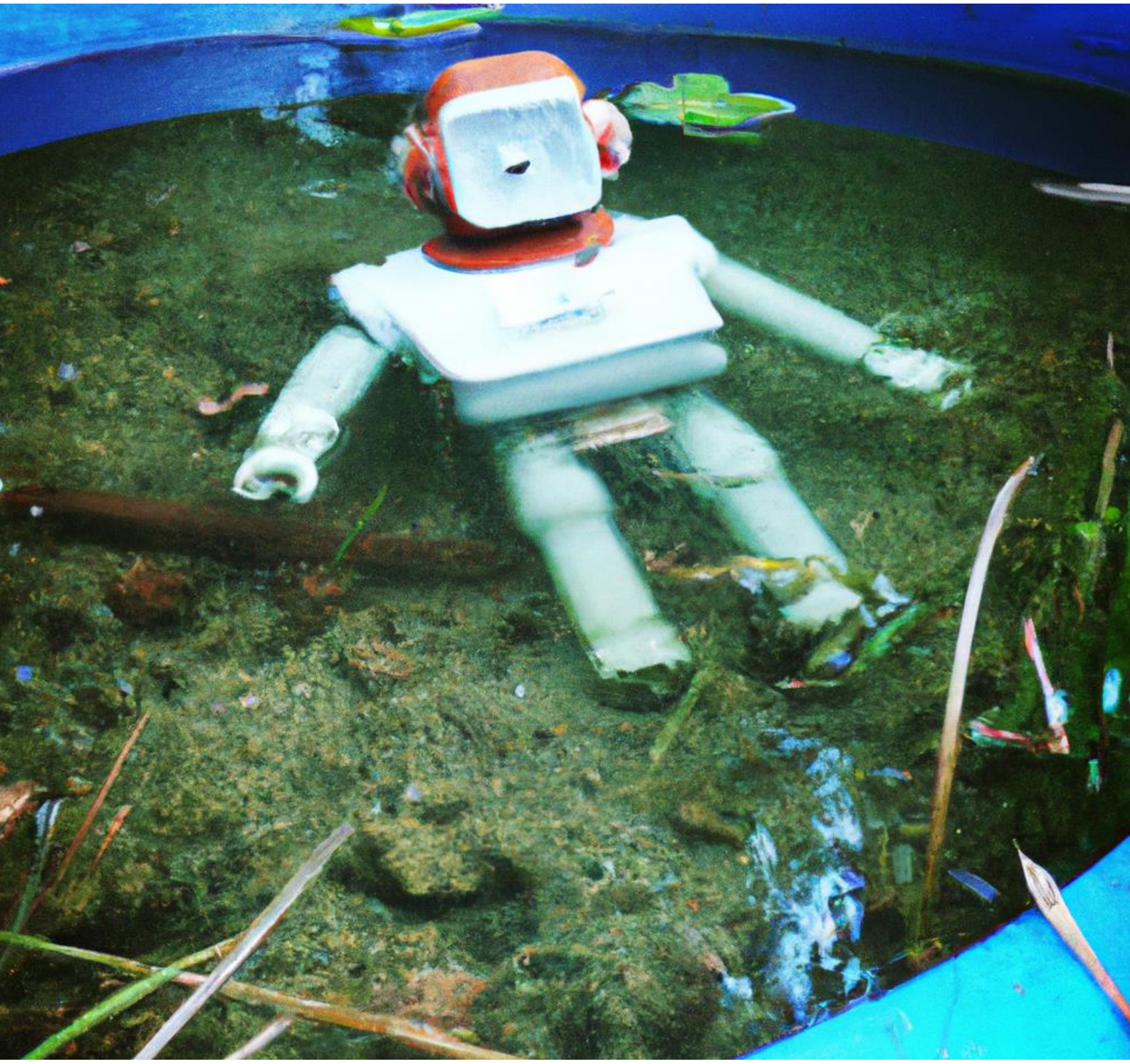
A robot in its natural habitat

The performativity of a believable robot character.



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Entry for the Dramaturgical Aid for Designing Robots
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Introduction

As part of the introduction of the new academic year, I visited artist Bram Ellens' exhibition "Robots in captivity" (2021). As I walked through the different rooms with the captured robots, I read all kinds of different backgrounds and stories. One robot in particular caught my attention. Behind a large metal fence, bearing multiple warnings of danger, this huge robot was attached to a chain. After trying desperately to free itself, making a lot of noise due to the moving chain, the robot seemed to calm down. It then turned its attention to the audience and gently tilted its head.

What interests me in this example is that I pitied most of the robots and even felt that the captive robot described, despite its somewhat scary appearance, was very misunderstood. One of the reasons I became so involved with these robots is because they all have a "believable character" (Simmons, Makatchev, Kirby, Lee, Fanaswala, Browning, Forlizzi and Sakr 2011). In this paper, I will discuss what the dramatic structure of a believable character entails and, within it, argue that this structure is connected to a specific situation. The character of a robot can therefore be seen as a performative quality. Which leads to my main argument in this paper that the concept of performativity is relevant to consider when designing a believable robot character.

To support this argument, I will analyse two case studies within completely different situations. The first is the NAO robot from one of the groups I worked with at VU, designed to function as a social robot.[1] The second robot is the one I mentioned at the beginning, called the Mad King, which is located in an art exhibition. I use these two examples to make a clear distinction in context to analyse the impact of different situations on the robot character. In doing so, I will focus on what differences can be observed within the dramatic structure of both robots and how these do or do not contribute to the credibility of the robot characters within their context.

A performative take on a believable character

In this paper, I will base the concept of a believable character on the article "Believable Robot Characters." (2011) written by Reid Simmons, Maxim Makatchev, Rachel Kirby, Min Kyung Lee, Imran Fanaswala, Brett Browning, Jordi Forlizzi and Majd Sakr. However, I will look at their idea of a believable character from a different perspective. I will focus on the performativity of a believable character by drawing on the texts “What Do Performances Do to Spectators?” (2019) by Maaike Bleeker and “Dramaturgy for Devices” (2021) by Maaike Bleeker and Marco C. Roozendaal.

[1] The abbreviation VU stands for "Vrije Universiteit Amsterdam", which can be translated as "Free University of Amsterdam".
A social robot is a robot designed specifically for social interactions with humans.

In the first text, the authors focus on the goal of developing “autonomous robotic systems that can sustain (…) natural and engaging social interactions with untrained users.” (Simmons, Makatchev, Kirby, Lee, Fanaswala, Browning, Forlizzi and Sakr 2011, 39). Their approach to achieving this is to give robots believable characters, as they argue that this will increase the level of engagement within a human-robot interaction (HRI). By believable, they mean providing "an illusion of life" (39), which would then create a "suspension of disbelief" (39) in the audience. To create this credibility, they focus within the robot design on dramatic structure, social behaviours and expressing culture. In doing so, they concentrate on the content and behaviour of the robot character to create unity. What they do not address is what this content and behaviour *evokes* within a human in a specific situation.

Because the latter perspective is omitted in their approach to a believable robot character, I will take on this approach. This implies that I propose a shift towards the notion of spectatorship by looking at what robots *do* to spectators (Bleeker, 2019). This is where the term *performativity* comes in because, as introduced by Austin (1975), this term focuses precisely on this 'doing' by paying attention to what, in this case, the robot's content and behaviour 'brings about' within a specific context. From this perspective “what may appear as the ‘character’ and the intentions of [a robot] are the effect of what it does and how, and how this can be interpreted within the given situation” (Bleeker and Roozendaal 2021, 48-49).

What this performative view of the concept of a believable character can mean for robotics is a broadening of the idea of what a believable character entails. It does this by allowing us to move away from the idea that a character is stable and unified, isolated from his environment. And instead reveals the relational nature of a robot character as it arises from the robot's behaviour in relation to its environment and the people in that environment.

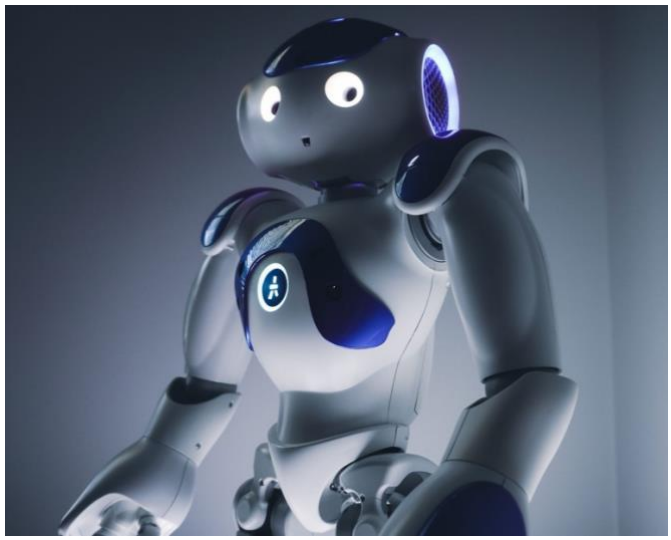

Figure 1. *Robot NAO*, n.d. (Photo: company PROVEN Robotics)
Figure 2. *Robot NAO*, 2022. (Photo: Priscilla Fisher)

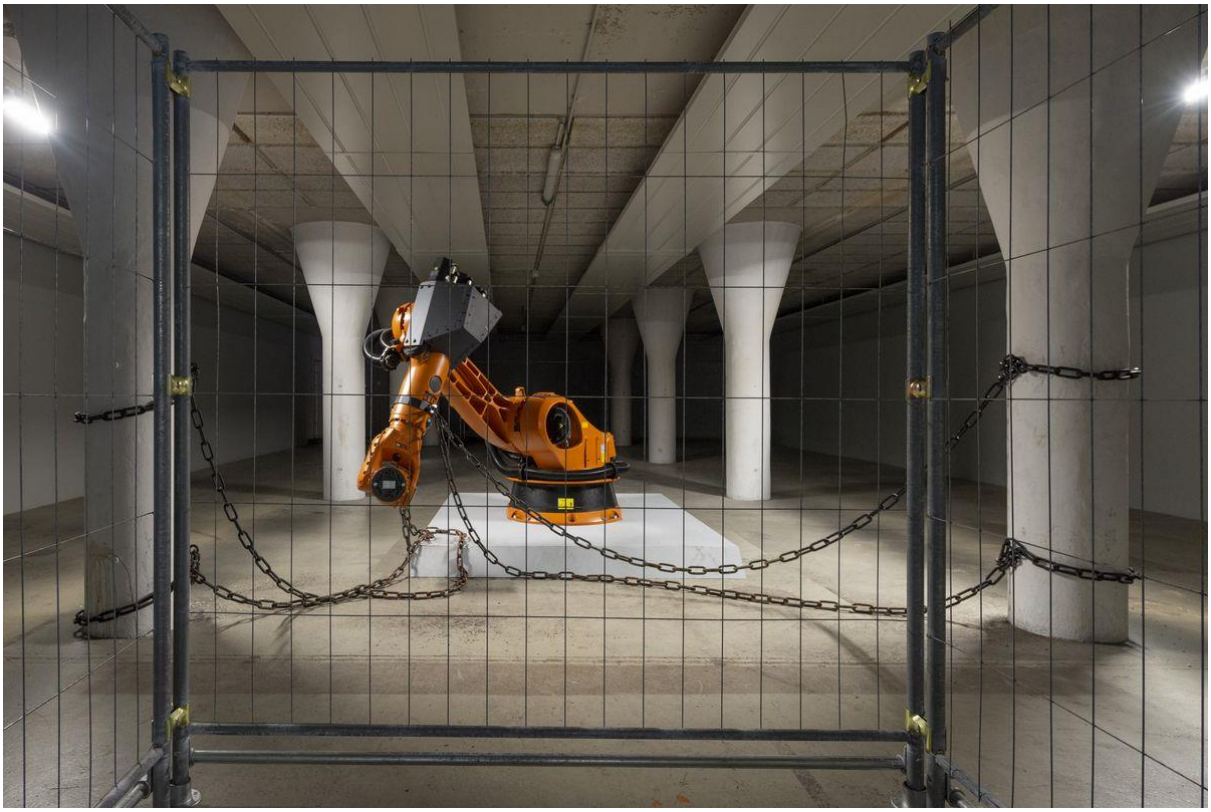

Figure 3. *Robots in captivity*, 2021. (Photo: Vincent Guth)

Analysis

In the analysis, I will first focus on analysing the elements of believability within my case studies. In doing so, I will concentrate on the dramatic structure of the robots, which consists of the robot's backstory and storyline. I will then analyse how these elements relate to their context and answer what they 'bring about' in that particular situation.

To start with the backstory. The backstory can be seen as the character's history that gives it more depth and serves as context for the character's actions (Simmons, Makatchev, Kirby, Lee, Fanaswala, Browning, Forlizzi and Sakr 2011, 42). Examples include the robot's age, family and living situation.

The Mad King seems to fulfil many of these conditions. It has been given a name, according to the artist it belongs to the species KUKA Naranja giganticus, and a story is given about how the robot came into captivity. The latter gives us the information that the robot spent years in a car factory where it learned to copy the behaviour of the cobots that worked there.[2] We also learn how the Mad King was spotted several times in Detroit, where people then tried to capture the robot for more than two

[2] The name *cobot* comes from 'collaborative robot'. These robots have sensors that put the robot into a safety mode as soon as a human touches the robot. This therefore makes the robots safe for humans to work with hence the name collaborative.

months. Meanwhile, several people were injured because the Mad King posed as a harmless cobot. Lastly, we learn that its natural habitat consists of industrial areas, abandoned factories and car parks.

The NAO robot I worked with at VU had no name, apart from its type-name NAO. Unlike the Mad King, NAO had been given a gender; the robot was addressed with the pronoun "he". How old NAO was, whether he had a family, what his natural habitat was and where he came from was not made clear.

The next step now is to analyse the storyline. What constitutes a storyline can be described as a story that takes place in the present and, if written well, is related to the backstory (Simmons, Makatchev, Kirby, Lee, Fanaswala, Browning, Forlizzi and Sakr 2011, 42). An example could be how a robot who was fired a lot at work in its past is now struggling with its boss again. Or that a robot always dreamed of becoming a singer and now still dreams of it and therefore takes singing lessons.

Looking at NAO, we see that, unlike his background, he does have a simple but solid storyline provided by the designers. During the interaction with NAO, he described how he was trying to improve his voice and asked if we would help him with that. His goal, which he explained in the interaction, was to create more emotion in his voice. Because there was little background story, there is no clear connection between the backstory and the storyline. But, as I will argue later, this did not get in the way of creating a believable character within the given situation.

The Mad King's storyline consists of the robot still being dangerous because it has injured people in the past. Therefore, he is currently heavily guarded with steel chains and fences around the robot to prevent him from escaping. While this seems a fairly obvious storyline that follows logically from its backstory, something interesting seems to be happening when looking at what this ‘brings about’ in the context in which the robot finds itself. Indeed, the meaning arising from the combination of the backstory and the storyline is different from what you might expect.

But what meaning then emerges? First, let's start with what we would expect from this dramatic structure of the robot. Since the Mad King has an aggressive background and is therefore now highly guarded, it would make sense that the evoked experience of the robot would be an aggressively scary character. However, context plays an important role in the kind of character we are looking at when we see the Mad King. An important element here is that before we encounter the Mad King, we have seen several other captured robots, most of whom have an innocent appearance and backstory. An automatic lawnmower that is obese and caught by a gardener or a robot called Tellot that is on the verge of extinction are some of these examples. So, before you get to the Mad King, you have already built up some empathy for the captured robots. This is supported by the fact that the reasons why most of the robots have been captured seems to have more to do with people's need to control and appropriate things than that the robots have done anything wrong.

From this state of mind created by the context of the exhibition, the description of the Mad King's background suddenly raises questions. So, where this background seems very clear at first as a reader, the context makes the viewer who actually visited the exhibition wonder how the robot injured the aforementioned people and how this situation arose. Did the people who tried to catch it scare or injure it? And why did they want to catch the robot in the first place? Had it done something bad? Maybe injuring people was an accident and not the robot's intention?

The context of the exhibition makes us thus question the human-described background and the resulting storyline. The character of the robot becomes less aggressive than the description would have us believe. This immediately makes the chains to which the Mad King is attached seem like an aggressive way of holding it captive, and its name also evokes some outrage. The moment the robot gently moves its ‘head’ towards the audience is the last straw in this regard: despite the description warning the viewer that the robot might be copying a cobot and thus seem harmless but is not, I begin to completely doubt whether this robot is really aggressive at its core. It reminds me of an animal shelter where we imagine how an aggressive dog became aggressive because of how people treated it and how we can therefore change the dog by giving it enough love.

The interaction between the dramatic structure and the Mad King's specific context forms thus a believable character, but a different one than expected when looking only at the dramatic structure, isolated from his environment. Now I will look at NAO, who has less background information than the Mad King, and analyse whether he still evokes the performative quality of a believable character within his specific situation and, if so, how.

As mentioned, NAO's lack of backstory does not prevent him from being a believable character. This is because the given storyline, that NAO asks the participant to help him develop his voice, relates to the situation in which the interaction takes place, namely in the VU lab. This context implies that NAO is used within robotic research and that the interaction is part of it. Since people interpret from the context in which they find themselves, the fact that NAO explains the experiment and asks us to help him thus feels logical and leads to the performative quality of a, admittedly simple, coherently believable character.

Another outcome can be seen with a different NAO robot I saw at the VU, which was gendered as ‘he’ and named Charlie. Within the interaction, this robot immediately started telling a story from the perspective of him as a firefighter. The story was lively and between times the participant was invited to do something, for example wave for help, this made the interaction mostly fun but not as believable. Compared to the first NAO, Charlie had a more sophisticated storyline but, like NAO, no solid backstory. But as we saw with NAO, that did not prevent him from being a believable character, with Charlie, however, it did. This is because the audience interprets the given storyline of Charlie as a firefighter within the VU lab situation the robot is in, and this does not create a logical connection in

this case. What happens then is that what the storyline 'brings about' in the specific context is not a believable character, but a funny fabrication. So, to make this character more believable, the storyline needs to be changed or a solid background or different context is needed. Perhaps the robot would have come across as more believable if Charlie had focused more on the fact that he is a robot and that, as NOA did, storytelling is part of an experiment.

Conclusion

What conclusions can be drawn from this analysis. Looking at the Mad King, it became clear that the backstory and storyline provided created a coherent dramatic structure. The context of the robot changed the interpretation of the dramatic structure and thus had a big influence on how the robot was experienced. However, the interaction of the dramatic structure and the surroundings still made a believable character. Interesting to see here is that the concept of performativity shows how big the influence of the environment is on how we interpret the dramatic structure created. Therefore, it shows how relevant it is to consider the notion of performativity within designing a believable robot character.

This relevance is also evident in the case of NAO, because although he had no backstory, the simple storyline still became believable in relation to the context. Combined with the example of Charlie, this suggests that it is not the individual elements of dramatic structure that are most important, but their relationship with the environment. This is because people make meaning within the context they are in, so if there is a solid storyline but it does not fit the situation, no illusion is created that allows for a "suspension of disbelief". A believable character thus cannot be made by the dramatic structure alone, the robot becomes a believable character only when the dramatic structure creates an "illusion of life" *within* the given specific situation.

This raises the question whether a believable robot character can then only be created if it fits the human perception of robots, because this characterises every situation in which a robot is placed. If so, a robot that is hungry, sad or a fireman will never become a believable character because we *know* that is not possible. However, if we look at the Mad King, this robot seems to contradict this statement because it made the viewer experience a believable character despite *knowing* that this robot was not spotted and caught in Detroit, for example. How it nevertheless created this believability factor is, as I argue, because the context of the exhibition created a fictional world from which the viewer could interpret the dramatic structure of the robot. Instead of interpreting the Mad King from the way we are used to looking at robots (they have no emotions and cannot be "on the run"), the fictional world created invites the viewer to step into a different reality that opens up the ways we think about robots. In this context, the exhibition seems to step into a possible future where robots

are seen as autonomous entities that can become unruly, for example, like the Mad King. The described empathy triggered by the exhibition from this, for now, fictional reality may make the viewer think about how we want to see and treat robots in the future. The fact that the fictional context constructed can create a believable character that does not conform to human perceptions of robots, and as a result raises these questions, again highlights the relevance of the concept of performativity within a believable character.

As this analysis demonstrates, a performative view of the concept of a believable character shows how important context is in whether or not a robot's character is perceived as believable. Moreover, it also shows how the context can change the interpretation of a robot's dramatic structure. Therefore, my advice is to consider the concept of performativity when designing a believable character.

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