Critical design

(In)visible design

Multidisciplinarity

Sensoriality

Susanna Legrenzi - Stefano Maffei

"When we speak of the invisible we are also referring to an 'idea of the future'"

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Untangling the (in)visible
An Investigation on the Limits of Design

In a world overloaded with posters, products, images and experiences, does the threshold of the invisible still exist? And, above all, what happens when design comes up against the imperceptible, the complex, the infinitely large/small, the contrary to intuition? Starting from an independent and non-academic curatorial practice, both authors present and examine their work and their vision according to the precedents in the research for their exhibition *(In)visible Design. 100 Stories from the Future and Beyond.*

The Invisible. How to Define It?
The theme of the invisible is one of the classical questions that project culture has faced for centuries. The definition of something that cannot be seen and yet exists (and is enforced) with respect to the plane of the reality in which we live and act is an area of research that over the course of history has generated thousands of unanswered questions, not only in the field of design. To help further our understanding of the issue we shall begin by clarifying the meaning of the term.

adjective **1** *unable to be seen*: this invisible gas is present to some extent in every home / concealed from sight: hidden: *he lounged in a doorway, invisible in the dark* / treated as if unable to be seen: ignored or not taken into consideration: *before 1971 women artists were pretty well invisible.* **2** *Economics* relating to or denoting earnings which a country makes from the sale of services or other items not constituting tangible commodities: *invisible exports*
noun (**invisibles**) invisible exports and imports.

As seen, the *Oxford English Dictionary*[1] defines invisibility as a property with certain precise characteristics: it is unperceivable by our sight or other senses, concealed from view or else located in unknown, obscure or secret whereabouts, considered non-visible/perceptible in the cognitive sense, i.e. abandoned, marginal, unlikely.

* The descriptions of projects that appear in brackets come originally from conversations and/or interviews, by e-mail or Skype, between curators of the group show '(In)visible Design' and the designers.

1 *Oxford English Dictionary* [online], Oxford University Press, 2013. [Accessed 31 August 2013]. Available at: http://oxforddictionaries.com/definition/english/invisible.

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project experimentation that
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Other meanings provided by *Roget's Thesaurus*[2] complement *unable to be seen* with synonyms such as *unseen, imperceptible, hard to sense, faint, intangible, indefinite, obscured, latent, dormant, hidden, lost, missing, off-track, microscopic, tiny, almost undetectable, obscure, out-of-the-way, little-known, mysterious, secret* or *supernatural*.

This whole range of meanings configures a first map that, by studying the etymology of the term, can help us steer our analysis and establish a first research approach: the invisible is a semantic category that derives from the relationship between a perceptive subject and an object/activity-performance/environment, thereby bringing together different rules, actions and properties attributable to:

— the cognitive/perceptive abilities of the subject;
— the constituting properties of objects/environments;
— the performative relations established between these two environments in the course of the interactive processes of cognition, perception and action.

These areas of meaning also constitute the starting point of a possible exploration of the areas of critical research in design, not so much for a structured theoretical perspective as for a critical approach based on a rhapsodic and anarchical structure; in other words, the research of individual approaches to the question of how we project the invisible.

The threshold of invisibility marks a historical limit to the dimension of critical-project experimentation that the project has confronted by establishing relations with science, technology and poetic research. This barrier has always been linked to the idea of 'materialising that which does not yet exist', or, translated into an intelligible dimension, that which we are still not in a condition to see/understand.

From this stems the idea that when we speak of the invisible we are in fact also referring to an 'idea of the future', hidden behind the attempt to capture this elusive dimension.

As Paola Antonelli[3] has said, 'Design is life, and it is therefore history. Steeped in the human condition, ideally a few steps ahead of it—and hence a political act—it follows the course of events and at critical junctures is compelled to take the lead and show the world a different way forward. Ettore Sottsass was famously eloquent on this topic, declaring in the late 1960s that design "is a way of discussing society, politics, eroticism, food and even design. At the end, it is a way of building up a possible figurative utopia or metaphor about life".[4] Indeed, at different turns architecture and design have raised red (never white!) flags and creatively proposed corrections under different manifesto umbrellas.'

However, the core of the research of the project within the human dimension is the contemporary change of this condition, the idea of a 'post-humanity' that

2   *Roget's 21st Century Thesaurus* [online], Philip Lief Group, 2009 (3rd edition). [Accessed: 31 August 2013]. Available at: http://thesaurus.com/browse/invisible.

3   P. Antonelli, 'States of Design 04: Critical Design,' *Domus*, No. 949 (July-August 2011) [online]. [Accessed: 31 August 2013]. Available at: http://www.domusweb.it/en/design/2011/08/31/states-of-design-04-critical-design.html.

4   As reported in P. Dormer, 'What is a Designer?', in *Design Since 1945*, Thames and Hudson, London, 1993, p. 10.

◂ Varathit Uthaisri. *Surface*, 2012

▲ Panoramic view of the *(In)visible Design* exhibition, 2013

has different biological and cognitive characteristics and lives in a changing, mutant environment, tendentiously dystopian.

In this sense, it is connected to the work and the research perspective of the masters of English critical design,[5] Anthony Dunne and Fiona Raby. Their ability to explain the change through storytelling, that is, producing a design fiction, makes us understand that 'the possible' is in fact much less obvious than 'the projectable': a future with an image that is non-futuristic, disturbing, contemporary or retro-futuristic, Dickian, subtle, counter-cultural and freakish.

The critical position they establish with an extensive study in cultural and project experimentation unfolds in a number of manifesto-displays: a progression of consolidation that is cleverly brought to a close with the series of exhibitions entitled *What If …*[6] and the final utopian-dystopian representation of the latter, *United Micro Kingdoms (UMK): A Design Fiction*,[7] where the object of the project is in fact a reflection on humanity.

In the same spirit we embarked on a curatorial research project that produced the show entitled *(In)visible Design. 100 Stories from the Future and Beyond*,[8] that studied the subject through a selection of twenty-six visions or proposals (starting from a compilation of projects, prototypes, installations and videos) made by international designers and artists. The assortment of projects was completed by a vast documentation of hybrid historical cases combining science, technology, art, literature, film and graphic arts that provided an extensive and all-encompassing narrative.

5   The term 'critical design' was first defined in A. Dunne, *Hertzian Tales. Electronic Products, Aesthetic Experience, and Critical Design*, Royal College of Art, CRD Research, London, 1999, and in A. Dunne and F. Raby, *Design Noir. The Secret Life of Electronic Objects*, Birkhäuser, Basle, Boston, Berlin, 2001.

6   Exhibition curated by Anthony Dunne and Fiona Raby, Science Gallery, Dublin, 2009. [Accessed: 31 August 2013]. Available at: https://sciencegallery.com/whatif.

7   Exhibition curated by Anthony Dunne and Fiona Raby, Design Museum, London, 2013. [Accessed: 31 August 2013]. Available at: http://designmuseum.org/exhibitions/2013/united-micro-kingdoms-umk.

8   Exhibition curated by Susanna Legrenzi and Stefano Maffei, produced by Logotel, Spazio Logotel, Via Ventura, 15, Zona Ventura Lambrate, *Milan Design Week*, 9-14 April 2013, Milan. [Accessed: 31 August 2013]. Available at: http://www.invisible-design.it/en/exhibit.

Beyond the Gaze: The Critical Narrative of the Future

In today's post-digital society, to work in design means to establish and modify the meaning of things, while projecting its processes of transformation.
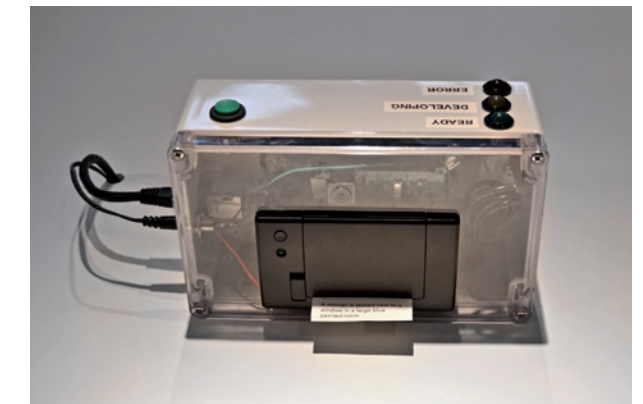
For some research practices the challenge seems to be the one described by Gerd Selle: a subtle balance between 'symbolic expression and materialised product,'[9] in which the traditional concept of product is modified and extended by new meanings.

This is the case of *The Descriptive Camera*, apparently a normal camera with a shutter, yet one which 'instead of producing an image uses crowd sourcing to output a text description of the scene.' The camera was designed by American Matt Richardson, Resident Research Fellow at New York University's Interactive Telecommunications Program (ITP), designer and maker of things devoted to projecting networks of objects. The result is a transmigration of meaning and senses: the device, made with spurious technologies and open-source software (OSS), seems to revisit the debate on the real confines of what Walter Benjamin called the 'optical unconscious',[10] providing an insight into how technology can extend our perceptive capacity and, thanks to this capacity, individual and collective memory, that incredible device for cataloguing the world. The eye is always at work, but the narrative code is entrusted to the language of writing, that will redefine the construction processes of memories changing the nature and function of the object.

Having said that, to what extent does memory influence the processes related to the future by exploring the field of the invisible?

Nicolas Nova, one of the most interesting figures in the emerging design field, teaches at the Geneva University of Art and Design HEAD-Genève and works as a consultant at the Near Future Laboratory, an international platform for the 'construction of the imaginary'.

During a workshop held at the Art Center College of Design in Pasadena, California, with Katie Miyake, Nancy Kwon and Walton Chiu, he signed a research project dedicated to our everyday interactions with technology. We are the protagonists: we, who watch TV tweeting, cover our mouths with our hands when we are revealing something confidential over a smartphone, exchange a few words with a friend in person, sharing a tablet screen as a relational window. The project is entitled *Gestural Interaction in the Digital Everyday*, and is a spy story that ethnographically explores the small (new) habits of everyday life—a way of understanding design as an instrument capable of posing and solving questions before provoking new desires. Nova says,
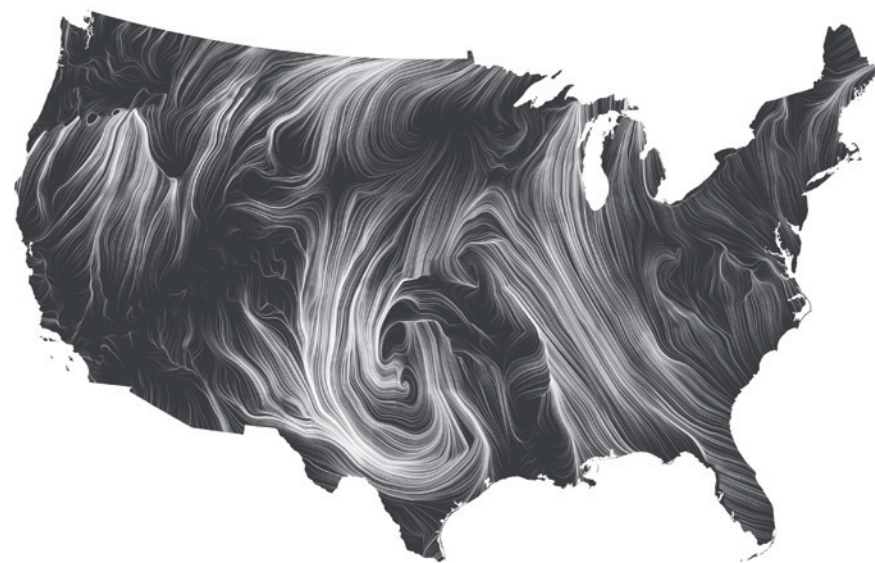
9   G. Selle, quoted in J. H. Gleiter, 'Beyond the Visible. On the theory of design,' *Zona #3: Blurring Boundaries*, Faculty of Design and Arts of the Free University of Bozen-Bolzano, 2009, p. 4.

10 W. Benjamin, *The Work of Art in the Age of Mechanical Reproduction* (1936), first published in English in Hanah Arendt (ed.), *Illuminations: Essays and Reflections*, translated by Harry Zohn, Harcourt, Brace and World, New York, 1968.

▲ Matt Richardson. *The Descriptive Camera*, 2012.

'[W]e selected a certain number of cases that reveal how the postures and gestures adopted by users of digital technologies would constitute a set of "rituals". […] Regarding digital technologies more specifically, such endeavor is important because it helps to show how the use of such devices is a joint construction between designers and users. […] The questions we asked and the possible implications we arrived at on the project, should be relevant to anyone who is interested in envisioning the future. These are starting points, first questions on how technology could be domesticated, repurposed, recycled in interesting ways outside normative technological discourse.'

Nevertheless, beyond giving shape to things, design goes one step further to produce discordant cognitive scenarios. Designers do not look, they see. If Marshall McLuhan believes that 'Technology is an abstract tyrant that carries its ravages into deeper recesses of the psyche than did the sabre-tooth tiger or the grizzly bear,'[11] to take the preponderance of sight for granted is to produce congestion in the true sense of the term. Fernanda Viégas and Martin Wattenberg work at the crossroads between art, design and information technology. At the head of the Google visualisation research team at Cambridge, Massachusetts, Fernanda and Martin presented *Wind Map* in Milan, another way of explaining what we perceive but do not see. Or we could simply perceive through other eyes. 'The wind map is a living portrait of the wind currents over the U.S.,' they state. The map is a website, updated almost in real time, that visualises the force and direction of air currents through the movement and texture of the flows represented. 'As an artwork that reflects the real-world, its emotional meaning changes from day to day. On calm days it can be a soothing meditation on the environment; during hurricanes it can become ominous and frightening.' In both cases, the diagrams reproduce, in images, 'An invisible, ancient source of

11 M. McLuhan, *The Mechanical Bride: Folklore of Industrial Man*, The Vanguard Press, New York, 1951.

▲ Veronica Ranner. *Biophilia Organ Crafting*, 2011–2012.

▼ Fernanda Viégas and Martin Wattenberg. *Wind Map*, 2012.

energy […] that may be a key to the future.'* The paradigm is no longer what we see, but what we want to see.

Designers working in the field of the imperceptible often cross the threshold into the field of science. Such is the case of Veronica Ranner, designer and researcher at the Creative Exchange Knowledge Hub in London's Royal College of Art, whose creative biogenetic project *Biophilia Organ Crafting* sets forth a hypothetical situation, 'If genetically modified silk worms could weave the scaffold for your donor heart instead of a machine—what would you prefer?' Veronica's answer lies in the *Bombyx mori* silkworm, domesticated for over five thousand years, 'Since the silkworms' genes were decoded in 2008, it could be altered to weave biodegradable scaffolds for organs, tissues, biosensors and even products instead of their cocoons—from "hardware" to novel "wetware". […] The silk scaffolds could be seeded with cells from the patient, offering individually grown organs without rejection.'*

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Ai Hasegawa also combines art and design to meet the challenges we confront in everyday life. In her works, however, it is the actual solutions that put our perception of the world on the table. Graduating with an MA in Interactions Design at the Royal College of Art in 2012, in *I Wanna Deliver a Shark* she addresses the issue of human reproduction in an age of overpopulation and environmental crisis: 'With potential food shortages and a population of nearly nine billion people, would a new mother consider incubating and giving birth to an endangered species such as a shark, tuna or dolphin? This project introduces a new argument for giving birth to our food to satisfy our demands for nutrition and childbirth and discusses some of the technical details of how that might be possible.'

The project entitled *Gusho – Reactive Protective Dress* by Cora Bellotto and Laura Malinverni follows the same lines of research. By studying the effects of electromagnetic pollution on living beings, *Gusho* aims to visualise its presence and provide an adaptive, shielding system. '*Gusho* is a reactive clothing, a sort of extension of our

▲ Ai Hasegawa. *I Wanna Deliver a Shark*, 2012.

▲ Cora Bellotto and Laura Malinverni.
Gusho – Reactive Protective Dress, 2011.

▲ Imme van der Haak. *Beyond the Body*, 2012.

nervous system: when it detects a spike in electromagnetic radiations, the clothing triggers a mechanic reaction and deploys a shielding fabric that transforms it into a protective shelter. By using the material and communicative power of fashion, *Gusho* elicits a reflection on the impact of technologies and, by making the invisible visible, it tells us a story about the environment we all live in.'

So what's the worth of the 'shape' taken by the research of the invisible? How important is making it communicable? In the field of design, shape plays a key role and not only on account of its aesthetic value. The work carried out by Imme van der Haak on the processes of aging has a great emotional, rather than a conceptual, charge, especially because it approaches formal aspects with a sharp sensitivity. *Beyond the Body* is a research project that encompasses a whole life span: the wrinkles of advancing age, the shaping of identity, the passage of
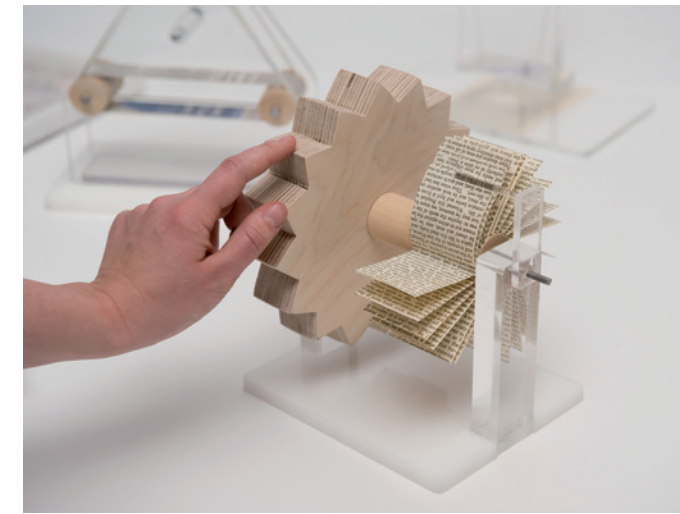
time. It consists of photographs of 'the human body printed onto translucent silk which will create the possibility of physically layering different bodies, ages, generations, and identities. In a dance performance, the moving body manipulates the fabric so the body and the silk become one, distorting our perception or revealing a completely new physical form. […] *Beyond the Body* brings into being an ambiguous image that intrigues, astonishes or sometimes even disturbs.'

Gabriele Meldaikyte is a British product designer who has just completed her masters in Design Products at the Royal College of Art. Her work is characterised by a refined balance between aesthetics and function, thanks to which she has been able to take part in numerous international shows and has been awarded several design prizes in Milan, Moscow and Shanghai. The project entitled *Multi-Touch Gestures* captures the gestures that configure 'the language we use between our fingers and iPhone screens.' She identifies five multi-touch gestures, 'tap, scroll, flick, swipe and pinch', and is convinced that 'in ten years or so these gestures will completely change. Therefore, my aim is to perpetuate them so they become accessible for future generations. I have translated this interface language of communication into 3D objects which mimic every multi-touch gesture. My project is an interactive experience, where visitors can play, learn and be part of the exhibition.'

▲ Gabriele Meldaikyte. *Multi-Touch Gestures*, 2012.

Other applied design fields explore areas of research that have a profound impact on the lives of individuals and communities. *Synbio Tarot Reading* is one of the most recent projects by Superflux, a multidisciplinary London-based design studio that examines the links between new technologies and everyday environments through projects ranging from neuroprosthetic experiences for the blind to the construction of prototypes for use in artificial pollination. *Synbio Tarot Reading* was 'originally created for a workshop on 'Mutations in Synthetic Biology' held at the Science Gallery in Dublin, as part of the EU-funded StudioLab project, in 2012. The tarot card reading helped designers and scientists work together to create scenarios that explored the social, economic and political implications of synthetic biology.' It's a game, but at the same time a design instrument intended to stimulate the imagination and encourage participation. In short, an ef-

▲ Superflux. *Synbio Tarot Reading*, 2012.

ficient workshop tool for collective use, a way of transcending 3D impressions, of crossing the threshold of the tangible, the confines of projects that conclude in the creation of object scenarios.

Sometimes the step between visible and invisible leads to rewriting processes. Thomas Thwaites, for instance, approaches design in a philosophical-speculative way, examining some of the most burning contemporary issues and linking design, technology, science and futures research. Having graduated in the Design Interactions MA at the Royal College of Art in 2009, he has since worked on numerous commissions. One of the most well known of these is *The Toaster Project* (over 600,000 reproductions on the TED portal), that presents his research as 'A parable of our interconnected society, for designers and consumers alike.' His aim, which was to build a toaster, that costs £ 3.99, starting from scratch, involved manufacturing 340 components and included travelling to a mine in search of raw material and obtaining plastic from crude oil. Thwaites is also the architect of the exhibition entitled *Unlikely Objects: Products of a Counterfactual History of Science*. To quote the designer, the project starts from the idea that 'Scientific knowledge has played a key role in shaping our material world, and especially with regard to genetics, our social, political, and spiritual lives also. But how dependant is scientific knowledge on historical accident and chance? Could we have a different, and not necessarily less valid, version of scientific truth if history had played out slightly differently—if certain observations had been made or missed, if individual scientists had been more or less successful, if different accidents had occurred? […] *Unlikely Objects* explores these questions through a "Choose-Your-Own" history of genetics, and the presentation of some more, or less, likely objects from imagined alternative histories of genetics.' The winged waistcoat forms a part of this journey: it's us, it's Darwin, it's anti-Darwin, it's what we could eventually become or what we already are.*

▲ Pieter-Jan Pieters. *Soundscape*, 2012.

The phenomenology of absence also defines what we shall become. Pieter-Jan Pieters graduated with honours from the Design Academy Eindhoven in 2011 and went on to win several prizes. In 2012 he founded OWOW-theomnipresentworldofwizkids, a studio dedicated to innovation, design, technology, engineering and entertainment. *Soundscape*, the project selected for *(In)visible Design*, reveals the relationship between the dematerialisation of objects and the new perceptual blanks. The starting point of the research is the awareness that we are increasingly listening to computer-gen-

▲ Thomas Thwaites. Winged waistcoat at the exhibition "Unlikely Objects: Products of a Counterfactual History of Science", 2011.

erated electronic sounds. As a result, according to Pieters, the digital rule leads us to ignore the uniqueness of the person creating the sound and influencing it. The objective of *Soundscape* is to make us rediscover the pleasure of playing with sound, which, as the designer tells us, is influenced by materials, space and pressure. The timbre will always be conditioned by the physical features of the material it penetrates; each different material has its own specific and characteristic timbre. The glass frame of *Soundscape*, with two stoppers that act as both loudspeakers and microphones, allows the functioning of the process to be heard. When it's empty, the effect is that of a high-pitched sound; when it's full of feathers it is subdued, while the water produces another different note. So this sort of cocoon creates a number of unique sounds that are totally different to the prefabricated, standardised and aseptic sounds of computers.

Eyal Burstein (Tel Aviv, 1977) is an Israeli product designer currently living in Berlin. Between 2001 and 2004 he studied at the London College of Printing and from 2004 to 2006 at the Royal College of Art. In 2007 he founded Beta Tank, a design studio based in the German capital. In 2008 he displayed his work at the exhibition entitled *Design and The Elastic Mind* held at MoMA in New York, curated by Paola Antonelli. In 2010 Beta Tank won the Designer of the Future award, granted by Design Miami Basel on occasion of Art Basel. In April 2011 he published his first book, *Taxing Art* (Gestalten), an illustrated essay that describes how the fiscal system regulates differently art and design, thereby inhibiting the creative transfer of related languages. '*Eye Candy* is a project inspired by a BBC segment on how blind people can see with the help of their tongue. Beta Tank took an interest in how this could also affect the lives of sighted people. The use of physical sketches has since left a trail of engaging prototypes (*Eye Candy*, *Mind Chair Polyprop*, the working *Mind Chair*). Currently in the MoMA's permanent collection, Eye Candy Can Ltd. is a spoof company set up to offer the different flavoured Eye Candies available to order. As part of the campaign, blogs and magazines were involved in order to spread the word. Although it was not apparent from the start, slowly the question of innovation in consumer products came up: as orders came in through the website, Beta Tank approached the maker of the technology, and while it is unclear whether the product will be made, this has proved that a bottom-up approach in product design and manufacturing is a possibility. Between August 2008 and April 2009, 68,000 unique visitors from 15 different countries visited Eye Candy

▲ Eyal Burstein. *Eye Candy*, 2008.

▲ Jinhyun Jeon. *Tableware as Sensorial Appetizer*, 2012.

Can Ltd. with orders reaching 100,000 lollipops. *Eye Candy* is based on available technology which makes the production of it an entirely realistic option.'

Jinhyun Jeon is a South Korean designer who works in the Dutch town of Eindhoven. She is interested in synaesthetic perception, a concept she has been integrating in her projects since her masters at the Design Academy Eindhoven, from where she graduated in 2012 with a thesis on synaesthetic sensory stimuli. *Tableware as Sensorial Appetizer* examines the experience of taste that emerges from the combination of more than five senses: 'Tasty formulas with the 5 elements—temperature, color, texture, volume/weight, and form—are applied to design proposal. If we can stretch the borders of what tableware can do via exploring "synesthesia", the eating experience can be enriched in multi-crossing ways. The tableware we use for eating should not be just a tool for placing food in our mouth, but it should become extensions of our body, challenging our senses even in the moment when the food is still on its way to being consumed.

On the whole, and despite the various demarcations, the designs presented here and those that completed the show seem to trace a methodological path that frees design from the tyranny of the connection between signifier and significance, adopting new narratives and new scenarios of meaning. It is, of course, a narrative filled with question marks *but with answers too*, that take shape in a design practice that is totally open to interdisciplinarity, experimentation and merging with data landscapes and other languages. The result is a sort of handbook that translates the complexity of the world into comments, inputs, renderings, manufactures, visualisations and services that aspire to bring to light what we see but do not usually manage to shape due to lack of a design capacity.