Reflections on the genre of philosophical art installations

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Abstract
We organized our reply to the rich set of commentaries on Erik's inaugural lecture—The affordance of art for making technologies—around the following five themes. (1) The experience of artworks and whether such experiences can be described in terms of the affordances of artworks. (2) The possibility that engagement with artworks offers for the transformation of ourselves and the sociomaterial practices we take part in. (3) The claim that artworks can serve as what Annemarie Mol describes as "material propositions" that can be used to engage philosophical reflection. (4) The temporality of making practices and how art installations can be thought of as places in which past, present, and future meet. (5) How art could potentially enable a better embedding of technologies in society.

Keywords
Affordances, skilled intentionality framework, philosophical artworks, visual art, making, material playgrounds

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1. Introduction

We would like to thank all the people who commented on Erik's inaugural lecture. So many new perspectives have been raised that our program for the coming years has been scaffolded. The aim of the inaugural lecture was to describe what the process of making visual art could afford that could lead to a better embedding of technology in society. This question was addressed by reflecting on the making practices at RAAAF, a visual art and experimental architecture studio founded by Erik and Ronald Rietveld in 2006. The lecture described three aspects of making practices that are relevant for embedding technology. The first skill the lecture described is working with multiple layers of meaning that artworks can open up. Such layers of meaning originate in sociomaterial practices that people unreflectively take for granted, and that artworks can make tangible. Artists are skilled at relating deeply to different practices that are sources of meaning for the works they make.

The second skill the lecture describes is the creations of material playgrounds that afford artistic exploration and probing the potential of new technologies. Material playgrounds set up affordances that the artists freely and playfully explore for their aesthetic potential, without concern for what these affordances might offer instrumentally. This kind of playful exploration can lead to surprising discoveries of new possibilities and meanings that were not previously considered.

The final skill explored in the lecture is the artist's openness to unconventional possibilities for living. Artworks can make people aware of their habitual ways of living, and what they ordinarily take for granted. Artworks can afford opportunities and spaces to reflect on how we could live by different rules. Artworks can make tangible how the sociomaterial practices in which people are situated are potentially transformable if people can conceive, build and explore unconventional, and perhaps better ways of living.

We have organized our reply to the rich set of commentaries around five themes. In section 2, we discuss the question of experience of artworks and whether such experiences can be described in terms of the affordances of

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artworks. Section 3 focuses on the third of the skills from the lecture and the possibility that engagement with artworks offers for the transformation of ourselves and the socio-material practices we take part in. Section 4 takes up a claim made at the end of the inaugural lecture that artworks can serve as what Annemarie Mol describes as "material propositions" that can be used to engage philosophical reflection. Section 5 discusses temporality in making practices and how art installations can be thought of as places in which past, present and future meet. Section 6 ends our reply by returning to the main question of the inaugural lecture of how art as an activity for reimagining affordances could potentially enable a better embedding of technologies in society.

2. Artworks, experience, and affordances

A number of the commentaries take up the interesting question of the potential of the affordance concept, and our Skilled Intentionality Framework (SIF) (Rietveld et al. 2018) more generally, for illuminating the experience of artworks. This question concerns how to make sense of the peculiar and unique forms of experiences individuals undergo when engaging with works of art. The first observation we want to make is that answering this question does, in some ways, go beyond the aims of the inaugural lecture which was concerned first and foremost with the practice of *making* visual art at RAAAF, rather than the experiences of visitors of these works. As we explain further below, to understand the individual experience of art, we would need to look at the skills someone has to engage with the landscape of affordances and the particular circumstances in which the artwork is experienced. However, it is also true that the work of the artists at RAAAF, as described in the inaugural lecture, does have implications for how to think about aesthetic experience. Van den Heuvel for instance describes how RAAAF's way of working displays a profound interest in the textures of materials that establish a direct, affective emotional connection between visitors and the work on display. RAAAF's site-specific installations aim for "emotional provocation" that he suggests push the viewer outside of their comfort zone. Along similar lines, Zijlmans, Mol, and Slors all emphasize that by means of their artworks, artists can make us look anew at our situation and stimulate reflection on what we take for granted.

Rob Withagen and Alan Costall raise doubts about the sufficiency of the concept of affordances for making sense of aesthetic experience. Withagen and Costall agree that, through their interventions, architects are creating affordances (i.e., possibilities for action). They uncover lesser known quotes from a lecture by Gibson in which he also anticipates this idea. However, they argue that there is more to a person's lived experience of an artwork than can be captured by its affordances. They doubt that the concept of

affordances can account for how a building makes a person feel—their appreciating its beauty or being disgusted by its ugliness. Withagen and Costall (2021) propose to reserve the term "affordance" for possibilities for action that are in some way "functional." Since an artwork always outstrips its function, they suggest that the concept of affordances is not well-suited to account for aesthetic appreciation or disapprobation.

We agree with Withagen and Costall that aesthetic experience cannot be explained just by appeal to functional possibilities for action. The concept of "functional" is not helpful when considering visual art or other situations in life in which goals are not pre-defined. Mol and Pols, for example, contrast the "functional" with the "generative" artworks RAAAF makes, which have an open-endedness that allows for involving others, and for setting new developments in motion.

We disagree with what we take to be an implication of Withagen and Costall's commentary that the experience of artworks resists capturing in terms of the Skilled Intentionality Framework (SIF). In SIF, we make a distinction between the landscape of affordances and the field of relevant affordances. The field of relevant affordances is the lived situation for a particular living being. It is a better understanding of the field of relevant affordances that, we suggest, should allow SIF to accommodate the experience of artifacts, buildings and artworks. If we are interested in lived meaning, what matters is the engagement with *relevant* affordances, or what Withagen and Costall refer to as the inviting character of affordances. As Erik wrote in the inaugural lecture: "People with different interests will have different experiences of the meaning of this artwork." (p11.) That is because they will experience different fields of relevant affordances.

We would agree then that the concept of affordance, taken on its own, is insufficient to account for someone's experience of an artwork. However, the phenomenology of an entire field of relevant affordances does have the kind of depth and complexity that can do justice to the experience of layered meaning works of art embody. Once the concept of relevant or inviting affordances is supplemented with analyses of the sociomaterial circumstances, the history that shaped these, and the role that the visitor's abilities, skills, and habits play in experiencing the world, it is less obvious to us why aesthetic experience could not also succumb to analysis in the terms of SIF (see our reply to Stokhof below for two examples that make this more concrete).

Consider for instance what it means for a place to be experienced as oppressive. Part of what this means is that the place constrains us in a way that reduces possibilities for action one also cares about. What does it mean for something to be poignant with memories in SIF? It invites the reliving of earlier experiences. The Image & Sound museum in Hilversum The Netherlands is an example of this because

of its large collection of television and radio programs from decades ago. What does it mean for something to be elegant in SIF? It invites multiple interrelated responses characteristic of participants in the language game that use the word "elegant." These brief observations suggest that skills and the "enlanguaged" affordances that form in language-based practices (Kiverstein & Rietveld, 2020) are likely to be an important part of the SIF-based explanation of the experience of works of art.

Martin Stokhof also considers whether artworks are meaningful to viewers in part because of what they afford to those who engage with them. Stokhof (2021) asks, could the possible meanings that an artwork embodies be "anchored" in the artworks affordances? Stokhof agrees there is a role for the affordances set up in sociomaterial practice in constraining the intelligible meanings of the artwork. However, he argues that there is also always room for individual to diverge from practices because of their experience of engaging with the artwork. Practices may constrain how an individual responds to an artwork but they do not fix or determine a person's responses. Here, Stokhof seems to be in agreement with Withagen and Costall that to understand the meaning of an artwork in terms of its affordances would be to miss something important such as the feelings artworks elicit. What it could potentially miss, Stokhof suggests, is the personal meaning the viewer generates through their interpretation and understanding of the artwork. We read Stokhof as suggesting that the change to the person resulting from engagement with works of art and with literature are best seen as originating both from the individual and from the affordances offered by the artwork.

The inaugural lecture agrees that artworks embody different layers of meaning for a viewer. Some meanings relate to the socio-cultural context of the artwork as is the case with *Bunker 599*. Others are more personal and unique because any person has their own history of engaging with the world and a skillset acquired in different practices that is unique to them. The challenge Stokhof raises is how to understand the process of meaning-creation that the individual person experiences when engaging with an artwork or a work of literature. Pols also notices that the affordances of artworks are possibilities that individuals can respond to in many different ways.

With respect to both Stokhof and Pols, we think it can again be helpful to make the distinction between affordances on the one hand and relevant or inviting affordances on the other. Certain relevant affordances stand out to the individual as inviting in part because of the person's past history of engagement with the world. In engaging with a work of art, a visitor may get a surprising insight that transforms his or her world view. Relevant affordances may be an important part of the explanation for the surprising insights a person can hit upon that allows them to depart from—and maybe even question—more conventional

understandings of the world. A skillset acquired in the past may allow a person to come up with unconventional responses in the particular situation. Sometimes other people may also start responding in similar ways, which can eventually lead to changes in practices (and of socioculturally established meanings). So an answer to Stokhof would be that the meaning of the artwork originates partly from the artwork in its sociomaterial context and partly from the individual experiencing it. To use Pols' insightful way of putting it, collaborators and visitors "expand" the artwork (its materiality and its meaning) "by taking it up in particular ways" (Pols p.5). Even literature can be expanded materially: examples are underlinings, earmarks, exclamation marks but also sharing a quote of it in an academic paper or on social media. When the owner of a novel dies the literary work still offers affordances, for example, for the person who inherits the book. Just like RAAAF's Bunker 599, a literary work is also an aspect of the shared sociomaterial environment and can, just like other artworks, be seen as a nest of affordances. In their engagement with it, an individual's particular personal history will contribute to the structure of the field of relevant affordances and the experience of the work's meaning.

Duarte Araújo suggests that the experiences people have of RAAAF's *The End of Sitting* depend in part on the skills they develop for engaging with the installation. He describes how *The End of Sitting* presents visitors with a space to explore in which they search for, experience, and exploit the affordances of "unconventional technological equipment." Araújo makes an interesting distinction between the exploration, discovery, and exploitation phases of skill learning. He emphases rightly that these phases are best understood as nested together and not necessarily sequentially. We would like to foreground the phenomenon of stabilizing the relationship with the environment, which Araújo mentions under "discovery." Stabilizing can happen in different ways: for example, improving one's grip on a slippery glass of beer or, at a larger scale, the acquisition of a new skill to improve one's grip on the living environment.

Here, there is a link with the commentary by Heft who also emphasized the importance of stabilizing the relationship between person and world. Following Dewey, Heft characterizes the power of making as a way to "establish *order*" in a complex world (Heft, 2021).

Both Araújo and Heft call attention to the phenomenology of tending towards a better grip: "Part of that experience [of skillfully acting] is a sense that when one's activity deviates from some steady person-environment link, one's behavior takes one closer to the stabilization." (Araújo, 2021). Heft, quoting Dewey (1934), writes, "[E]very living creature that attains sensibility welcomes order with a response of harmonious feeling whenever it finds congruous order about it [i.e.,] secures *the stability*

essential to living." Whereas Araújo emphasizes this establishing of stability in the person-environment relation mainly in the discovery phase of skill development, we would like to emphasize that in the SIF, this tendency towards improved grip is crucial for all phases of skill learning because the tendency towards improved grip is, we have argued, the most basic concern of living beings (Bruineberg & Rietveld, 2014; Rietveld et al. 2018). The phenomenon characterized by Dewey, Merleau-Ponty, Heft, and Araújo is a characteristic of self-organizing life and can be found at various levels of analysis, including those required for understanding the experience of artworks.

Whereas, Araújo emphasizes how learning in the context of an artwork reflects the tendency to *stabilize* the person-environment relation, Heft notices that the works by RAAAF "intentionally destabilize everyday actions, and in so doing they perturb what Dewey indicates is the 'stability essential to living'." How can we accommodate these seemingly conflicting claims? We could think in terms of skill learning taking place when the agent establishes a kind of relative stability. A perturbation allows for exploring new possibilities and improving on, or learning, new skills. What is destabilizing on a shorter time scale (the perturbation) can be stabilizing over longer timescales (mastering a new skill) because new ways of living can be explored, tested, and learned from. Where Heft chooses to use a Dreyfus-like formulation, of reflecting, leading to a break in the flow of action, we would rather emphasize that reflection will generate just more responsiveness to affordances and is an activity characterized itself by engagement with affordances, albeit involving what we have elsewhere called "enlanguaged" affordances (Kiverstein & Rietveld, 2020; van den Herik & Rietveld 2021; cf. van Dijk & Rietveld 2021).

Araújo suggests that *The End of Sitting* provides a setting that produces new embodied sociomaterial practices. Hummels and colleagues agree; they see the power of RAAAF's interventions as located in a reimagining of the sociomaterial environment via a sensitive, experiential exploration of the affordances offered by materials: "pushing the boundaries of the affordances of the material: until now, nobody saw a bunker of the Dutch waterline as sawable, or the Luftschloss's concrete as washawayable" (p.3). This kind of materially scaffolded reimagining is indeed an ambition of the artworks RAAAF makes. In discussing the visitors' exploration of the novel affordances of *The End of Sitting*, Araújo notes that there is much more taking place than mere reflection on the artwork. He rightly resists the idea of visitors to art galleries as "detached contemplative cognisers." However, we suggest that one need not think of reflection as something that people do in isolation from the other types of skilled activities that Araújo describes. Reflection need not be thought of as detached, cold calculation but is instead an embodied activity that artworks promote.

3. The transformative possibilities of engagement with artworks

Annemarie Mol reflects on the proposal of the inaugural lecture to practice philosophy not only by "verbal inventions" but also through material interventions. Some philosophers, she begins by noting, resist taking reality for granted but ask instead how things could be otherwise. They critique existing social arrangements as being, for instance, unjust, and imagine how they could be otherwise. They articulate different concepts that may offer surprising insights. Mol notes, however, that philosophy need not stop there. She argues that the inaugural lecture shows that the results of philosophical work can also be artworks and that philosophers thus can "present alternative versions of reality by playing with *stuff*, by crafting *things*. By making *materials* that, rather than functional, are generative" (Mol, 2021) RAAAFs artworks invite visitors to imagine and reflect for themselves. Here, according to Mol, philosophy shares an ambition with *avant garde* art: the ambition of bringing something new into being.

What is the character of the material propositions RAAAF makes? At first sight, Mol suggests they seem to be an exploration of solid materials such as concrete, wood, and metal rather than stuff that is adaptable like clouds and meandering rivers "in which solid, fluid and gaseous state mix or flow over into one another." We note that while many of RAAAF's artworks do have a solid form this is not always the case. Deltawerk//works like an instrument for perceiving the weather thanks to the water that is part of the artwork. In the Terschelling project, sand is moved by water and wind. RAAAF's Mondriaan Fund installation, *Breaking Habits,* transforms when one uses the carpeted space to support standing. In any case, Mol goes on to stress the possibility for transformation that is inherent in RAAAF's way of working with solid materials. She writes that "in these artful propositions, solids are loved so much, that they become adaptable, that they transform. Why take for granted that solids are rigid, hard, enduring? This can be otherwise. It *is* otherwise. Look! Sturdy walls are built out of flowing sand by transformative bacteria, challenging the boundaries between loose and solid, living and dead."

Suppose philosophers working together with artists can make material propositions for how things could be otherwise. The question then arises of which alternative visions of reality to promote, Mol points out. First of all, as we have seen above in the reply to Stokhof, RAAAF's interventions do not foreclose possibilities but are open-ended in that they allow people to find out for themselves what might work for them. Second, we believe it is crucial to promote visions that support *change-ability*: the skill of coordinating with a rapidly changing world (see Rietveld, 2022b, this volume). Humans are currently living through a time of accelerating social, technological, and ecological change. To adapt to

such a sociomaterial reality, it will prove necessary for both individuals and communities to break with many of our habitual modes of engaging with the world, to develop change-ability. In becoming more change-able, we become ourselves better able to coordinate with a rapidly changing world; we as people become less entrenched in our river beds and ready to meander more freely. We become less solid, and better able to adapt and transform.

Jeannette Pols compares artworks with technologies that aim for a sometimes violent and revolutionary break with traditions and practices. She describes how RAAAF's approach is playful, experimental, provocative, and open-ended in contrast with the engineering of new technologies whose innovations would make everything better or more efficient. The work of the artists is to reveal or disclose layers of meaning that would otherwise remain hidden, like in the opening up of *Bunker 599*. Pols describes how the artworks RAAAF makes are open-ended processes or experiments. It is uncertain where *Sandblock* is going if anywhere but this does not matter. The art in this example is, she says, to be found in the relations the work assembles, the people, bacteria and materials it involves, and the new future it helps to shape.

Given RAAAF's tight collaboration with craftsmen building their artworks, it might seem in the inaugural lecture as if what comes first is the imagination of artists, followed second by the building of the artworks by craftsmen, and finally the audiences get to experience the finished artwork. However, the reality of the creative process is more complex because RAAAF's capacities as makers are interwoven with the capacities of the craftsmen and others they join forces with. Materials, different living beings, including people like collaborating craftsmen, curators, journalists, media, audience members all help to make and expand the artworks.

The skills and ambitions of the craftsmen they have successfully worked with before are influencing what the makers at RAAAF can imagine. Moreover, there is a continuous back and forth in the process of embodied testing of the material affordances under construction. An art installation organically develops and grows in the making of it. The artists' feeling for what is there at each stage of this developing process is not a passive experience but the result of actively setting up material (and social) conditions, often driven by a desire to improve aspects of the installations that still cause discontent. Crucially, the artist is not the solitary hero working in isolation in their studio, Pols notes. The process of making is joint, with artists and craftsmen working together to probe, adapt and "grow" the installations. Pols sees that in the case of RAAAF the art is located not only in the final outcome of this process but just as much in the process of making itself, in the artistic practice "that creates links and ties between things, audiences/users and different places and meanings." An important part of this process of making is to learn how people might respond to the artwork by having people hang out in test spaces, by making them wonder, and by incorporating the lessons learned.

RAAAF's artistic interventions are different from the technological innovations of engineers then because of their open-endedness. People are invited to engage with the artworks, try them out experientially, hang out in them in the case of *Breaking Habits*. Art also inspires us to ask the question of how to live differently "with stuff that is already here, also morally dubious stuff like Nazi-towers and ammunition plants. How to live with this heritage as best as possible?" (Pols, 2021) Engineers can potentially learn important lessons from artists in creating continuity between historical patterns of behavior and possible ways of living in the future, to see new technology not as a finished panache but as something *as open as a material playground* that visitors can use to explore possible futures and wonder about them, to learn about the affordances their structures offer and the ways of behaving they invite from people, both individually and collectively.

Paul Voestermans describes how artists and architects play in the process of making, a theme that is also present in the commentary of Pols. Voestermans (2021) suggests RAAAF's artworks can profitably be interpreted as playful explorations of different dimensions of sociomaterial practice from the conventional to the unconventional. One dimension of practice is conventional, routine-like, poor in innovation, such as the sitting society explored in *The End of Sitting*. Other artworks, such as the installation in *Het Hem* and *Bunker 599* work, are artful explorations of layers of cultural meaning (as is also discussed in the commentary of Sutton). As artful explorations, these works fall on the unconventional end of Voestermans' dimension of culture.

Voestermans (2021) emphasizes the importance of thinking about cognition in general, and aesthetic experience in particular, in terms of sociomaterial affordances. He describes how philosophers and artists can work together to explore new possibilities for engagement with the world. By inviting us to reflect on taken-for-granted practices, such interventions can, for example, help us to break habits. He rightly sees that from a SIF perspective there is a lot of work still to be done for all kinds of practices in society (a point also made by Mol). The practices that are everyday in nature like sitting, sharing resources like commons, but also for understanding courtship, political debates, sex, and boardroom meetings to mention only a few. We agree with this and would welcome ethnographies that try to understand these practices in terms of skilled intentionality, perhaps building on the work that we have done in the practice of making art and architecture (Rietveld & Brouwers, 2016; van Dijk & Rietveld, 2018, 2020, 2021) and in the medical practice of treating patients with Deep Brain Stimulation (de Haan et al. 2013; Kiverstein et al., 2021; van Westen et al., 2019).

Marc Slors asks how works of art can open up unconventional affordances, a theme also explored in the commentaries of Lysen, Van Saarloos, Pols, and Voestermans. Slors (2021) draws a contrast between how established socio-cultural practices shape our selective openness to affordances unreflectively and unobtrusively, and how RAAAF's artistic interventions question established practices. Making use of a different, more provocative tactic, artists create new, unconventional affordances that "force" themselves on the visitors so as to make them reflect. Think of how affordances for sitting were removed from *The End of Sitting* environment. Paradoxically, Slors notes, it is the conventional unobtrusive way of socializing that offers less freedom to people than RAAAF's artistic interventions that typically make people reflect on their established practices, but also offer alternatives by showing materially how things could be done otherwise. Slors (2021): writes, "It is precisely the fact that [by the artistic route unconventional affordances] are forced on us rather than sneaked in via the backdoor of slow and automatic enculturation, that makes it possible for us to reflect on them."

Artworks can forcefully impose certain constraints on viewers while at the same time giving the viewer the freedom to determine how to respond (see also the commentary by Pols). We agree with this point by Slors but would like to add that part of the freedom that is opened up by the artistic interventions does not only derive from the invitation to reflect on the taken-for-granted socio-cultural practice and norms, but also comes from the fact that they materialize some real alternative possible courses of action (see Rietveld, 2013).

Marek McGann agrees with Slors that practices can induce a kind of behavioral inertia making certain patterns of behavior probable in everyday life. McGann (2021) emphasizes that the approach to making at RAAAF is relational and offers a conceptual framework that sheds light on the "relationship between art, technology, culture and habit." The landscape of affordances, he argues, is a "topography not only of what is possible but also of what is probable, of confidence, uncertainty, what repels and attracts." The structure of the landscape of affordances is therefore that of a dynamical system composed of basins of attraction, unlikely peaks, and probable valleys. McGann, in common with a number of commentators, also emphasizes the potential of artistic practices to transform this landscape. He makes the distinction between what is possible, and what is probable. What is probable is influenced by the established sociomaterial practices. The artists at RAAAF, by contrast, explore the possible, providing the possibility to overcome stabilities imposed by tradition, and other forms of cultural inertia. Practices of making, as McGann characterizes them are inherently radical enterprises undertaken "in the full knowledge of…the ethical demands that it places upon us, to consider what peaks in the landscape of our form of life need flattening, and what ruts need digging."

Echoing many of the points in McGann's commentary, Laura Mojica describes how human forms of life and their possibilities are shaped by shared sociomaterial practices. This does not mean that the rich landscape of affordances is necessarily conservative because the possibilities it furnishes can be transformed through action (see also our reply to Stokhof above). In particular, artists and artworks make those possibilities visible and show how they can be radically transformed.

Mojica (2021) points out that opening up to the possibility of having radically different practices can make people "more alive." Mojica (2021) suggests RAAAF's practices of making show how matter can be a source of activity, a powerful and active force that can contribute to shaping of an under-determined reality. We see this in the use of material playgrounds at RAAAF which explore the potency of materials (see also Van den Heuvel (2021)). In a material playground, matter responds to us, and in this material engagement, the artists experience the activeness of the materials they explore. Material playgrounds provide the opportunity to enter into genuine dialogue with nature rather than trying to dominate it, Mojica suggests. She takes her reflections on the practices of making to correct for anthropocentric assumptions, common in traditional cognitive science and philosophy.

4. Material propositions

In this section, we return to the theme articulated most clearly in Annemarie Mol's commentary that RAAAF's artworks can act as material propositions that can be used to practice philosophy by showing materially, by means of built artworks rather than through text-based, written philosophical arguments, that the taken-for-granted could be otherwise. Hummels, Van der Zwan, Smith & Bruineberg (2021) compares their work as designers with RAAAF's method of working. They are interested in the possibility of philosophical thinking that is practiced non-discursively through the process of design. Although they make use of stories, and thus think discursively in designing things, the possibility they explore is that the design of things could itself be the medium for doing philosophy rather than say the construction of logical arguments in texts. One similarity with some of RAAAF's projects is making possible futures experienceable in their design work. They emphasize the investigation of the things and practices they have designed. This is indeed a useful thing to do and we have some experience with it at RAAAF when we do free material explorations in material playgrounds, without presupposing in which practice the materials will be used. When carpet is transformed and made strong enough to support standing, non-sitting positions made out of such strengthened carpet could be developed further for offices,

theaters, and lecture halls. In this process of engaging with materials, some episodes are non-discursive.

Hummels and colleagues are right to conclude then that "Imagination is a socio-material and therefore tangible practice, which can be scaffolded and designed" (p. 3). The way that the sociomaterial environment is set up, influences the processes of imagination that occur (Hummels et al. 2021). Hummel and colleagues use short speculative stories on everyday life in 2050, as well as physical tools that make up a "playing field" placed on a table, to materially scaffold the imagination of the participants around the table. Whereas they were focused on what Voestermans calls "ordinary living," RAAAF's installations that scaffold imagination, tend to focus on the extraordinary or unconventional. Moreover, a difference is that they were working for a large client that seeks transformation, whereas RAAAF is working autonomously. The two approaches are complementary and offer the potential to have impact on the embedding of technology in society. RAAAF's approach gives more freedom to the makers and, by creating photos, movies and other images of the work, sets up conditions for using the power of media attention for the artworks to generate awareness of the newly developed possible futures.

Tim Feiten, Kristopher Holland, and Tony Chemero explore the possibility of intervening materially in the philosophy of embodied cognition through the process of making artworks and developing the genre of philosophical art installations. They emphasize the importance of what we call the "artwork-first approach" to embodied cognition, on which the inaugural lecture is based. By embedding ourselves in these processes of making at RAAAF we, as philosophers of embodied cognition, can craft new concepts and integrate them in a conceptual framework well attuned to the particularities of these practices, yet also of general relevance for understanding embodied cognition (see, for example, Rietveld & Brouwers, 2016; Van Dijk & Rietveld, 2018, 2020, 2021). As Feiten and colleagues notice, the artworks-first approach brings philosophy the benefit of improvising a way forward in the trail of artistic interventions, which allows for better attunement to the turbulent and unpredictable contemporary living environment. If we understand embodied cognition as skilled coordination with, and intervening on, the sociomaterial environment then we could also try to foreground the option of intervening materially in the philosophy of embodied cognition. Thanks to this approach, new possibilities materialize "that could not have been planned in advance" (Feiten et al., 2021).

They illustrate how embodiment can determine the form of artistic-philosophical work by means of two art-science projects they have developed at the University of Cincinnati. There is an interesting convergence between their artistic Strange Tools Lab projects, and Hummels and colleague's (Hummels et al., 2021) proposal to practice philosophy through design. Both share the ambition of moving philosophy beyond text-based means of thinking and arguing. Philosophy need not be an abstract theoretical activity but can instead involve the practical business of making things that spark interactions between science, engineering, design and philosophy.

Tim Ingold takes issue with non-discursive ambitions and argues that words should not be seen as the problem in philosophy. Words do not necessarily hide reality from us but can disclose reality through the bodies that speak or write them. The problem, according to Ingold, lies with the academy and its draining words of their meaning. The challenge is therefore to bring words back, in their fullest expressive potential. Ingold argues for moving beyond the division of the "verbal and visual." Crucially, we agree that words can be crafted, just as artworks can, to generate sensitivity to phenomena and possibilities.

Ingold argues the project of combining philosophy with visual art, a theme in the inaugural lecture, is already underway in the field of anthropology. Anthropologists are, he tells us, "philosophers in the questions they ask – about life and death, materials and meaning – but they do their philosophy out of doors, drawing inspiration not just from the people in whose lives they share, but from everything else in their surroundings […] Thus the world itself becomes a place of study" (Ingold, 2021). Furthermore, art and anthropology make common cause in seeking to address the philosophical question behind the inaugural lecture of how to live differently and perhaps better with technologies. Discussing Erik's call for a philosophy that is experiential—visual and tangible—and not only text-based, Ingold calls into question the implied separation of word or text and image. The craft of the philosopher in finding the right words is he contends not on a different plane from that of the calligrapher who artfully traces lines with brush and ink.

We agree with Ingold that art can be found in what (some) philosophers do with words. However, we suggest that there are potential differences in what it means practically to think philosophically with a text and by experiencing a site-specific work of art like *Bunker 599* or *The End of Sitting*. There is no doubt something texts and these artworks share, which can be described as the potential to engage philosophical reflection. Unlike typical (non-anthropological) philosophical texts, site-specific artworks can connect the past, present, and future in the local living environment of people. Such artworks make us think philosophically through the *tangible* possibilities they generate as Mol describes so well. Experiencing the affordances of concrete material-spatial configurations can invite different forms of embodied engagement and readiness compared with reading a philosophical argument. Mol makes an instructive comparison between artworks as material propositions and *avante garde* art. Both are

generative in crafting what was previously unspeakable. Artwork-first philosophical work can be done by materially "presenting alternative versions of reality" through "playing with stuff," and by "crafting things" (Mol, 2021). We agree with Ingold then that the line between what philosophers and artists can do is blurred. We also think Mol is right to highlight that artworks have a generative potential: they can *make tangible and concretely real* different ways of living, in a way that a (non-anthropological) philosophical text will struggle to achieve just through verbal invention. An art installation can propose a different way of living or invite you to stand in a possible future, a situation that is set up to allow you to be more alert to feeling what the artwork does to you.

Kitty Zijlmans discusses how the concept of affordances can help her field of art history to make sense of how it is the artwork in its *material* presence that provides the possibility to respond. Zijlmans (2021) asks if the same is true of the genre of site-situated performance. To answer this question, she calls attention to the work of the artist k.g. (K.G. Guttman) who works in choreography and creates performances that involve members of the audience. To understand this performance, we need to see how the artist invites the participant to engage with a multiplicity of affordances. For example, the participant is invited to engage with the possibilities for action offered by a package they receive, the instruction note, the smartphone, the glass of water, and the selected room, to mention only a few. In other words, understanding a performance requires us to see that it is the engagement with multiple relevant or inviting affordances on multiple different timescales that is necessary for understanding the performance in affordance-based terms, we suggest. These inviting affordances include possibilities for linguistic activities: reading the note, understanding the instructions as instructions, etc. Abilities are crucial here: a person can only be responsive to affordances on the basis of the various abilities, skills and habits one embodies (see Novak et al., 2022, this volume). It also requires one to engage with the affordances offered by the particular space in which one is doing the performance, such as possibilities for taking up different positions within the room. Place affordances help us to do justice to the role of the site or place, which is an important part of the context in within which "meanings erupt" (Barad, 2003; Zijlmans, 2021; on place affordances, see Kiverstein & Rietveld, 2012; Bruineberg & Rietveld, 2014; Rietveld et al. 2018). There is a link between Zijlmans' piece and that by Marc Slors: both emphasize that by means of their artworks, artists can make us look anew at our situation, and stimulate reflection on what we take for granted. To use Zijlmans words: "Each house, each place is […] affording an exploration through human locomotion and the ongoing process of emerging new relationalities between humans and between human and non-human." (Zijlmans, 2021)

Anna Barona and Lambros Malafouris share RAAAF's love for materials and the way that engagement with them can "open up room to be attentive to unexpected, new or indeed unconventional opportunities – both for the mind and the material – blurring the boundaries between human imagining and material affordance." (Barona & Malafouris, 2021). Artworks as material reconfigurations of space and things, they argue, can put forward tangible propositions for possible futures. Echoing Ingold, they make the valid point that for making humane technologies, and to better understand the material dimensions of creativity and imagination, it would be useful for the affordance-based approach to art to learn from archeology and anthropology. Barona and Malafouris emphasize that for understanding "creative imagination as a situated phenomenon" we need to pay attention to the materiality the maker is engaging with, and to other aspects of the sociomaterial ecologies in which "material imagination" emerges. Creativity and imagination do not only happen in the head. They are situated processes distributed across brains, bodies and affording materials. Centralizing this situatedness of imagination requires what we have elsewhere called a "philosophy of the particular," which can be realized by ethnography and embedding philosophy in practices of making over the course of many months (Van Dijk & Rietveld, 2018, 2020).

5. Temporality in making: Connecting past, present, and future

In this section, we discuss how artworks can be thought of as places in which past, present, and future meet. John Sutton (2021) offers a rich reflection on historically burdened heritage and how places, buildings, and objects can accumulate and sediment their own histories. He invites us to consider how the layers of meaning of a place can be tied to the place's history, and how can they be changed over time. Like Mol, Sutton is interested in how RAAAF's artworks can take something seemingly solidified like the historically established meaning of an artwork and transform it (see also Hollis 2009). He talks of the "inherent dynamism of matter, places and artifacts." Sutton starts from reflection on Franco's monument—The Valley of the Fallen, which was built to celebrate Franco's victory and host the bodies of his soldiers. However, it has since been discovered that thousands of Republican soldiers, Franco's enemies, are also buried at this site. The remains of his enemies now form the foundations of a building constructed to glorify his legacy. How could the meaning of this monument be transformed? Sutton agrees with RAAAF that the meaning of burdened heritage should be challenged and reopened, not ignored. He reads RAAAF's interventions using the interesting concept of "memoryscopes" engineered by Ross Gibson (Gibson, 2015). Memoryscopes are interventions

that "focus the forces of the past" channeling "feelings in the past" to people in the present in ways that stimulate the imagination.

Related to this, Harry Heft (2021) describes how heritage artworks like *Bunker 599* can help to anchor us in time, which is important ethically for individuals as well as communities. He articulates beautifully the way an artistic intervention can bring history in the present and allow one to experience one's own place in history: "Bunker 599 … expose[s] a hidden history, awaken[s] in users an appreciation for their own place in it, and in doing so offer[s] an orienting anchor in time" (Heft, 2021). The artwork brings out two complexities: "First, there is a complexity relating to how things work, which in turn fosters an appreciation of design, technique, and system relations." For example, the thickness of the walls of the ceiling reveal something about the military system in which it is supposed to function as a defense structure. If there would have been stronger weapons in 1940 the size of the walls would have to have been even stronger. "[S]econd there is the complexity of the history of place, which can ground individual experience within past events and, in some cases, orient one toward the future."

Heft offers an example from his own local surroundings of a Native American bunker. Such a historical site allows one to connect with the deep past of the soil on which one lives and "widen our sense of where we exist in time." Heft ends by wondering how RAAAF's Hardcore Heritage approach would be able to give "visual and affective prominence" to these important objects from the Native American history, to "slow us down" and provoke reflection on past, present, and future. Answering that question would require RAAAF visiting the particular site and similar sites, studying the historical and regional context, and a process of artistic research to come up with an intervention. This would be a process that would take many months, so we hope Heft does not mind that we leave that question unanswered.

Dirk van den Heuvel discusses some of the connections with historical precursors of the relational, affordance-based approach to art developed in the inaugural lecture. He mentions the work of architects like Herman Hertzberger, Jaap Bakema, and Aldo van Eyck. Van den Heuvel also discusses how an affordance-based approach can throw "a whole new light on the historical legacy and [recharge] it with new meaning and possibility" (Van den Heuvel, 2021). An important link between this legacy in his field and the "artwork first"-based philosophical approach sketched in the inaugural lecture is the emphasis on the importance of *the relation* between material-spatial configurations and the behavior of people. Van den Heuvel also recognizes an important aspect of RAAAF's artistic interventions: the deep research into the history of the locations in which we intervene because of the material foundation and layers of meaning some of these qualities might add to the work.

Such research, combined with frequent site-visits, allows us to see better, in the process of making, what qualities are present locally, and what these afford. For RAAAF, cultural historical research allows establishing a path along which future activities can unfold by coordinating the present situation with affordances offered by past activities of people. Van den Heuvel recognizes RAAAF's care about the cultural history for the future and characterizes the approach as "a futurising of the past" (Van den Heuvel, 2021).

Van den Heuvel also picks up on something that we have elsewhere called the "internal horizon" of the meaning of the interventions RAAAF makes (Rietveld & Rietveld, 2020). The material textures of these artworks contribute strongly to the experience on site of the artwork and the engagement of people with them: "[C]oarse, and punctured, scratched, burnt, coagulated, and then also […] cut with diamond saw blades. […] These textures aim for another kind of meaning, they aim for a direct, affective, emotional connection between the visitor and the work on display […]" (Van den Heuvel, 2021). Van den Heuvel points here to the affective effects that materials can have on people and, crucially, to the layers of meaning that the textures of materials can add.

6. Transforming the landscape of affordances

How does art, as an activity for reimagining affordances, enable a better embedding of technologies in society? We have discussed above already how artworks can potentially contribute to shifting overly rigid norms and practices. The question we take up in this section, and raised in a number of commentaries, is how this change in norms and practices might translate into the better embedding of technologies in society.

Janna Van Grunsven wonders how art could help to get her engineering students to reflect on how they are shaping the material world. How could artworks afford the design of more ethical technologies. She argues that the ability of artists to reimagine the future is normatively ambiguous. One and the same artwork can serve as an invitation to reflect, but also as a source of inspiration for morally and politically problematic technologies.

RAAAF's artworks do not aim to provide specific prescriptions for moral action but rather to provoke a questioning attitude and to encourage exploration of what a good life could be. The artworks invite people to reflect *for themselves* on the sociomaterial practices in which they are situated, which they often take for granted, and on how to live differently and possibly better. RAAAF's artworks invite people to reflect on the sociomaterial practices of say the relation between reuse of vacancy and sustainability; or

on their own relationship to historically burdened heritage (see the commentaries by Sutton and Heft); or on the relation between the affordances offered by the environment and the behavior that is enabled and constrained by the available affordances. Such reflection has the potential to translate to a better embedding of technologies in society.

Artworks facilitate non-conventional activities as Paul Voestermans and Duarte Araújo notice, but it is yet to be established whether or not they contribute to the living of a good life. Stabilizing the practices that can contribute to the good life is better seen as a complementary skill to the three skills outlined in the inaugural lecture. The three skills are not meant to be exhaustive. Moral expertise is something one typically develops in different practices than the practice of making art. Ethical reflection is a somewhat distinct skill, and visual art is not aimed, primarily, at developing that skill. There are limits to what one can expect from visual art. However, an open challenge for SIF would be to develop an affordance-based account of ethical reflection. A recent collaborative paper with Jasper van den Herik on "*reflective situated normativity*" does some groundwork for such a development of SIF (van den Herik & Rietveld, 2021).

Van Grunsven suggests that *The End of Sitting* "as an experience" was only accessible to a limited group of people, a point that is also made by Van Saarloos. Van Grunsven worries that it is only a certain type of body that is able to affectively experience *The End of Sitting*. Those of us who are "able bodied, slender and (relatively) young" (Van Grunsven, 2021). The installation's power is therefore only available to some, and the lived perspective of peoples, who are already habitually overlooked by engineers shaping society by the technologies they design, was unwittingly excluded. We agree that *The End of Sitting* accessibility for all can be improved upon. However, it is important to note that the visitors to the installation included elderly, children, and all kinds of body sizes. By offering a multiplicity of possibilities for supported standing, we increased the chances that people with different body sizes and bodily abilities would find positions that could spark their imagination.

Simon(e) van Saarloos raises a number of critical points. Before we respond to them, it is important to make a general clarification: an important aspect of RAAAF's work is to point out that *things could be otherwise*, as Annemarie Mol notes. RAAAF's artworks as explorative material interventions question the taken-for-granted and have the potential to set new developments in motion.

Responding to the *Sandblock* project, Van Saarloos writes, "I sincerely wonder: do we really have a housing problem, or do we mostly deal with a problem of distribution and a crisis of speculative value? There are plenty of empty houses and too many people without a sustainable home to live." (Van Saarloos, 2021) However, the *Sandblock* project does not attempt to solve the world's housing problem but to create awareness for the contribution of the

building industry to climate change. It invites people to think about the way we build and the CO2 footprint that building has on the world. Two of the main components of reinforced concrete, cement, and steel, used for building, have an enormous contribution to climate change. The use of these materials is a reason why there is a lack of what Van Saarloos calls "a *sustainable* home to live" (our italics). Moreover, in earlier work at the Venice Biennale RAAAF has made a plea for adaptive reuse of vacant buildings as one of the most sustainable options (see Rietveld et al. 2014). We are therefore completely on board with Van Saarloos' call to increase people's access to empty buildings. Unfortunately, however, that will not be sufficient given the need for sustainable housing now and in the future. If we get stuck in romantic images of sand "lazily hanging out" on the beach and stick to the status quo in building technology, we miss the opportunity of discovering more sustainable ways of building by actively experimenting with materials, including sand on the beach.

Van Saarloos suggests that "[d]eclaring 'the end' of sitting is discriminatory to those who use a wheelchair for mobility" (Van Saarloos, 2021). *The End of Sitting* is, however, not a verbal declaration to do away with sitting, but the title of a project to materially explore how radically changing the affordances available could potentially lead to different working practices. If one wants to change existing power structures, as van Saarloos does, one way to accomplish this is by transforming the landscape of affordances, for example, by breaking down the constraints of existing affordances. With *The End of Sitting*, we gave the broader public an easily understandable, material and tangible example of that by taking away the constraining force of chairs. The message was that if we radically change the affordances available in a certain place, we can generate individual and collective behavioral change. As van Saarloos notes, "Walls stabilize power" (*Op cit.*). Crucially, it is by dismantling the affordances provided by walls that power structures can change. Breaking down the affordances that maintain the current sociomaterial dynamics does two things at once: it changes current power structures and materially creates imaginaries for new worlds; new living environments.

In discussing *The End of Sitting,* Flora Lysen wonders whether RAAAF neglects the crucial economic and political context for sitting behaviors. There is an interesting convergence with the challenges raised in van Saarloos' commentary. Van Saarloos notes how society disables people with different bodily abilities through its exclusionary practices. For Lysen (2021), offices as corporate spaces control and discipline those who work in them to be maximally productive employees. Part of this disciplining of the body by corporations comes from seating behaviors. The barriers to behavior change are therefore not only on the side of individuals but also stem from political and economic institutions and norms, Lysen argues.

Lysen (2021) wonders what kinds of artworks could effect change in social institutions? Like van Saarloos, she thinks the disciplining affects of power on the body and the constraints on behavior that come from affordances need to be distinguished. Intervening on or removing the latter constraints still leaves in place the disciplining effects of unjust political and economic structures on us. Lysen is right to point out that we had discussed *The End of Sitting* mostly in relation to individual behavioral change, but that change-ability of sociomaterial practices requires collective behavioral change. Most of the excellent questions she raises will be part of my new Change-Ability research project (see Rietveld, 2022b in this volume), so it is too soon to answer these here. For now, it is worth observing how *The End of Sitting* also changed collective patterns of behavior of the people in the installation. That happened in part by removing all chairs and other sitting affordances and offering a wide spectrum of alternatives. Second, *The End of Sitting* had a political dimension in that it was originally aimed at the Chief Government Architect of The Netherlands and the people who make policies at the ministries that affect the lives of hundred thousands of civil servants. *Sitting Kills* was the provocative title of the movie we made for them, so that policy makers would not be able to say that they did not know about the harmful effects of societies organized around practices of sitting.[1]

Ed Baggs & Sailer ask if RAAAF's projects tell us anything about how to build *functional everyday spaces*. However, the ambition of RAAAF is not to make architecture but to make visual art. Whereas architecture often strives indeed to make "functional everyday spaces," RAAAF's art installation aim at something that visual art can do: to put established practices on display (Noë, 2015). In this way, RAAAF's installations invite reflection on what we take for granted, which typically are both our ingrained habits as individuals (say habits of sitting) and our established communal ways of acting, that is, sociomaterial practices like our sitting society. The artworks are indeed well characterized by Baggs and Sailer when they see them as playfully subversive, although their point is to explore what *different* systems could look like in the future, what could also be good ways of living, including different collective ways of living.

In discussing the playfully subversive character of RAAAF's work, Baggs and Sailer (2021) write as if anything could be the object of an intervention. But whereas there might have been an irrational or random aspect to the Dada playfulness they mention, RAAAF carefully selects its interventions so as to address societal challenges like sustainability, healthy living, and historically-burdened cultural heritage. RAAAF combines playfulness with criticism of established practices in a non-random way. We do not use, say, a blindfold to randomly select a practice to intervene on, which might have been more the Dada-style.

There is also an important reason why in our philosophical work on making we have been more interested in the artists and architects at work than in the users of places. We are interested in shedding light on how coordination with multiple affordances simultaneously in these practices of making can help us shed light on what is traditionally called "higher" cognition. Making something that does not yet exist is typically seen as a form of "higher" cognition. So it has been important for the SIF approach to show that once one has the right conception of affordances, making can also be understood as just more engagement with affordances (Rietveld et al. 2018).

Andrea Jelic sees that the affordance-based account presented in the inaugural lecture can increase makers' "sensitivities for understanding and incorporating the *diversity of users' needs and abilities* in their designs" (Jelic, 2021, our italics). The concept of affordances is she argues a "useful pedagogical tool" that can increase student's sensitivities for the diversity of users' needs and abilities, allowing them to imagine others bodies, abilities, and experiences as "a rich source of creative inspiration." This point connects nicely with Van Grunsven's interests in educating engineers.

The starting point for design Jelic suggests should be the question "what a body can do (in space)?" The value of such approach for designers-to-be lies in acknowledging the necessary variety of user's perspectives with very different body skills (Jelic, 2021). Our (Rietveld & Kiverstein, 2014) relational notion of affordances helps people to realize the variability of the available abilities (including dis-abilities, see Toro et al. 2020) and available forms of life. Once one takes the variety in the "richness of our skillful actions" as our starting point for making, then the process of creating of affordance-based interventions becomes one of weaving layers of meaning that enrich the landscape of affordances. We can look carefully at the diversity of abilities available in our form of life and even imagine bodies with different abilities than currently known.

With respect to education, we think it is important to see the opportunities offered by material playgrounds as discussed in the inaugural lecture for educational setting. An advantage is that it allows the potential of a selected material to show itself in a playful process of experimentation, rather than reducing a material to a resource for a specific task. Rather than presupposing a goal, task or function, material playgrounds can help one to figure out what one's project or ambitions *could be*; what would be worth working on given the potential of the material, given one's own fascinations and collaborations, and the bodily abilities of the form of life one cares about.

7. Conclusion

We would like to end by again thanking the commentators on the inaugural lecture for their rich and inspiring reflections that offer us many new directions for research in the future. What are the next steps for this research program of investigating the affordances of art for the societal embedding of humane technologies? Much has changed in society since the lecture was written in early 2019. We have lived through a global pandemic, endured lockdowns, and the loss of possibilities this radical change in lifestyle implied, many of us also lost loved ones. War has erupted once again in Europe, something we once thought unthinkable. Climate change continues to accelerate at an alarming rate and manifests itself locally and tangibly with extreme weather conditions. Embedding technology well in changing societies is both more difficult and more urgent than it was in early 2019.

We are living through increasingly turbulent times of change that call for people to develop skills for coordinating with the rapidly changing world, we call change-ability. Yet, people and the communities they form are often resistant to change. The habitual repetition of patterns of behavior and the practices they grow up in can seem natural. The key insight our future work will develop is that if we start by changing the affordances of the shared living environment, this can contribute to changing entrenched patterns of individual and communal behavior. Artists and engineers are well placed to create, break-down, explore, and build the material conditions for change-ability. This Change-Ability research project and the conceptual framework we will develop as part of this project is described in a partner article that accompanies this reply (Rietveld, 2022b, this volume).

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Note

1. The video *Sitting Kills* is archived here: https://www.raaaf.nl/nl/projects/927_the_end_of_sitting/933.

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