# When Game Mechanics Come Crawling out of Ant Colonies

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## INTRODUCTION

The academic fields of game studies, ethology, and anthropology have argued – in several occasions and contexts – that playfulness is not an attitude or a way of being that is exclusive to human beings (Huizinga 1955 (1950); Bateson 1987 (1972); Burghardt 2006). The awareness of this encompassing quality of playfulness can be easily detected in the number of toys and games that are produced on the basis of the belief that beings other than humans are not only sentient, but express themselves playfully. Taking Miguel Sicart's broad and widely used definition of game mechanics as "methods invoked by agents for interacting with the game world" (2008: 0), we can therefore say that those agents do not necessarily have to be either humans or artificial intelligences (AI) (as initially claimed by Sicart), but can be animals as well. In fact, within the field of games research, several scholars have investigated the design of playful artifacts and games[1] that involve animals. Following Sicart's framework for the analysis of

1 Rather than engaging in the complex and often anthropocentric debate on whether or not the artifacts that involve animals as participants qualify as 'games' according to some definitions on the term (Arjoranta 2014), in this chapter, I will use the term 'playful artifacts' to indicate a broad range of objects that includes those that might imply rules and quantifiable outcomes (Salen/Zimmerman 2003), freely appropriable toy-like objects (Sicart, 2014), and any other hybrid forms through which animals could express themselves playfully. The term 'playful' in turn, does not only refer to 'play' as an activity that can be observed in animal behavior (including signifiers such as, among others, pretend fights and exaggerated movements in low-stress situations)

game mechanics, and paying attention to the way in which animals act as agents appropriating those mechanics (in both digital as well as non-digital playful contexts, with varying levels of abstractions), we could roughly divide these efforts in two different groups: games that involve animals as part of game *systems* and games that involve animals as intended *players*.

## Animals in systems

This category involves the type of games that rely on the (often forceful) inclusion of animals as agents. These games are not designed *for* the animals, but they incorporate animals' interactions with the game-system to allow for human gameplay and/or spectacle. This phenomenon can be observed in a project in which researchers and designers built a simulation of the game *Pac-Man* in which human players could play against real crickets that represent the ghosts in the game (Lamers/Van Eck 2012). Another example includes a redesign of the game *Pong* in which the AI is performed by a cockroach that carries a pixel on her shoulders (Savicic 2005). More toy-like approaches to this forceful inclusion of animals include artificial electrical stimulation in order to control the movements of cockroaches (The RoboRoach Kickstarter n.d.). In some other cases, the animal is given control over the interactive system, such as Garnet Hertz' experimental robotic system in which the bodily movements of a cockroach are translated into the physical locomotion of a three-wheeled robot (Hertz 2008) and an online video stream of a goldfish movement tracking system that acts as the input in a *Pokémon* game (Cunningham 2014). Although the animal's level of control over the artifact is different in all of these examples, the game/toy systems are all designed for human engagement or enjoyment and they generally do not take the wants and needs of the animal into account (besides those that are required for the functioning of the game system or interaction with the artifact). It could be argued that, in most cases, the animal might not be aware of their involvement in the playful artifacts. Within Sicart's definition of game mechanics,

(Burghardt 2006). Instead, 'playful', here, is meant to indicate a wider ambiguous and self-effacing *attitude* that can be adopted by the animal in the interaction with the artifact (Sicart 2014). This means that playfulness in animals could, for example, arise out of engagements having to do with things like exploration, curiosity, cognitive challenges, destructive behavior, creating chaos, sharing affection, social interaction, or pleasurable sensory experiences. It is with reference to these meanings that the terms 'playful artifacts', 'playful interactions', 'games', 'toys', and 'play(ful)' are used in this chapter.

the agency of the animal in these contexts can thus best be compared to that of an AI with a limited possibility space to interact with the game/toy system and with the purpose to contribute to the (human) player experience. With the important difference that, instead of human-programmed AI entities, we now know that these animals are sentient creatures capable of suffering distress and thus it could be argued that these types of games and toys harmfully contribute to animal oppression and speciesism[2].

## Animals as players

A potentially less oppressive approach to the involvement of animals in playful artifacts includes player experiences that are actually designed *for* animals. In this case, designers are interested in the way animals enjoy certain activities and playfully express themselves and accordingly aim to develop playful systems that mediate these types of interactions. Some examples include projects conducted with touch screen game prototypes for sheltered orangutans (Wirman 2014), a videogame concept that allows humans and farmed pigs to play together (Driessen et al. 2014), a tablet game prototype for humans and domestic cats (Westerlaken/Gualeni 2014), and prototypes that explore interactive toys for captive elephants (French 2015). In these examples, rather than reducing animals to agents within systems, the game/toy mechanics and affordances allow the animals themselves to "appropriate agency within the game world [or playful context] and behave in unpredicted ways" (Sicart 2008: 3). As a research field within game design, taking game/play design *for* animals seriously is a rather recent development that requires a different take on established frameworks we use to analyze and design games for humans. There are no best practices, generally accepted guidelines, textbooks, or lists of existing game mechanics and playful interactions for each animal, to draw from. What all of these examples have in common, is their tentative and iterative approach to designing games and playful artifacts that place the involved animals at the center of the design process. The

2 'Speciesism' is a term that is brought to attention by the field of critical animal studies and refers to the assignment of values and rights to individuals solely on the basis of their species membership. The term first appeared in a pamphlet by Richard D. Ryder in 1970 that was used to protest against animal experimentation (cf. Singer 2015 [1975]). Analogous with discrimination based on race (racism) or sex (sexism), speciesism has intersectional characteristics with other forms of oppression and follows a similar pattern in allowing the interest of one species (usually the human) to override the interests of other (usually non-human) species (ibid).

animals are seen as valuable stakeholders during different phases of the design process as well as factors in the evaluation of the ethical implications of the design outcomes (Westerlaken/Gualeni 2016). In this context, the engagement with animals is defined by ongoing practices of developing new insights and sensitivities that define the ways in which design decisions are made and relationships between the involved humans and animals are continuously reshaped through unexpected encounters. Orangutans rubbing the touch screen with food and body-fluids (Wirman/Jörgensen 2015), elephants destroying hosepipes (French 2015), and piglets following laser-lights (Driessen et al. 2014) are just a few examples of those unexpected insights that could lead to the design of new game mechanics and playful interactions. In working together with animals as participants in the design process, it soon becomes clear that designers are required to adopt flexibility, open-mindedness, and context-specific approaches to game design that can hardly be contained within existing human understandings and frameworks for games/play research.

## DESIGNING INTERACTIONS *FOR* OTHER ENTITIES

In taking a less anthropocentric approach to the design of games and playful interactions, I argue that this second take on the involvement of animals in games (as players) is more respectful and considerate of animals' lives, and therefore favorable over the reducing of animals' agency in playful artifacts as a means for our own enjoyment. Critical Animal Studies scholar Jason Hribal also problematizes our general tendency to overlook agency and selfhood in animals, and argues that this perspective unproductively understands animals as static beings, or as objects devoid of any "real substance" (Hribal 2007: 102). Hribal encourages us, instead, to recognize and appreciate their capacity for responding and resisting to situations and changes (ibid). However, it could also be argued that the research field that includes animals as players has thus far only focused on mammals: animals that visibly adopt playful attitudes in ways that are similar to humans. Whereas the more system-centric approaches seem, up until now, to be focused on animals that display (playful) behavior that is arguably very different from that of human beings. This could lead us to wonder if there are any limitations to the way in which we can design games *for* animals like insects, fish, or reptiles. Animals that arguably have very different ways of experiencing the world are difficult for us to relate to or identify with in the context of play.

Anthropologist Eduardo Kohn takes a more encompassing and compromising ontological stance on the notion of species difference and the moral limita-

tions that these distinctions imply. He focuses on identifying what makes a process 'alive' and argues that capabilities such as those of making choices, responding to stimuli, and adapting to new situations need to be morally accounted for, because if we continue to ignore these aptitudes in other entities, we are always forced to fall back on theories that center around human-like forms of representation and intentionality such as language and reasoning (or ways of playing) when we wish to reflect on our engagements with other entities (Kohn 2013). It is in that basic, shared, and responsive background that transformations and engagements (in the form of reactions, response-ability, and 'attention' towards our design interventions) can take place. Using this theoretical lens is particularly useful as it allows us to distinguish entities that are 'alive' (like a cockroach or a human) from entities that are not (for example a chair or a rock, which do not respond and adapt in the same way that living entities do). To be sure, according to Kohn, these entities are not necessarily part of the animal kingdom, and they do not even have to be endowed with a nervous system to be recognized as 'living' or having a 'self': according to Kohn, plants and mushrooms also qualify (ibid). Additionally, he maintains that selfhood can be distributed over multiple bodies. This is the case, for example of the 'selfhood' of a seminar, a crowd, a forest, or an ant colony (ibid). Starting with this conception of what a 'self' is we might attempt to understand and design *for* other entities with which we can enter into a relationship of response and negotiation that can guide and shape the design as a shared activity in itself. In practice, this means that we could try to engage in a responsive designerly relationship with plants, bacteria, crowds, and arguably even AI's because we could invite these entities to engage with – and adapt to – the game/play mechanics we design, and to interact with the designers in an indexical exchange of responses. In contrast, these kinds of processes could not be achieved in a similar way with non-living entities such as bricks, paper cups, and snowflakes, because these things do not actively respond to the mechanics we propose.[3]

3 From a metaphorical perspective, one could suggest that, non-living entities, such as the materials that are used in a design process, are also capable of responding to the way in which they are used by the designer, for example when materials break down or 'resist' to certain kinds of treatment. Donald Schön labeled this as 'back-talk', "a reflective conversation with the materials of a situation" (Schön 1987: 31). However, in this paper, I am specifically interested in sensitivities and transformations that arise from the practice of engaging with living entities that can actively and dynamically take part in design processes.

In this chapter, I wish to exemplify the consequences of this framework for the design of game mechanics *for* other entities that seem to be very different from us mammals, by discussing a project aimed at developing games *for* an animal we are all familiar with but usually do not relate to within the context of playful interactions: *lasius niger*, the common black ant. More specifically, in order to advocate for the inclusion of animals as players instead of as agents within systems, I will focus on the practice of designing playful artifacts as an activity that can transform our relationships with other species and our anthropocentric preconceptions. With the game design experiment that I will explain and reflect upon in the third section of this paper, I am interested in exploring alternative scenarios in which speciesism can be approached critically and new perspectives on the various and complex relationships between animals and humans can be reframed and reshaped.

With this goal in mind, it is important to clarify that I am not interested in producing academic outputs in the form of instrumental scientific constructs that aspire to universal validity and applicability. More specifically, I am not concerned with demonstrating the playful capabilities of ants and using this as a basis to advocate for game design *for* ants as players. Instead, I wish to focus on Donna Haraway's idea of 'situated knowledges', as partial and critical interpretations of possible world-views that allow for unexpected openings and negotiations with other entities (Haraway 1988). Following this attitude towards contextual engagement with other entities, I argue for the value of paying attention to how local knowledge's arise from game/play design practices, knowledges that could elicit and accompany shifts in our current worldviews, in the development of our sensitivity, and in the way we care for our environment. I believe that the notion of 'situated knowledges' fits particularly well with the practice of experimental and design-driven approaches with animals as a way to prefigure and explore potential futures together with other beings. With the aim to expand the breadth of our moral circle to embrace a wider array of beings (coessential stakeholders of the planet we inhabit and in the interventions we design), I wanted to engage in a design practice that could help us to negotiate and rethink our relationships with ants (or other insects). Together with a group of students, I engaged in the practice of game/play design *for* animals, in order to speculate on the idea of designing playful interactions and mechanics that an ant could actually decide – or refuse – to engage with.

## DESIGN CHALLENGES WITH ANTS

The experimental project that I will describe and account for in this section was motivated and guided by the following question: (how) can we actively involve ants as active agents that can appropriate game mechanics, in the process of designing a playful space or a game? The project spanned over a period of five months and can be divided in three different phases: a fieldwork phase (I) in which I attempted to become familiar with the ants and the behaviors of this very alien 'selfhood', documented through auto-ethnographic methods (including pictures, conversations, and a designer journal), a design phase (II) consisting of a short game jam with 16 interaction/game designers that developed different prototypes, and a playtesting phase (III) in which the interactions of the ants with each of the prototypes were live-streamed and reflected upon as the ants appropriated them. My goal was to use design practices to generate 'situated knowledges' that could encourage transformations and sensitivities among designers themselves, that could propose new ideas about our relationships with these ants as 'selves' that are included in our moral horizon. Additionally, this project allowed us to practically question and reconfigure our understanding of what constitutes 'players'. So instead of defining concepts like 'play' and 'players' as the *a priori* foundations of this experiment, I adopted a 'research through design' approach[4], where doubts and emerging reflections provided the flexibility and the philosophical space to adopt new perspectives and sensitivities on both play and the 'selfhood' of ants, and to respond to the actions and behaviors of the ants themselves.

Furthermore, it is important to point out that this process, was by no means informed by an equal or non-speciesist set-up between the humans and animals that were involved. The ants that were part of this project were obtained by me and (for a part of the process) held in captivity. They were not given a choice to opt out of this process. This means that there is a certain paradox at play here that can be observed in all of the existing 'animals-as-players' research work that was mentioned in the beginning of this chapter: the design of playful artifacts with the aim to enrich the lives of animals that are held in captivity. Even though the intentions of these projects are to improve life experiences of individual animals or to generally expand our moral consideration of animals, the projects

4 With the term 'research through design' I refer to a growing academic field that is characterized by research contributions in which design processes and practical inquiries *themselves* inform and investigate topics that are multistable, complex, and future oriented (Buchanan 2001; Gaver 2012; Löwgren/Larsen/Hobye 2013).

themselves, can *and should* still be labeled as 'speciesist', as they are part of a larger system in which animal oppression and exploitation is accepted and normalized (cf. Westerlaken 2016). This paradox has the potential to contribute to a larger discussion about the extent to which the aim of improving the lives of animals on our planet should follow approaches that are either more 'abolitionist' (e.g. we should avoid speciesism entirely and in all of our actions) (Weisberg 2009), or more experimental and practical (e.g. rethinking our relationships with other species requires us to get our hands dirty) (Haraway 2016). As these types of reflections were very much part of the research process and the way in which (design) decisions were made, I will get back to this discussion in the last section of this chapter. For now, it is worth noting that these moral observations and questions should not be ignored or brushed aside too easily, no matter how insignificant and unworthy the life of a small insect initially seems to us humans. Once we purposefully start to engage with their lives more seriously they will undoubtedly cause new kinds of sensitivities and respond to us in surprising manners.

## Phase I: fieldwork, or: living with an ant colony

In the first phase of this project, I acquired a black ant colony (including a queen and 15 workers) and set up a living environment for the ants at my workspace for a total of three months. These ant nests are available as commercial products in different sizes and possible configurations (see Figure 1). As expected, the introduction of an ant colony in an office setting was in itself a source of unexpected situations and possibilities for 'situated knowledges' to develop. The ant colony became an often-discussed subject among colleagues, and people made a habit of visiting my office to see what the ants were doing. While spending time with the ants on a daily basis, I naturally started caring about the ants at an emotional level, which caused mixed feelings of doubt about the ethical problems with keeping the said ants in captivity. Furthermore, during these three months, I tried out different living arrangements and small design interventions to see how the ants would respond. Based on these experiences, I listed a range of player-centered game mechanics that could potentially inspire the design of playful artifacts and include interactions like building, sliding, crawling, breaking, eating, dragging, gathering, searching, and jumping.

Then, one day, the ants managed to escape from their artificial and confined living space, which qualified as one of the most thought-provoking events of the whole period. Their remarkable escape story involved some ants that found a small opening between two walls of their *Plexiglass* living space, escaped, gath-

ered some pieces of carton from a nearby source, and stacked these pieces in between the *Plexiglass* in order to make the opening bigger and walk in and out more comfortably.

*Figure 1: The confined living environment of the ants (left image) consisted of a plastered nest with different chambers and an outside area made of transparent Plexiglass where the ants gathered resources and brought out garbage from their nest. The attached tubes provide sugary water. The image on the right shows the queen ant, some of the workers, and the (then taped off) part of the Plexiglass that the ants used to escape through.*

Source: Westerlaken

I then started to reflect on how this escape-story could be used as a provocative and speculative starting point for a design context opening that could inspire designers to develop escape room challenges[5] that the ants could potentially play (regardless of whether we are willing to accept their interaction with the prototypes as playful). At the same time, this escape story and the close day-to-day relationship with the ants evoked feelings of doubts and cruelty that I documented in a journal:

"Some days I feel a bit bad about having those ants in possession. […] It seemed like ants could actually be satisfied in captivity, because they have all the resources they need […]. But the more I think about these things, the more I feel that I'm somehow cruel to them,

5 "Escape rooms are live-action team-based games where players discover clues, solve puzzles, and accomplish tasks in one or more rooms in order to accomplish a specific goal (usually escaping from the room) in a limited amount of time." (Nicholson 2015: 1).

especially in relation to their escape adventure and me blocking their way out (after they put so much effort into building their escape route) or using this as an insight into making escape rooms in which we as humans are in control of their life in such an unequal way."

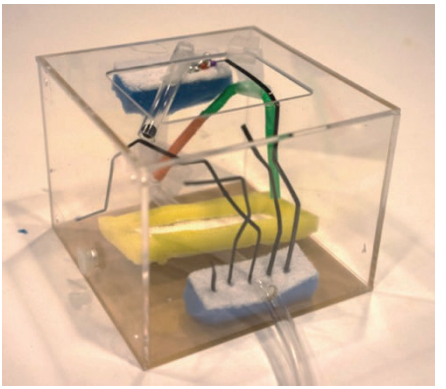
In spite of these doubts, I decided to continue the project while musing over the power dynamics and inequality between the humans and animals that were involved in it. At that point, I wanted to know whether other people would undergo similar transformations once they got involved in a game design process that similarly aimed at engaging ants.

## Phase II: design, or: escape room challenges for ants

With this escape story as inspiration, an "escape room for ants" game jam was organized during the Student Interaction Design and Research (SIDeR) conference at Malmö University (Sweden) in April 2016. During this two-hour jam, 16 interaction and game design students with various international backgrounds developed a total of five different prototypes for a potential escape room challenge designed specifically around the skills and possibilities of ants.

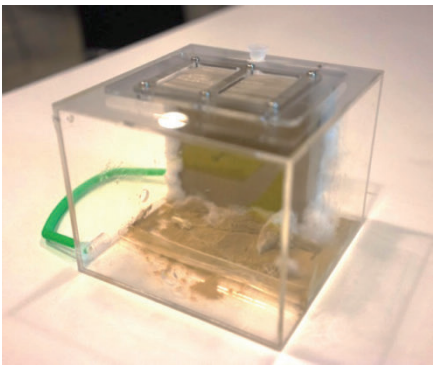
During this design activity, the participants were asked to experiment with the speculative idea of seeing the ants as players and design a challenge that would not be too easy, and not too difficult, for the ants to solve. As expected, some of the designers started their ideation process by crafting metaphors taken from game design with humans and tried out where these could apply to designs for ants. Some groups tried, instead, to envisage and control the effects of their design ideas by designing puzzles and level progression while continuously trying to speculate and discuss how the ants would appropriate the mechanics and materials in their prototypes. The following images show two of the prototypes that the designers built.

*Figure 2: In this prototype, the designers (Ralitsa Plamenova Retkova, Simon Nilsson, Eliel Camargo-Molina, and Pak Lau) propose an escape room with three different stages. First the ants have to choose the correct wire that leads to the next area. Then the ants need to push a ball through the transparent tube. This action will pivot the seesaw after which the ants can exit the room through the straw.*



Source: Westerlaken

*Figure 3: The protoype in this image, made by Marian Vijverberg, Nele Schmidt, and Koen Wijbrands proposes an escape room in which the ants enter into a small room separated with a piece of carton. The ants then have to crawl through the straw on the outside of the room to enter into a bigger area. The ants can escape the room after crossing a small lake by building a bridge using small ropes.*



Source: Westerlaken

More detailed explanations of all five prototype as well as the credits of the other designers that took part in their ideation and assemblage can be found online through *http://wp.me/p2y7bd-dF*.

The player-centered mechanics that were proposed through the different prototypes include: walking, climbing (on ropes and towers), pushing, crawling (through narrow spaces, inside straws and tubes), building (bridges), finding (exits, tubes, dead ends), eating (rewards, obstacles), balancing (on thin ropes), choosing (between different escape options), crossing (a seesaw), sliding (on olive oil), and removing (obstacles).

Additionally, at the end of the workshop, all 16 designers filled in a survey with open questions regarding their experiences. Their answers illustrated how nearly all designers started considering the previously unexplored possibility of ants being curious and perhaps even playful. Furthermore, the participants reflected on ethical interrogatives and implications that should be discussed in the case of pursuing a design intervention that involves ants. Some of their answers:

"It should not be dangerous. We should respect these small animals." (Emphasis in original)
"We should be careful of not ending up killing them or make them suffer."

However, none of the designers considered the activity as an ethically questionable exercise in itself, or refused to participate in it, despite my openness regarding the mixed feelings prior to the beginning of the game jam. In the same survey, the designers were asked if this short activity changed their view on ants or their relationships with them:

"I have never thought that ants possibly could enjoy certain activities, instead of doing it out of instinct or just to survive"
"No…Or maybe a little. We began to give them personalities."
"I never thought that ants are playful. Not that I thought they weren't, I just did not think about it."

Despite the subtle differences in their experiences during the workshop, most designers included a specific reflection on their increased sensitivity and interest towards the ants that were involved in this project. A frequently mentioned topic included the designers' consideration of ants being perhaps 'more playful', 'smarter', or 'more curious' than they had initially expect them to be. Furthermore, most participants seemed to be interested in giving more thought to the idea that ants might do something, such as exploring or manipulating objects, for

reasons that are not purely functional or done for immediate survival. These insights remained a topic of conversation during the next days of the SIDeR conference. Additionally, a follow-up survey that was sent out six months after the game jam elicited two replies. In both of these, the participants shared how their experiences changed their encounters with the ants they met after the game jam and made them feel more curious and considerate towards the ants' lives. In the next project phase, I explored how the ants interacted with the prototype and the response this generated.

## Phase III: playtesting and reflections, or: how Twitch closed down the livestream

In this phase I wanted to complete the cycle of this project and invited the ants to react to the designs that were created by observing the ants' interaction with the prototypes. This process was broadcasted on *Twitch* and other online streaming platforms with the aim of generating conversations and furthering reflections concerning the ideas that this project proposes. After the first day of streaming, the platform *Twitch* closed the online broadcast of the ants interacting with the escape room prototypes and labeled it as "non-gaming related content". This event generated mixed feelings among viewers that started arguing online about the potential paradox (and the irony) of designing escape rooms for captive animals and society's concept of gaming understood as an exclusively human activity. This situation produced several online discussions and illustrated different degrees of sensitivity that people perceived in their relationships with these ants while watching them interact with the prototypes. Over a period of five weeks, the ants interacted with each of the five prototypes. During this time, the ants managed to escape from three of the five rooms. Additionally, the ants created an alternative way out of their living environment, directly from their nest, bypassing the connected escape room. After a few prototype tests, this resulted in a situation where the ants entered one of the escape room prototypes from the outside of the room, 'playing' through the room in reverse. However, their reasons for doing so, or their motivations for interacting with the prototypes, remain completely unknown. More details on these escapes, survey quotes, and the ants' interactions with each specific room can be found online via *http://wp.me/p2y7bd-eT*.

## CONCLUSIONS

In this chapter I followed Haraway's notion of 'situated knowledges' and Kohn's wider perspectives on 'selves' as entities that are 'alive' and respond, as a basic approach to the design of game mechanics and playful interactions *for* animals to appropriate. With this framework, I aim to expand our moral concern towards other animals and to critically rethink the agency of other entities on our planet. Specifically related to the discussion on game mechanics, I propose to widen Sicart's definition of mechanics (2008) to deliberately include designing *for* other selves that could actively participate in design processes and respond as potential players to the interactions we create. More specifically, without taking any deliberate sides as to the debate whether the ants are players or not, this exploratory design project with ants spurred multiple conversations (both online and in person) concerning play and player agency. I feel that the current understanding of games as design *by* and *for* humans does not do particular justice to the active role of the ants in this specific project. However, without any detailed information of the ants' perspectives on the prototypes, it will be impossible to determine any insights related to their experiences or understanding as players or participants. Nonetheless, I hope that this project offers an initial springboard for the further exploration of the notion of ants (or other 'selves') as participating to the design and to the functioning of a game and its mechanics without reducing them to agents that are part of a game system for human enjoyment, or labeling them as players in the conventional (anthropocentric) use of the term.

In taking this framework into the practice of design, I discussed how the design *for* (and somewhat together with) ants generated new perspectives and sensitivities concerning our relationships with other animals. Even though the project arguably includes 'speciesist' engagements, the reflections and conversations that emerged during and after the design experiment with the ants constitute fragmented, subjective, and incomplete interpretations of insights that were gained during and after this short exercise. As 'situated knowledges', they do not simply share facts about the lives and behaviors of ants; they also illustrate how the act of getting contextually engaged with the life of other species can be a transformative exercise that generates sensitivities and compassion towards other entities. This process was naturally already influenced by my preconceptions and ideologies, as I organized and guided the different events that took place. However, it is important to note that the ants were not passive entities during this process: by being there, acting, escaping, responding, appropriating artifacts in unexpected ways, and interacting with the game mechanics, they influenced the way in which these transformations took place and the project evolved during all

three phases of the project. I argue that, although certain types of speciesism are undeniably involved in this project, these types of reflections and sensitivities could not be obtained at 'distance', without practically engaging with the lives of the ants. More specifically, the deliberate design framing of the encounters with ants facilitated a space in which the ants were openly invited to respond to our interventions. Nonetheless, looking back, I am wondering if these encounters could have been framed around a more equal setting, especially in the case of designing *for* animals that we already form relationships with in our daily lives. In other words, further iterations of this project could perhaps better propose to engage with the 'wild' ants we meet in our homes, the parks we visit, and the picnics we share.

In articulating and practically trying out new perspectives that combine notions of game mechanics and 'selves', I suggest that these efforts merely entail a first experiment in embracing the notion of game mechanics designed *for* the player experience of non-mammals. I argue that the practice of game design that is informed by responses and appropriations of other entities, allows for unexpected situations capable of stimulating new thoughts, alternative points of views, and previously inexperienced forms of engagement that might change our sensitivity and compassion for other beings living on our planet. If nothing else, I hope that the discussion of this playful attempt to design game systems and artifacts specifically *for* ants will affect your next encounter with these surprisingly response-able and inventive animals.

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