, was chosen as a result of collective voting. It aimed to

combine a pandemic panic[1] mindset represented by the natural aspect of the garden with the seclusion and security of the regular aspect of the garden[2]. *Pangardenia* depicted life between matter and data. The project united forty artists with four gardens: Botanical Garden of St.Petersburg University, Forest Academy, Art Media Center (Academy of Talents, SPb) Garden and ITMO university garden, as well as technological art institutions: Art &Science Centre of ITMO University, Media Lab of Alexandrinsky Theatre, Faculty of Liberal Arts and Sciences, St Petersburg State University and Kur Future Lab.

The idea of *TBTWFT* was suggested during a visit to one of the abandoned gardens. With a group of Alexandrinsky Theatre Media Lab students, we travelled to the Forest Academy, where we saw the Tree Talker sensor attached to one of the trees, and I came up with the idea of making a translation of the physiological parameters of the tree measured by this sensor. The prototype version contained five lines based on the awareness of the physiological parameters and general knowledge of physiology of the tree.

the cycle of the year leaves a circle
to turn the sapwood into the heartwood
stable, I stay
sugars go down the phloem to the roots
round and round

death goes up the tree trunk to grow stable,
I incline south-west
green leaves have enough water
to photosynthesize
round and round

the pith is a seedling inside the old tree
I incline south-west, stable
the soil is warm and moist
round and round[3]

The order of the lines here is not set as in later versions. The first line is a general observation of the physiology of the tree, the second one

1 from Pan, Greek god of fear.
2 Garden is of the same origin as *grad* (“city” in Russian), *gradina* (“fortress” in Slavic languages: Serbian, Croatian and Bulgarian).
3 FEDOROVA, Natalia (2020). *To be the wind for the tree.* 31 October 2023. *https://youtu.be/jgu-WcTD3y4?si=VC013XpWPUsL7iBx*

refers to the thermal probe and the speed of the flow of sap, the third one contemplates the parameters of the accelerometer, and the final refers to the radial growth — "round and round."

The first prototype of the work remains on the page of the *Abandoned Gardens.* Now, in the context of emigration after the Ukrainian war, the *Abandoned Gardens* gain an additional meaning: three of the four curators of the project (Artur Konstantinov, Laura Rodrigues and me) left Russia. Looking back at the summer of 2020, it seemed natural to film the trailer for the *Abandoned Gardens* in July in the Botanical Garden of St Petersburg State University, one of the partners of *Pangardenia*. Two years after, in the cold March of 2022, we filmed the exhibition opening, first in the library of the Botanical Garden and then in the garden itself.

2.1. PORTABLE DEVICE

The portable device was first presented remotely at Teleported Arts, South Korea, on the 29th of January 2022 because of the pandemics' restrictions. The physical object was made in the labs of ITMO University with the help of the engineer Rostislav Shchtennikov and technical director Alexey Feskov. It consisted of an LED screen and an Arduino in a transparent plastic frame.

The portable device was conceived as a means of telematic connection between a meaningful space, which in this case is a cluster of the trees, and a human. The work was made with a certain place in mind and has a personal connection to the author. In the summer of 2020, I converted the funds I received from selling my grandparents apartment in Kharkiv, a Ukrainian city on the border with Russia, into a small studio in the apartment block on the bank of Razliv Lake in Sestroretsk, Leningrad Region, Russia. Sestroretsk Razliv is a unique natural reserve and historical site with a marsh that is remnant of a Littorina Sea from ten thousand years ago and one of the earliest human settlements in the Northwest Russia. Sestroretsk Razliv was the place of inspiration for the project and the place where the desire to establish connection with the trees first emerged. Presently, I hope to continue the project by installing the sensor in the Museum Complex in Razliv.

TBTWFT portable device alludes itself to a pager that was used in the 90s to receive the messages (and the telephone was needed to call back), and, possibly, a tamagotchi that, despite being a machine, required attention and care just as a live being. *TBTWFT* was meant to connect two living entities: a cluster of trees and a human observer with the help of data collected by the sensors and by means of interspecies translation. In case of the connection to the tree, the observer — experiencer is connected to

a space of atmospheric and physiological conditions. As for the telephone, this allows the connection with anyone or anything holding a similar device or an acoustic sensor. Furthermore, the smartphone is comprised of a plethora of devices from the past: a camera, a television set, a mailbox, etc. Continuous flows of information received by the owners of the smartphone distort their focus and produce noise. On the contrary, *TBTWFT* is a device with the sole purpose of observing a significant tree or a cluster of trees. Through this device, the human receives lines of text, shifting perception of the experiencer from the external tree and their mental image of the tree and directing attention to the activity inside the tree. The textual mode also makes space for imagination, which is activated by telematic communication. The distance between the trees and the experiencer is bridged, or at least anaesthetised, producing a shared sensorium.

round and round
stable very stable
warmer than air
water from the earth

round and round
stable very stable
in my cool shade
water to the leaves

round and round
stable very stable
to absorb the dust
slow sleepy sap

TBTWFT portable device was the first working prototype of the artwork, yet it was not based on real time data, but on the data collected from an Oak tree in the Summer Garden between June and November of 2020, and analysed by scientist Alexey Yaroslavtsev from the Smart Urban Nature Lab. The reason for this was merely practical — the trees do not send much data when the temperature is lower than plus five degrees Celsius, hence they are not usually measured during the Winter and beginning of Spring. The next decision we had to make was to choose the period of observation and season in the calamitous and memorable year of 2020. In St Petersburg, it was in the summer of 2020 when the pandemic restrictions hit most severely, closing concert halls, cinemas, restaurants and hotels. Parks and gardens were the only common spaces open to the public.

Addressing the pandemic time, made it possible to compare the human's catastrophic sensitivity to the sensitivity of the oak tree in the Summer Garden, which is located in the densely populated city of St Petersburg. Thus, one of the ways of perceiving the work is remembering one's own feelings and actions during the pandemic period and comparing them to the perception of the same environment by the tree. The work enables us to contrast our memories of the summer 2020 with the degree of well-being of a particular tree cluster. One of the main goals is to show which parameters of the surrounding urban environment affect both the tree and the human, but possibly the most important goal is to depict the tree cluster as a sentient, self-explanatory, confiding actor, as opposed to a human living in seclusion during a pandemic.

The physical object was first exhibited on the 8th of February 2022 in the Botanical Museum of St Petersburg State University. The show was curated by Diaghilev Contemporary Art Museum. The object was intentionally added to the collection of the huge art nouveau papier mâché models of flowers of the Herbarium of the Botanical Garden of St Petersburg university.

Several weeks later, the war in Ukraine started and it felt extremely untimely to speak about the sensitivities of the tree. The surrealism of this situation is reflected in the photographs taken from the uncanniest angle by Alexander Antipin that show the transparent box with succulents of unusual shape.

Fig. 1

Fig. 2

That seemed to be the way we felt in this world where our country has thrown itself into a pointless imperial war that was followed by sanctions. In March 2022, none of us in St Petersburg knew how to navigate this world anymore.

The next iteration of the portable device took place in Krasnokholmskaya Gallery in Moscow as part of *The space of a message. From a sign to perception*, an exhibition organized by artist and curator Elena Demidova. This was the exhibition dedicated to 10th anniversary of media poetry lab and included works by VALab, Anna Tolkacheva, Andrey Cherkasov, Daria Gusakova and Oleg Makarov, from the first generation of media poetry and media art, as well as ITMO's Art&Science Centre graduates such as Nadezhda Bey, Ksenia Gorlanova, Alexander Pogrebniak, Sophia Barinova-Osbanova, Anton Schegolev. In the Russian context, media poetry played an important role in the development of the technological art scene, normalising forms of electronic and performance poetry. As someone who played an active role in establishing this field in Russia, I felt that *TBTWFT* could fit this context perfectly. I consider the work to be an interspecies translation, yet firmly rooted in the tradition of electronic writing. The text lines are reflections on physiological parameters, but also attempt to express an inhuman sensation worded by the tireless algorithm.

The last exhibition of this work took place in Coimbra as a part of ELO 2023 dual exhibition Arborescence|| Resistance that addressed social and environmental issues and included more than eighty artists. The show was organized by a collective of curators Daniela Côrtes Maduro, Alex Saum-Pascual, Rui Torres, and Manuel Portela. This version of the work was a standalone device that only needed to be plugged into the electric socket. The abridged version was presented here and included only one hundred measurements, or one hundred glances at the tree. It resulted in more repetitions because the distance between iterations was accelerated. On the one hand, it made the work more meditative, on the other hand, the speed at which the tree's life was told became significantly increased.

2.2. SEVKABEL PORT AND PARC D'ATELIERS INSTALLATIONS AND METAVERSE VERSION

Sevkabel Port is the urbanized industrial area of a former port. It has become a creative cluster since 2017, when the factory moved twenty percent of its production facilities to Kozhevennaya, 39. Rosbank Future Cities 2022 Festival curatorial team (Olga Vad, Kate Gromova and Natalia Nefedova) approached multiple venues to discuss the installation including the birch grove near GES 2, located a few hundred meters away from Kremlin. Yet the final choice was made in favour of a small square of poplar trees in Sevcabel Port. Three other works were exhibited in the venue: *reGeneration* by Maria Kuptsova and Marina Musika's, *Flora Fatalica* by Anna Fobia, *Biomorphism* by Kirill Contre along with the site-specific installation of *To be the wind for the tree*. The festival was held simultaneously in five locations: in Ekaterinburg, Kazan', Moscow, Samara and St Petersburg. In order to create a shared space in metaverse, digital doubles of every artwork were created. The viewer, in the shape of the chosen avatar, was invited to explore the space.

For Sevkabel Port, a new shape for the text generator was created. Here *TBTWFT* was producing four lines based on data from the TT+ (Tree Talker) device. There were five sensors installed, each on one of the poplar trees cluster.

Fig. 3

Fig. 4

Fig. 5

The data from the sensors was sent to the server and translated into the four lines of text in Russian. The measurements occurred every half an hour. Viewers were able to compare their perception of the environment with that of the poplar trees in real time. At moments of heavy rain, the data from the TT was not available, and the installation switched to the automatic

mode, drawing data from observations of a similar cluster performed on the previous year.

In Sevkabel Port, each line was encapsulated in a meter and a half long plastic tube. The lines were transcribed on LED strips. So, the verse that was originally on one screen was now taken apart and could be perceived as a separate line. The length of the line was not important as the text was moving. In the final installation in Peredelkino, a legendary Soviet countryside residence of creative workers, the lines in the plastic tubes were placed almost a meter apart. In the Peredelkino version, the sensors were connected to five larch trees, but otherwise the installation was the replica of the Sevkabel version.

Creation of the installation in Sevkabel Port was quite a complex enterprise for the reason that it required a lot of preparation to meet the open-air conditions. The installation needed to be made waterproof and, ideally, to work without interruption for the three weeks of the festival. The cables needed to be hidden, and initially, mulch was used to cover them, but in the final version high grass was planted instead, thus obtaining a much more impressive effect.

The last iteration of the project took place in a form of workshop titled *To be the wind for the tree: garden of poems* that took place on the 25th May 2024 during the Environmental History III: Far from the Garden, in Luma, Arles (France). We installed three sensors in the clusters opposite to Les Forges in the Parc d'Atelier. We placed a Tree Talker on a Baltic Pine (Pinus Sylvestris), and two sensors assembled by Evgeny Gerasimenko on a Montpelier maple and a holly oak. We chose one coniferous tree, one evergreen tree and one deciduous tree endemic to the Camargue, Alpilles and Crau landscapes — the three distinct types of landscape predominant in the region of Bouches-du-Rhône. These three types of landscape were the principle according to which the vegetation was chosen for the Parc d'Ateliers by Bas Smets. Parc d'Atelier was created from scratch: five hundred trees were planted, as well as the pond and an irrigation system were installed to recreate an ecosystem at a former industrial site.

During the workshop, participants were invited to create lines of poetry to translate changes of eleven parameters: air temperature, air humidity, soil temperature, soil humidity, angle, ambient light, UV light, spectrometer, sap flow, atmospheric pressure, and dust particles[4]. Here are several iterations of the poem based on these eleven parameters:

4 The garden of poems can be observed at: https://tobethewindforthetree.com/.

as easy as a dew
to hybernate
is there a face on moon
of green
slow sleepy sap
the water comes from metal viens
holding drops of water
enough to transpire
air's gentle touch
stable i am not
to collect the dust
rival of the beech

i transpire well
sugars from the leaves
light for light
to collect the dust
slow sleepy sap
drop by drop
holding drops of water
enough to transpire
air's gentle touch
stable very stable
to collect the dust
place to tell the lies

i transpire well
less than i need
starry night
to collect the dust
slow sleepy sap
drop by drop
colder than the air
enough to transpire
air's gentle touch
stable i am not
to collect the dust
place to tell the lies

Site specific installations at Sevkabel Port, Peredelkino and Parc d'ateliers materialized the idea that was primarily formulated with the *Pangardenia* prototype which was to create a vehicle for simultaneous

presence of two sensibilities: the sensibility of the trees translated in real time and the sensibility of the viewer. This case of synchronous perception is memorable and a rare experience, even between humans.

3. INTERSPECIES TRANSLATION AND TEXT GENERATION PRINCIPLE

While working on this project, I was communicating a lot with dendrologists and foresters. All of them told me that they do not need any sensors to see the trees' condition. What they need is time for observation, an intimacy of a sort that they develop with trees and the environment where the trees grow. These environments, as well as the trees in them, may be affected by climate change, weather conditions, human action or presence of pests.

My interest in interspecies communication originated in the desire to read and hear words, receive signs and signals that do not come from human experience, from the umwelt of a creature with four limbs and one head that developed a certain vocabulary of feelings and spreads them in the span of an approximately eighty-year-long life. For some reason, I have always been attracted to these unwritten narratives. Different semiotic system means different times, different points of attention, different habitats, and yet, there is something universal to all the living systems: the reaction to the outer environment, the need for nourishment, the instinct to spread and multiply, form symbiotic relationships, the condition of being born and dying.

As humans are morphologically different, we go through the motions of a tree as perceived through the sensors connected to it and translated to human language, thus mimicking the tree with verbal gestures. The textual mode makes space for imagination, thinning the divide between foreign species to the text, a carbon paper with the imprint of human experience on one side and that of a tree on another side. Traditionally, the correspondence between man and nature through the sole media of human feelings lead to a narcissistic reflection. The use of scientific data, unattainable by naive Adamic approach, allows to approach nature in a less anthropomorphic way and more as it is.[5]

Experiments in interspecies communication that include speaking on behalf of the other being are often criticised for their speculative nature: when an entity does not speak for itself, any words can be put in its mouth, tentacles, or leaves. American artist and writer Meredith Tromble, in the twenty-seventh chapter of *Routledge Companion to Biology in Art and*

5 The image of carbon paper as a metaphor for interspecies communication was developed in Telegram chat conversation with Russophone poet and translator Mikhail Shelkovich 14 October 2024.

Architecture, ridicules an unabashedly anthropomorphic and "sentimental portrait" of an artist and a chicken as one creature made by Mary Britton Clouse. She points out that it is the disregard for animals in the cultural field, and the distance that exists between the cultural and natural worlds, that should be emphasized instead, as for instance, in the *Primate Cinema* by Rachel Mayeri. In one film of the series *Baboons as Friends* (a clear allusion to the *Friends* series), actors are invited to play out, rather convincingly, the baboon behaviour. Tromble is right in stressing that even in the case of art fostering inter-species communication humans seem to tend to be grabbing the biggest piece of pie. Yet, I cannot agree to ridiculing the occasional sentimentalism of addressing other species. I am convinced that not being sentimental enough may and does result in speciesism, that is, believing and behaving as if humans were inherently superior to all other species.

Response to Tromble's critique can be found either in the realm of ecosemiotics or in the ancient tradition of observation of animals. "Identifying with" is a form of recognition which, according to Butler, can be described as "a process that is engaged when subject and Other understand themselves to be reflected in one another" (2004, 136) and through that, "the self never returns to itself free of the Other, that its 'relationality' becomes constitutive of who the self is" (149). The example of such *identification with* can be found, for instance, in Martin Buber's meditation on the tree.

> I contemplate a tree.
> I can accept it as a picture . . . . I can feel it as a movement . . . . I can assign it to a species (...) But it can also happen, if grace and will are joined, that as I contemplate a tree, I am drawn into a relation, and the tree ceases to be an It (...). Does the tree then have consciousness, similar to our own? I have no experience of that. . . . What I encounter is neither a soul of a tree nor a dryad, but the tree itself. (Buber, 1970: 57–58)

Here Buber identifies himself with the tree, to whom he refers not as "it" but as "thou." He refuses to go into "the soul of the tree," but acknowledges its subjectivity. I see *TBTWFT* as a similar exercise in acknowledging the trees' subjectivity.

But getting back to the argument about the speculative nature of interspecies communication, I would pose the following question: what are the criteria of verification that allow to determine whether what is being expressed and pronounced is exactly what was meant? I would argue that even human language is not prone to verification. We cannot know the connection between the thought and emotion of a person and a word, and we cannot measure how successful this or that phrase was at expressing the emotion or thought.

At this stage in technocultural development, the use of sensors and data analytics is a ubiquitous and systematic mode of observation. Most of the sensors, including TT, take measurements every half an hour during the night and in adverse weather conditions. Comparing the data with the weather forecast, I noticed that there were glitches on rainy days. This means that sensors are also less precise in stormy weather, and yet, despite this fact, when carefully gathered and interpreted, the big data collected during continuous observation by sensors can reveal more information, and quicker, than human observation.

However, data itself depends on the intention of the observer: do the observers want to know when to cut the trees, or do they observe to prevent the trees from falling? In case of the TT, it is the observation of the quality of the green infrastructure that is at stake in the observation process (Valentine et al., 2019). The European Commission defines the green infrastructure as

> a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services. It incorporates green spaces (or blue if aquatic ecosystems are concerned) and other physical features in terrestrial (including coastal) and marine areas. On land, GI is present in rural and urban settings. (EUROPEAN COMMISSION, 2023)

TT collects big data continuously observing the trees and their environment, this data is a diary of observation simply recorded in numbers. Once you understand what they stand for, you can translate this condition into lines. The parameters are interrelated: high temperature of the trunk would signify a necessity for water in the trunk. For instance, in this situation, the accelerometer displays the following:

X, OUT — median of 100 measurements, which is in the range of measurements from 4096 to 4096.

X STD, OUT — standard deviation of 100 measurements in the range from 4096 to 4096.

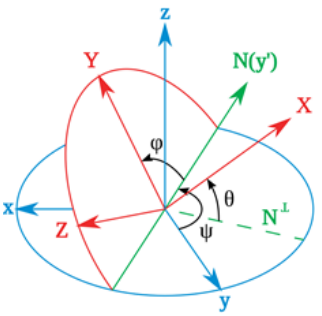

Fig. 6

$$A_{X,OUT} from -1g to +1g$$

$$\varphi = tan^{-1}\left(\sqrt{A_{X,OUT}^2 + A_{Y,OUT}^2}/A_{Z,OUT}\right)$$

Fig. 7

Therefore, the raw data is received in numbers that require a formula (see Figure 6) to produce a meaningful parameter. The calculations were performed before the translation process and present one of the stages of translation from numbers to numbers. The physical form of the portable device and the LED screen we used allowed the display of four lines of text with 20 signs each, so the lines of the prototype needed to be made much shorter than initially planned. Also, the initial prototype lines were based on seven parameters measured by the TT sensor: water transport inside the plant, diameter growth, quantity and quality of foliage, light transmission in four spectral bands, climate, and soil parameters (temperature, humidity), tree stability with gyroscopic sensor, air temperature and humidity (soil temperature and humidity). In the portable device, the first line comments on the radial growth of the tree ("round and round ," "round and"), the second addresses the data of the accelerometer ("stable ," "stable I am ," "stable very stable ," "stable I am not"), the third one interprets the thermal probe ("to absorb the dust ," "take the hear away"), the fourth one describes the spectrometer data ("water up the leaves, to photosynthesize," "water water water"). As the table below demonstrates, the principle of translation is based on the threshold numbers corresponding to high, normal, and low. This simple vocabulary is implemented in the case of my translation from ecosystem manifestations to very basic indicators of life.

line 1: diameter growth sensor			line 2: acceleromrter			line 3 thermal probe			line 4 spectrometer		
high	norm	low	high	norm	low	high	norm	low	high	norm	low
round and	round and round	round and round	stable	stable i incline	i can fall		from sapwood to	bark	i know my sun	to photosynthesi	water
bark cracks			stable i am	my roots my roo	i may fall	to reach sun	up the phloem	nothing	i know my rain	to precipitate	water water
			stable i will be	too much wind	stable i am not	to face wind	down to roots	not much	i know my wind		need more water
				almost stable		leaves grow		slow sleep			not enough water
								slow sap			

Fig. 8

LINE BY LINE

The first line, "round and round," or "round," (or "I wear the annual ring" on the installation ticker) indicates the radial growth of the tree. Usually, an older tree is more stable and more adapted to the environment. In general, trees present the case of reverse aging — the old tree is the most physically robust. This line translates the temporality of the analysed trees.

In six months of measurements the number of the accelerometer (line 2) remained the same. Repetition of line 1 "round and round" creates the connection to the stability of the second line. "Round and round" encapsulates the viewer inside the tree trunk and its vegetal mobility by means of occupying space with its physical mass. This line switches from human historical perspective to the autographic perspective (Offenhuber) of the natural season cycle. The events are registered in the body and by the body of the tree.

The accelerometer (line 2) measures how well the tree stands against the wind and evaluates the risk of falling. The lines "stable I am stable," "stable I incline," "stable I am not," and "stable I will be" are the lines that address this condition. The use of "I" here is questionable because, as we know, human personality is subject to change, depending on the social context and emotional state. Besides that, it is not the aim of this project to anthropomorphize trees. Therefore, in *TBTWFT*, the "I" is simply a focal point and does not express subjectivity.

Line three, working with the temperature of the trunk and spectrometer, addresses the ability of the tree to create its own microclimate under the crown which is cooler in the summer and slightly warmer in winter when compared to air temperature: "warmer than air," "take the heat away," "filtering the sun" or "in my cool shade," "hides the rain in leaves," "rain is hard to read." The leaves do not only produce oxygen, but also accumulate suspended particles: "to absorb the dust." The display of the sentence "holding less dust" is one of the transformations that reflects the loss of density of the crown. In this line, I also register the ability of the tree to serve as a shelter for humans and wildlife ("take my storm inside"). With the first-person perspective, it acquires a tragic, almost suicidal connotation.

Trees can pump the extra water from the soil. "Draining up my soil" and its variations address this ability. It is the Garnier thermal probe (line three) measuring the sap flow that allows to collect these numbers. In case the speed of the flow is not very high, line three displays "slow sleepy sap." When the sap flow is normal it is possible to read "from roots to crown" and "to photosynthesize" in line four. In this same line, once the speed reaches the highest numbers, the screen displays the rather tense sentence "water water water."

FINAL REMARKS

As part of non-human literature that listens to and gives voice to other beings, *TBTWFT* is an attempt to create a nondescriptive, but introspective, vocabulary to write with trees. Both in the case of the portable device and

the installation, the conditions are set for multiple space perception. The installation brings forward different perceptions of the same environment and visitors are invited to partake in a thought experiment during which, thanks to imagination, they need to extrapolate themselves and assume the perspective of the Other. The portable device challenges the notion of space by adding to it detailed data about a remote tree and formulating a shared telespace.

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