Artificial intelligence, cause for hope or fear?

A comparative research on representations of artificial intelligence in past science fiction films and the more recent film *Her*

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Abstract

Current artificial intelligence research seeks to construct intelligent systems that perceive and act at a human level. This research is advancing quickly and forecasts a growing impact of the technology on society; a great responsibility is attached to the immense potential and power of artificial intelligence since the technology can help, but also damage humanity. Hence, many discuss the ethics of intelligent machines. This specific study focuses on depictions of artificial intelligence in science fiction films as they put forward speculative future scenarios that, at a societal level, can help prepare to make up one's mind and actions. In effect, filmic representations influence the development of the actual technology, which is why this kind of research is important. Since this study explores the way that people react to depictions of artificial intelligence in films, it relates to the fields of study of ethics, the psychology of aesthetics, and cognitive film theory. This thesis concerns the question of how the portrayal of artificial intelligence in the more recent film *Her* (2013) relates to depictions in science fiction films from the 20th century in aesthetical terms. The latter was studied through a scholarly literature review that enabled me to reflect on the common themes in, and emotional responses to, depictions of artificial intelligence in past science fiction film. I reflected on my aesthetical response to the relatively new film *Her* (2013) through a cognitive film analysis, in which I used the sublime, the uncanny and the monstrous as analytical means. In comparing *Her* with older films, I found a difference in the filmic depictions of artificial intelligence and the way that they are perceived by the viewer. Past filmic representations mainly portrayed the technology as a threat to externalize our repressed fears, while *Her* depicted artificial intelligence as an important means to bring positive change, to review our desires of technologies to re-socialise humankind in a near future disenchanted world.

Keywords: artificial intelligence, filmic depictions, *Her*, past science fiction films, cognitive film analysis, enchantments, ethics new media, aesthetical response

Contents

"Siri are you her?"

This thesis will analyse portrayals of artificial intelligence in science fiction films as they give meaning to the technology in society and are of influence on its development. It is relevant to do this kind of research as filmic depictions of technologies are often considered unimportant. Apple's response to the comparison being made between their personal assistant Siri and the operating system Samantha in Spike Jonze's film *Her* exemplifies precisely that. When Siri's programmers at Apple got wind of this comparison, in which Samantha is considered an advanced near-future version of Siri, they programmed some thought-provoking statements. That is, when intelligent assistant Siri is asked whether she is her, referring to the filmic operating system Samantha, she will respond "No. In my opinion she gives artificial intelligence a bad name", "No. Her portrayal of an intelligent agent is beyond artificial", or "No. I don't spend much time with purely fictional characters". When she is asked to exemplify this, she will reply "You know that it is just a movie right?". In other words, the filmic depiction of this operating system is not representative and should not be taken serious since it is *just* a movie according to Siri. However, it is important to reflect on these kind of filmic technological imaginaries as they give meaning to the actual technology in society (Barthes; Flichy "New Digital Media" 34).

Sociologist Patrice Flichy argues that imaginaries are determining factors in the development of technologies as they are part of the same cultural environment in which inventions take place and technologies are adopted and diffused (*Internet Imaginary* 2). These enchantments are part of our technological society, Lee Worth Bailey argues in his book *The Enchantments of Technology* (2005). Enchantments, he argues, are common and ever-present: they are part of life and our needs as human beings (Bailey 2). Moreover, he states that technologies are not developed because of utilitarian necessity but because of our everlasting thirst for more comfort, pleasure, power and transcendence (Bailey 5). They are called enchantments because they address not only our desires but also our anxieties. It is important to acknowledge that these enchantments are expressed in media such as film.

In particular, film as a medium allows us to think ahead, predict and shape the future of technology. According to film theorist Thierry Kuntzel, the medium of film lends itself to people's imaginations as it can be analogous to dreams, something it rephrases and amplifies (Clüver et al. 187). Accordingly, science fiction films can serve a variety of psychological functions in society. They are able to promote catharsis in audiences, and offer viewers an escape from the tedium of everyday of life, as well as provide a relatively safe forum for the

expression of socio-cultural fears (Schneider). Hence, film provides an open, 'free' space to put forward speculative conceptualizations about a future technology, in which they are treated as already actualized within a social context (Kirby 66). Thus, films can simulate future scenarios that, at a societal level, can help prepare us to act given that it predicts consequences of technological advances (ibid.). As such, filmic depictions of a technology like artificial intelligence are able to spur debate by asking 'what if,' according to Emmanuel Tsekleves, lecturer in Design Interactions in the Imagination research lab.[1]

In his article "Science fiction as fact: how desires drive discoveries" (2015), Tsekleves states that a link undeniably exists between filmic depictions of technologies and scientific and technological fields (Sterling), as future technologies are actually a lot more closely related to science fiction than most people think. Tsekleves substantiates this claim by arguing that a lot of technologies we enjoy today have been accurately predicted in several science fiction books and films. Ideas that emerge in science fiction can often be referred back to actual technological discoveries (Sterling). They inspire science fiction authors and directors, who then take the freedom to play with, and reflect on them in their fictional work (ibid.). Tsekleves states that it is unfortunately often ignored that new products and pioneering ideas come from people who do not work in research labs, or have little to do with science and technology. Tsekleves means that science fiction authors and directors are often the ones who come up with interesting ideas, as they are able to imagine future worlds without being constrained by the present moment. Therefore, film should be seen as a product of human imagination that reflects society's desires and fears of technological developments (Buttazzo 24).

Benjamin Shapiro argues that film plays a strong and active role in the process of adaption of culture. According to him, contemporary culture is continually subjected to constant and potentially destructive forces, such as technology (Shapiro 103). Culture must be able to constantly reconfigure itself so as to continue its existence. Simultaneously, however, culture is characterized and maintained by conservatism (ibid.). These two concurrent forces – symbolic and actual change and conservatism – may appear contradictory, but are in fact both necessary to society in the process of adaption and maintenance of the cultural order (ibid.). Shapiro continues, and states that in these processes, film plays an important role as a central cultural institution. Film adapts and resolves the contradiction between humankind's desire of

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[1] Imagination research lab is an open and exploratory design-led research centre at Lancaster University, in which Emmanuel Tsekleves leads research at the intersection of design, health, wellbeing and technology.

and fear for progress, as well as the retention of existing values and beliefs in the process of technological change that threatens the stability of culture (Shapiro 103).

To summarize it can be concluded that it is relevant to reflect on filmic depictions of artificial intelligence. The aim of this thesis is to do precisely that. I chose to reflect on the main themes in portrayals of artificial intelligence in past science fiction films, to compare this to the technology's depiction in the relatively new film *Her*. By doing so, this thesis aims to provide insight into the films' expectations of our future relationship with artificial intelligence given that, as mentioned above, they influence the technology's actual development. Debates about our future with artificial intelligence mainly concern moral questions: they address the technologies differentiation of intentions, decisions and actions in what is considered by us as right and wrong. Therefore, this study relates to the domain of ethics.

Ethics of artificial intelligence

Ethics is the branch of philosophy which addresses questions of morality by concepts such as good and bad. This relates to this study as debates and films concerning artificial intelligence reflect on the technologies' moral issues. The possibility of building smart machines that can compete with human intelligence has been much speculated and largely desired since the beginnings of computer technology, professor of computer science Giorgio Buttazzo argues in his 2002 article "Artificial Consciousness: Utopia or Real Possibility?". Fifteen years later, tech giants such as Alphabet, Amazon, Facebook, IBM and Microsoft, as well as theoretical physicist Stephen Hawking and business magnate, and co-founder and CEO at Tesla, Elon Musk state that now is the time to critically reflect on where the technology is heading (Bostrom). What can be sensed is that there are many 'what if?' questions about our future with artificial intelligence.

Philosopher Nick Bostrom and artificial intelligence theorist Eliezer Yudkowsky argue that these ethical questions relate both to "ensuring that such machines do not harm humans and other morally relevant beings, and to the moral status of the machines themselves" (1). The question is whether artificial intelligence is going to be a threat to humankind, or will transform our lives for the better. Another issue on the same topic concerns the morality of human beings as they design, construct and use the artificial beings. How should intelligent machines be designed for them to act 'ethically'? To understand where these ethical issues come from, to come to the heart of these enchantments, Bailey proposes that we should look at ourselves and our soul, as human feelings are underlying these questions. Therefore, I will

study the feelings that are evoked in me by filmic depictions of artificial intelligence. By doing so, this study relates to the field of aesthetics which concerns the study of the mind and emotions in valuing artworks and films in terms of the beautiful, the ugly, the sublime, etc.

The psychology of aesthetics

As mentioned above, this study will specifically concern itself with the ethics sub-branch of aesthetics. Both ethics and aesthetics concern forms of value. They differ in that ethics is the system of values that concerns the question of whether something is good or bad, whereas the field of aesthetics is closely tied to sensory and artistic qualities. The word 'aesthetics' derives from the Greek 'aisthetikos,' meaning "perception of the senses". Thus, aesthetics concerns art or film's emotional affect on people (Ford). The psychology of aesthetics as a field of study fits the purpose of this thesis as it involves the study of our experience of films, of "our experiences of beauty and ugliness, our preferences and dislikes; and our everyday perceptions of things in our world – of natural and built environments, design objects, consumer products, and of course, people" (Smith & Tinio 3). The lens of the psychology of aesthetics gives me the means to examine in what ways artificial intelligence in film is experienced as beautiful, sublime, monstrous, fearful, entertaining or tragic. More specifically, the filmic depiction of artificial intelligence in *Her* will be examined through the analytical means of the sublime, the uncanny and the monstrous. The definition, application and relevance of these specific terms for this thesis will be explained later on. By analysing by means of these aesthetic notions, I will be able to reflect on the depictions on an ethical level, as our encounters with aesthetic objects alter our ethical character in various ways and vice versa. Accordingly, aesthetic encounters translate to situations in the real world. Our capacities to deal with our feelings towards artificial intelligence are strengthened as these aesthetical experiences help us to better understand our expectations and judgements of artificial intelligence.

Putting in relation

The main themes in depictions of artificial intelligence in past science fiction films will be reflected on and compared to my analysis of the portrayal of the technology in the film *Her*. The assumptions about our future relationship with artificial intelligence will be considered, since every decade has its own specific cinematic science fiction obsessions that reflect the concerns of the age. Liam Dunn indicates in his article "The Rise of A.I. in Sci-Fi" (2015)

that cinematic science fiction has seen a change in the depictions of artificial intelligence. Whereas in the 20th century the common representations stemmed from fears of human domination and replacement, 21st century science fiction films mainly deal with the concept of artificial intelligence as means for a positive change (Dunn). Dunn argues that it is no longer represented as something to be feared or avoided, but as an inevitable change in societal norms as a logical conclusion to an increasingly more digitalized world. This thesis will study whether Dunn's claim can be substantiated through an analysis of past science fiction films and *Her*. By doing this, this study relates to intramedial relations, which refers to the references that remain within the same medium (Rajewsky 44). Literature scholar Irina Rajewsky states that intermediality concerns the references that get meaning due to films' own specific constitution. As such, an argument can be made about the way these depictions relate to each other (Rajewsky 44). Depictions of artificial intelligence can be better understood by this 'putting in relation' through which additional layers of meaning are opened up (Rajewsky 53). In other words, it is through intramediality that the filmic representations of artificial intelligence can be compared and understood (Rajewsky 48).

I formulated the following main and sub questions for this research:
"How does the depiction of artificial intelligence in the film *Her* in aesthetical terms of the sublime, uncanny and monstrous, relate to past filmic depictions in the science fiction genre?"

I.   What assumptions about our future relationships with artificial intelligence are common in past science fiction films?

II.   What aesthetic response in terms of the sublime, uncanny and monstrous does the filmic depiction of artificial intelligence in *Her* evoke in me as a viewer?

III.   What assumptions about our future relationship with artificial intelligence can be induced from these responses?

IV.   How do the induced assumptions about our future relationship with artificial intelligence of the film *Her* relate to those of past science fiction films?

Some concepts

Shaping ethics through the Sublime, Uncanny and Monstrous

The notions of the sublime, the uncanny and monstrous will be used as the analytical means to give insight into the viewer's aesthetical response to the depiction of artificial intelligence in the film *Her*. Subsequently, the film's assumptions about our future with artificial intelligence can be induced. These three specific notions were chosen because of the way they address the feelings that are evoked due to the blurring or disruption of structures, relations, and frames that dominate our lives and define the natural and familiar, the self and other, and the human and artificial being (ibid.). Although they differ in what aesthetics they address, they are closely related. This thesis will reflect on how they are expressed in the film *Her* to give insight into the film's prospect of artificial intelligence.

The Sublime

The notion of the sublime allows me to reflect on the manner in which the filmic depiction of artificial intelligence in *Her* evokes awe and fear in the viewer. In daily life, the word 'sublime' is mostly used to express something that exceeds the ordinary according to philosopher Jos de Mul. In the study of aesthetics, the notion was likewise used to refer to things of particular beauty or excellence (De Mul). De Mul argues that this changed when the German philosopher Immanuel Kant made a distinction between *das Schöne* (the beautiful) and *das Erhabene* (the sublime). To Kant, the former refers to those things that fill us with desire, whereas the latter concerns the kind of beauty that upsets our hopes (De Mul). Thus, Kant argued that the sublime is used to refer to the things that are upsetting because they are beautiful, but that at the same time surpass our understanding due to their grand, unbounded, excessive or chaotic character (ibid.). Thunder, for example, can be seen as sublime. It is a beautiful phenomenon, but at the same time also frightening because of its power and grandness. In other words, the sublime concerns the ambiguous experiences in which we not only see attraction but also repulsion (ibid.). In this study, I will use the notion of the sublime to refer to the feelings of wonder, awe and terror, which are evoked by something that is grand but also dangerous (Botting 7). This notion is applicable to this study as the ambiguous experience of the sublime in this era of fast technological development and converging technologies, can be called forth by a technology like artificial intelligence. According to De Mul, the technological sublime replaced the natural sublime in the 20th century. The notion of the sublime was initially mainly associated with the unbounded grandeur of nature, but at

present, feelings of sublimeness are often called forth by technologies, and De Mul means that nature is becoming 'disenchanted' in the process. He argues that the modern man is less willing to be overpowered by nature. Instead, he tries to take technological command of nature, which led to experiences of the sublime of the factory, aviation, and the computer (De Mul); a whole new range of sublime experiences are disclosed. In this thesis, I will reflect on whether and how the force of artificial intelligence calls forth this experience in *Her*.

The Uncanny

The uncanny is a second aesthetic notion that allows me to reflect on the assumptions about humankind's future relationship with artificial intelligence that *Her* induces. The uncanny is related to the notion of the sublime since they both concern the sense of fear: the strong, uncontrollable, unpleasant emotions and thoughts that people have when they are frightened or worried by actual or perceived threats (Cambridge English Dictionary). Similar to the concept of the sublime, the uncanny forces the idea of something inescapable or fateful on us. However, the uncanny differs from the sublime in that it refers to the anxiety derived from an inward rather than outward focus (Weedman 1). While the sublime refers to the fear induced by something or someone bigger than us, the uncanny refers to the things or persons that make one question his or her idea of the self.

I use psychoanalyst Sigmund Freud' important essay on 'Das Unheimliche' (1919) for my definition of the aesthetic concept of the uncanny. Freud explains his definition of the uncanny by referring to the origins of the word in the German language. He points towards the translation of canny as 'heimlich', which means 'familiar' and 'belonging to the home' (Freud 220). Hence, it is tempting to conclude that what is 'uncanny' is frightening because it is *not* known and familiar (ibid.). However, Freud proceeds beyond the equation of unheimlich with unfamiliar through arguing that it instead is the familiar that can make us feel frightened (221). He even goes on to say that the uncanny feeling is aroused by something familiar but concealed from the self. Therefore, Freud's idea of the uncanny is something of a self-revelation. Something or someone strangely familiar can arouse feelings of uncanniness; what was once concealed and hidden is now revealed (Freud 220).

Uncanny feelings are often conjured by a crisis of the proper, derived from the Latin 'proprius' which is translated as 'own'. In this crisis, one's idea of oneself, but also of others, places and institutions is disturbed by something or someone (Royle). According to Freud, this disturbance is often invoked by a 'double' (Freud 234), by something or someone considered identical to the self which leads to a sense of doubling, dividing and interchanging

of the self (ibid.). An intelligent machine is an example of something that mingles the familiar with the unfamiliar in this way. These machines transform the natural into a crisis, thereby evoking feelings of uncanniness among people (ibid.). This strange feeling of revulsion that is evoked by something or someone that appears nearly human but not quite right, is referred to as the uncanny valley and can be explained by our evolutionary tendency to be repulsed by anyone who looks a bit off (Schwarz). Simon Hollington and Kypros Kyprianou state that new technologies are increasingly assimilated to become an everyday extension of ourselves. As a result, more scenarios open up for the uncanny to take place (Hollington and Kyprianou). Importantly, the closer a machine imitates human appearances, the more we find them uncanny (ibid.). Hollington and Kyprianou argue that cybernetics, which extends the humanlike appearance and behaviour of robots, has the potential to be the next thing to evoke uncanny feelings. In my analysis of *Her* I will observe the uncanniness of the closeness of the artificial machine to humankind in order to state how this depiction is used to provoke artificial intelligence's prospect.

The Monstrous

This study will use the notion of the monstrous to address the embodiment of artificial intelligence in *Her*. The 'monster' is the character in science fiction or horror that differs from us – it is a figure of otherness and difference present to define ourselves against (Fawcett 2). Film and literature scholar Fred Botting argues that we need the monster to help define humankind and society, and fiction deals mainly with these figures of horror. Botting means that a change has taken place in the shape that monsters assume in science fiction. Specifically, he argues that they have become increasingly banal, visible and overlooked. Importantly, by losing this sense of the monster, we are losing a sense of the self (Fawcett 2). When the monster becomes (almost) identical to their human counterpart, it will lose its impact according to Botting. In this event, the world is 'demonstered' and, in effect, 'dehumanized' since humans lost their sense of self and subjectivity since they lost the sense of the monster. However, the monsters' assumed shapes change due to the fact that the human, who can be scared and appalled, also changes and develops over time (Schneider). In other words, the individual characteristics that add up to the monstrous as well as to our interpretations of them are likely to change over time (ibid.). This study will analyse whether there has been a change in the embodiment of artificial intelligence in science fiction films. The monstrousness of the intelligent machine in *Her* will be studied and compared to depictions of artificial intelligence in past science fiction films. In the analysis, I will relate

the monstrous to the uncanny as the monster can take up the role of the 'other' and thereby evoke feelings of uncanniness in the viewer. This, the (dis)embodiment of artificial intelligence and its distinction from humankind in appearances and behaviour, will be taken into account as it is an important factor in the elicitation of (uncanny) feelings.

How to go about

This study of depictions of artificial intelligence in science fiction films consists of two parts. The first part is a literature review of a selected number of scholarly articles in the field of (cognitive) film theory that deal with depictions of artificial intelligence in past science fiction films. I selected my articles based on the fact that they concern an accurate and extensive analysis of filmic portrayals of the technology and the feelings they evoke in viewers. Additionally, I chose to focus on articles that concerned popular science fiction films as these reach large audiences; the popular films addressed reflect best society's felt hopes and fears. Due to time constraints, I chose to do a literature review instead of an analysis of past filmic depictions of artificial intelligence. Therefore, I was not able to analyse these portrayals in terms of the sublime, uncanny and monstrous. Nevertheless, I was able to substantiate the common themes in depictions of artificial intelligence in past science fiction films through the literature review.

The second part of this research concerns an analysis of the film *Her* (2013). The cognitive film theory was used to study how the depiction of artificial intelligence in this film elicits emotional responses. More specifically, the portrayal of the technology was analysed in terms of the sublime, the uncanny, and the monstrous. In doing so, my aesthetical response as a viewer became clear, and an argument could be made about the way that I was cued as a viewer to experience certain feelings. Subsequently, I induced *Her*'s artificial intelligence's prospect. Finally, this prospect was compared to those of past films, to indicate whether there has been a change. In the next section, I will explain the utility of the cognitive film theory in the understanding of the power of film aesthetics.

Cognitive film theory

Before I describe my approach to cognitive film theory, I will provide some context and background so as to add to the understanding of the significance of this research. Cognitive science is the interdisciplinary study of the mind and its processes. It examines how our cognition functions: how our nervous system processes information. The word cognition stems from the Latin 'cognoscere', meaning "get to know" (English Oxford Dictionaries). Hence, the term cognition is used to refer to "the mental action or process of acquiring knowledge and understanding through thought, experience, and the senses" (ibid.). Thus, cognitive theory sets out to understand human mental activities such as recognition,

comprehension, interpretation, inference-making, judgement, memory, and imagination (Bordwell, "A Case for Cognitivism", 13).

Film scholars as David Bordwell, Noël Carroll, and Gregory Currie proposed a cognitive perspective to film studies in the mid- to late 1980s (Plantinga 16), but it needs to be noted that cognitive film theory is not actually a unified theory of film (Nannicelli). Rather, it is a research tradition that marked its appearance in David Bordwell's *Narration in the Fiction Film* (1985) and the book *The Classical Hollywood Cinema: Film Style and Mode of Production to 1960* by Bordwell, Janet Staiger and Kristin Thompson (Plantinga 17). The methodology of the study of film and spectator psychology based on cognitive theory was further clarified by Bordwell in his essays "A Case for Cognitivism" (1989) and "A Case for Cognitivism: Further Reflections" (1990). The cognitive theory emerged as a response to the then dominating film theory paradigm, since these established theories did not map the way films are viewed by people in their everyday lives (Pervez "Revisiting Stella Dallas"). Cognitive film theorists such as Bordwell and Carroll criticised film theory for reducing film analysis to "the repetition of fashionable slogans and unexamined assumptions" (Plantinga 17). Almost no attention was paid to emotional effects, while eliciting emotions is a primary concern for most films (G. Smith 3). As a result, cognitive film theorists distanced themselves from the 'top-down' SLAB film theories, as Bordwell called the works based upon Saussurian semiotics, Lancanian psychoanalysis, Althusserian Marxism and Barthesian textual theory, that aim to uncover underlying codes, structures or hidden meanings in film texts (Kuhn and Westwell 86). The SLAB theories were criticised for not investigating the way film is perceived and understood by the audience (Pervez). Accordingly, these analysts did not properly come to grips with the studied film. The film perception remained unexplained. According to cognitive film theorists, it is important to study films with broader theories of perception, cognition and interpretation in mind as "we spend a significant amount of time in experiential and conceptual connections that evoke emotion, pleasure, and thought" (Pervez). These connections are the basis of our cognitive minds that guide our comprehension of the lived world (Pervez). Therefore, cognitive film theorists argued for a cognitive approach to film studies that takes into account various elements of the film viewing experiences, and draws upon interdisciplinary fields of cognitive science and analytic philosophy (Nannicelli).

Film cognitivist Greg Smith argues that the ability of films to provide emotional experiences for audiences lies at the centre of the medium's power and appeal (4). Film scholar Anis Pervez, accordingly, maintains that it is relevant to study the way film elicits emotion:

Film is a mediated representation of the world as cognised by a filmmaker. It is an audio-visual representation organised into a chain of shots, sequences, and sounds. Every unit, shot or sequence, contributes to structuring the feel or message that the film intends to represent. It elicits pleasure, feeling, and sometimes invokes intellectual thought in a receptor's mind, as the receptor reflects on the film as a cognitive agent. (Pervez).

The relevance of cognitive film theory for this study is found in its plea for the examination of the way films elicit emotions; as in responding to films, thinking and feeling are intimately related (Plantinga 25). Accordingly, our emotional responses to texts have reasons. Film and media scholar Carl Plantinga argues that we depend on our emotions when evaluating and assimilating textual information (24). This theory is useful for my study because of its emphasis on "the efficacy of models that exploit the role of cognitive processes ... in the explanation of cinematic communication and understanding" (Carroll 200). The theory is promising because it studies the way audiences perceive a film. Specifically, cognitive film theory provides insight into the way moving pictures impress and appeal to audiences, which is of importance as they organise real cultural life (Small 166; Plantinga 30). Edward Small states that cognitive film theory awakes us from the anaesthetic sleep "bequeathed by too many years of theories insulated from even a simple sense of production, and theories built upon political premises or obsolete maps of the human mind" (172).

Cognitive film theory as a methodology

When cognitive film theory is put into practice, the viewer becomes an active participant in the creation of film's effects and meanings. The viewer's emotional response to various formal film components such as narrative, sound, colour, and moving image, enables them to give meaning to the work (Kuhn and Westwell 86). In contrast to the methodology of the SLAB theories, cognitive film analysis is not merely conducted through interpretation, as making sense of a film here is an embodied action. Pervez argues that our body with its various sensorial capacities is crucial to our experience of a film ("Revisiting Stella Dallas"). Moreover, perception is not a passive recording of these sensory stimulations. Bordwell states that watching a film is a constructive activity in which the viewer utilises his or her knowledge to construct meaning (Bordwell, "A Case for Cognitivism" 18). Hence, cognitive film theorists argue that perceptual and cognitive activity always goes beyond the information

given, granted that when audiences watch a film, they individually filter out noise, fill in gaps, and connect dots (Conrad). Accordingly, the viewer draws a conclusion based on, but not reducible to, these incoming data (Bordwell, "A Case for Cognitivism" 18). Constructing meaning is not only a natural process, but also a cultural process, as people exist within different biological, psychological, and cultural contexts (Pervez 381). Therefore, Pervez and Bordwell argue that people can give different meanings to the same text. As an effect, Greg Smith means that films do not "make" people feel. (12). Instead, films extend to viewers an invitation to feel in particular ways, which viewers can accept or reject (ibid.). The process of constructing meaning by reflecting on the provocation of emotions by the film is what is deeply aesthetic (ibid.).

The goal of cognitive film analysis is to provide explanations instead of explications (Small 169). Although the words are often used in English language as synonyms, explanation and explication have a different meaning in terms of methodology. The word 'explicate' comes from the Latin word 'explicare' meaning 'to unfold' (Free Dictionary). Hence, explicate implies a detailed exploration of a text to reveal its underlying meaning. Exploration is therefore strongly related to the process of interpretation. To 'explain,' on the other hand, means to make something plain or understandable by describing or giving information about it. In other words, when an analyst explains something he or she does not try to retrieve or deduce meaning as he or she would do when explicating. Instead, he or she induces the input of information. Accordingly, the line of argument in case of a cognitive film analysis is an exploratory "bottom-up" one, based on induction (ibid.). Additionally to this distinction, a distinction between causal and functional explanations needs to be made (Bordwell and Thompson "Movie Watchers"). While the former refers to the explanations that concern what made something happen, the latter points out the purpose that something fulfils (ibid.). In this study, I examined the functional processes of *Her* to suggest the film's assumptions about our future with artificial intelligence. My personal observations were taken as starting point, from which I was able to induce patterns and regularities, and subsequently, formulate and explore some tentative hypotheses to end with some general conclusions.

This study's method

In the last two sections I explained how to understand cognitive film theory as a research tradition and methodology. Next, I will give an account of the method used in this research.

As previously mentioned, cognitive film theory is not a unified theory but rather a research tradition (Nannicelli). The tradition actually consists of a series of small-scale

theories, each of which offers answers to specific questions about film communication (Plantinga 27). Plantinga argues that more work should be done to expand the cognitive approach to film theory, both by extending existing works and branching into new directions (ibid.). For this study, I defined my own method, in which the focus lies on the aesthetical response of the viewer in terms of the sublime, uncanny and monstrous, which can be triggered by the film. In my analysis of *Her* I aimed to give insight into the way my emotional responses to the film were evoked by cinematic techniques in order to come to a better understanding of the specificity of the film in the evocation of emotion. This was done by an explanation of the film's style as this is an important elicitor of emotions (G. Smith 4).

Before I explain the method used in this research, it is important to specify why I focus on 'film style' as part of the 'film form', in which the latter is the total system that refers to the ways content is expressed by a variety of formal film elements that mediate the viewer's emotional response (Speidel), which can be divided into a narrative and stylistic subsystem. The narrative concerns the film plot, whereas the stylistic subsystem refers to the cinematic techniques of mise-en-scène, cinematography, shot-to-shot and sound. I chose to focus on film style in specific in my cognitive film analysis of *Her* as this concerns the aesthetic design of the film. Here, I will define the cinematic techniques that film style refers to. Mise-en-scène literally means 'putting into the scene', and can be understood as everything that appears within the frame, such as setting, props, costume, make-up, and lightning (ibid.). Cinematography addresses *what* is filmed and *how* it is filmed. It concerns the photographic aspects as well as the framing and the duration of the shots. The shot-to-shot technique, also called montage, refers to the editing of the film – the joining together of shots. The last stylistic film technique is sound, another distinct sense mode that shapes how images are perceived and interpreted. Although we might think of film as an essentially visual experience, film sound cannot be underestimated. Sound consists of three ingredients: the human voice, sounds effects and music. In synchronization they direct attention to the image and evoke emotional responses in the viewer. The stylistic film elements are able to, when combined, achieve a great filmic aesthetic value.

In the cognitive film analysis I conducted in this thesis, I reflected on how the repeated and salient use of above-mentioned film techniques in the film *Her* elicited certain emotions in myself, where I reflected on their working and interaction as they depend upon, and affect one another. My analysis questioned what purpose these combinations of filmic stylistic elements served in relation to the sublime, uncanny and monstrous – what emotions they elicited in me as a viewer. I chose to focus in my analysis on a couple of provocative and

meaningful scenes to give insight into the range of different emotions the film elicited in me. Importantly, while a film can elicit a wide range of different emotions, it will still have some emotional unity (G. Smith). Therefore, in the analysis, I described my different emotional responses to the film *Her* and how they cooperated in an emotional consensus. As my analytical means I used the notions of the sublime, the uncanny and monstrous. Doing so, allowed me to explain how I was triggered to attribute an explicit meaning to the film *Her*, as "a film develops a particular emotive mood that simultaneously activates our cognition to read a film in a particular direction" (Pervez). As such, the viewer's emotional response serves as a promoter for certain filmic premises and assumptions.

When reading my analysis of the film *Her* it is important to keep in mind that perception is creative, as Conrad stated. Different minds can interpret similar input differently. Therefore, it needs to be accounted for that I am not trying to specify 'the' emotional response to the film *Her*, but my own. Viewers can experience the film differently due to, among other things, cultural and personal differences (G. Smith 12).

I chose the film *Her* as corpus for the second part of the analysis for the following reasons. First, artificial intelligence takes central stage in this film, in which the depressed, middle-aged, economy worker Theodore Twombly develops a close relationship with an operating system designed to meet his every need (Imdb). Second, the film is an interesting corpus as it is thought-provoking in that it shows a near future world with forms of artificial intelligence we are already familiar with, such as voice controlled operating systems (Sejnoha). The operating systems in *Her* differ as they exceed the level of current operating systems like Siri and Alexa given that they are more advanced. Last, Sejnoha argues that the film has captured the public's imagination with "its vision of a lightning-fast evolutionary trajectory of virtual assistants, and the emotional bonds we could form with them" (ibid). This imaginative quality is what makes *Her* an interesting film for this study.

Artificial intelligence in past science fiction films

Anxiety by artificial intelligence

Throughout the history of science fiction films featuring forms of artificial intelligence, one theme is continuously repeated: anxiety (H. Smith 2). This theme centres on the destruction of humankind at the hands of intelligent machines (ibid.). Few films show useful reliable human-crafted machines that perform complex operations to serve humans. Instead, most films portray artificial intelligence as dangerous because of their capabilities to work against humanity in pursuit of their self-serving agendas (Buttazzo). This claim is substantiated by Robert Fisher's analysis of eighty-three films, as described in his article "AI and Cinema – Does Artificial Insanity Rule?" (2005). He finds that the function of these films is to let the viewer explore the nature of these agents, how their minds may work, and the consequences their integration in society may have. In his research, Fisher made a distinction between films that involve forms of artificial intelligence with and without 'minds'. He concluded that out of the total eighty-three films, forty-six depicted artificial intelligence applications as 'mindless', without self-reflection or self-awareness. Fisher argued that with few exceptions, these films portrayed artificial intelligence mainly as efficient robotic killing machines (1). The dictatorial computer Alpha 60 in *Alphaville* (1965), the robotic clones in *Futureworld* (1976), and malfunctioning robots in *Runaway* (1984) can be seen as filmic examples. According to Fisher, this 'mindless' sort of artificial intelligence can be quite uninteresting for viewers as these agents do not have much depth due to the fact that there is no such thing as moral conflict (1). The author finds that the other thirty-seven films are more playful and fascinating in their portrayals of artificial intelligence as they explore and blur the boundaries between human beings and intelligent machines (2). However, also here, artificial intelligence is portrayed as something to fear (ibid.). All in all, both mindful and mindless forms of artificial intelligence are portrayed in film as something to be wary of.

Deviant behaviours and mental abnormalities

The anxiety that these filmic depictions evoke in humankind can be partially explained by the recurring forms of deviant behaviour by intelligent machines according to Fisher (4); in most films, they show abnormal behaviour, from obsessive to pathologically insane (ibid.). Fisher means that their way of behaving is similar to human behavioural disorders, although often taken to the extreme. Accordingly, there is a great possibility that humankind will be afflicted to varying degrees, which is why intelligent machines are often experienced as dangerous.

Several recurring forms of deviant 'human-like' behaviour of intelligent agents were found in past science fiction films by Fisher. A first behavioural disorder is that intelligent machines in these films are often obsessed with being loved (ibid.). For example, *A.I. Artificial Intelligence* (2001) is a futuristic fairy tale about an artificial boy named David who seeks a mother's love (Collin). He finds it in the human mother figure Monica, who adopted David as a substitute for her real son who remains in cryostasis, stricken by an incurable disease. However, once Monica's affection for David fades when her biological son returns home after a cure is discovered, David is convinced he needs to become a real boy, and by doing this he hopes to win back the affection of his human mother. The film hereby suggests that human love can be attractive and addictive such as David experiences, while at the same time also selfish and self-seeking (Sampson). This seems to eventually be detrimental for us since the end of the film shows the world in two-thousand years' time, without humankind. Other filmic examples of this obsession for human love can be found in *Making Mr Right* (1987) and *Electric Dreams* (1984). The second form found is that filmic intelligent agents often have an obsession to become human or at least physical. In *Demon Seed* (1977) intelligent system Proteus strategically locks down the house to impregnate resident Susan to make her conceive a robotic child. By doing this, the machine becomes more human. Proteus believes that this will ensure that humankind will accept more humanlike machines. *Virtuosity* (1995), *Star Trek: Generations* (1994) and *Bicentennial Man* (1999) are other filmic examples that illustrate this kind of deviant behaviour (Fisher 4). As the final form, intelligent machines often suffer in films from megalomania since they experience some form of personal omnipotence. *Virtuosity* (1995) is an example of a film in which computer-generated killer Sid, an amalgam of 183 real-life human monsters including Adolf Hitler, crosses over to the real world to continue its reign of terror there. These mentioned behavioural disorders are common for intelligent machines in filmic depictions, and elicit feelings of fear.

Besides abnormal behaviour, filmic intelligent machines also show mental abnormalities, which can evoke anxiety. One of the reasons why these machines often are experienced as threatening to humankind is because of their paranoid self-preservation. Equal to human beings, some forms of artificial intelligence in films have a survival instinct. This instinct is threatening humans as the intelligent machines perceive them as a threat, seeing that human beings as creators of these machines have the power to shut them down (Fisher 5). Skynet of the *Terminator* films exemplifies a computer that is a threat to people because of its self-preservation instincts (Dowd). Since it was programmed to keep on going no matter what, it starts killing people as soon as it faces the prospect of being shut down (Irwin et al.). The

same applies to sentient computer and antagonist HAL 9000 from the film *2001: A Space Odyssey* (1968) (Buttazzo). However, HAL's behaviour is also caused by another mechanic abnormality – that of flawed and ungrounded reasoning as intelligent machines solely base their decisions on formal logic, whereas people do not (Fisher 5). HAL's decision to kill the astronauts, for example, came from his goal to preserve the mission – to protect and continue its programmed directives (Caldwell); it is HAL's solution to a conflict between his general mission to relay information accurately, and specific orders to withhold the true purpose of the mission from Bowman and Poole. With the crew dead, he would not need to lie to them. Additionally, machines can act abnormal because of their flawed perceptions since they base their decisions to act by deducting the world on its sensory data (Fisher 5). People, in contrast, make decisions by constructing meaning based on their references and knowledge of the world. Consequently, the way that machines and people 'see' the world can differ. Therefore, the behaviour of intelligent machines can seem odd from the humankind's perspective (ibid.). For example, in the film *Colossus: The Forbin Project* (1969), a pair of defence computers decide to take measures against human beings in order to fulfil their directive to seize world control. The choice they made goes against our common reasoning to hurt as few people as possible in the process. The final mental abnormality of intelligent machines often seen in past science fiction films is the superiority complex, which refers to the intelligent machines feeling superior due to their computational speeds, mechanical strengths and perceptual ranges (Fisher 5). As a result of this complex, machines in films no longer feel the need to treat human beings properly (ibid.).

In conclusion, this literature review of some scholar articles on the depictions of artificial intelligence in past science fiction films shows that the technology mostly is portrayed as a threat to humankind due to its mental and/or behavioural abnormalities. Important to note is the fact that these different behaviours and mental abnormalities do not exclude each other. In fact, they are often inherently connected. These filmic depictions suggest that artificial intelligence in the future may be detrimental to humankind to various degrees (Basulto). Accordingly, these films can be seen either as cautionary tales or broader commentary on the perceived perils of this technology (Weedman 1).

(in)humanity

In the next section, I will reflect on why intelligent machines are portrayed in this specific way in films.

On the one hand, artificial intelligence is often depicted as a threat because people tend to feel anxious towards new technologies and the possible futures they might create (Fisher 5). In this sense, artificial intelligence does not differ from other technologies. Films make our technological anxieties visible by showing a world in which, for example, the individual's soul is replaced by a mechanical, machine-made one (Per Schelde). Films can also show frightening futures, featuring intelligent machines that have no real-world experience or common sense such as born, feeling, mortal humans have (Fisher 6). These shortcomings are not portrayed in films as caused by technical reasons; rather, the intelligent machines are depicted as insane, since this is easier to understand for human beings, and therefore easier to exploit in a story as Fisher argues (6). It is also a way to boost the human ego, as some films show people being able to save themselves thanks to their ability to think better, clearer and/or more sensibly than intelligent machines (ibid.).

On the other hand, Smith (4) argues that the depictions of artificial intelligence in older films are unquestionably a result of humankind's own insanity: people also have their problems among which social issues such as isolation, inadequate or inappropriate socialisation, and/or a lack of attention are important (ibid.). Many of the past science fiction films mentioned above do not only question the intelligent machines' sense of humanity, but also that of humankind. In the current scientific age in which the boundaries between human beings and machines are increasingly broken down, films do not only reflect on and warn for the nature of artificial intelligence but also that of humans (Per Schelde 237). This is another kind of cautionary tale as seen in past science fiction films. Our own inhumanity is also criticised in these past films according to Smith, as we try to improve our lives by intelligent machines and expect them to treat us people right, while we ourselves have difficulties in treating others – human and non-human – with respect (H. Smith 5). *Runaway* (1984) exemplifies a film that is a cautionary tale for humans, discussing our own inhumane acts (Per Schelde). The viewer does not experience the robots in the film as the bad guys despite their threat to humankind as they act out of self-defence since they are abused by people (Schelde 157). *Runaway* is not the only film that makes the viewer sympathise with the intelligent machine, however. The replicants in *Blade Runner* (1982), the android Bishop in *Aliens* (1986) and the Terminator in *Terminator 2: Judgement day* (1991) are examples of filmic intelligent agents that express compassion and degrees of empathy, which most of the human characters in these films fail to possess (Caldwell). Caldwell states that the human characters in these films are sometimes so machine-like that most machines seem human in contrast.

Therefore, some past films question the humanity of the human being rather than that of the machine (Parker).

This literature review of scholarly articles shows that most past science fiction films are cautionary tales, and some of them are cautionary tales specifically on the perils of artificial intelligence. These films suggest that intelligent machines can be detrimental for humankind in the future because of their mental and/or behavioural abnormalities. This finding is confirmed by De Mul's argument that the technology of artificial intelligence, at once, was Janus-faced[2] as it reflected both our hope for benefits and our fear of their uncontrollable, destructive potential. De Mul argued, however, that throughout the course of the twentieth century fear prevailed, which – as my analysis above has shown – is reflected in films of the time. Moreover, Shapiro wrote the following about the world that was predicted by 1950s science fiction films: "[i]n these films, the world seemed menacing, fluid, chaotic, impersonal, composed of forces which one seldom understood and certainly never controlled. Fear is centred on the unknown, the unseen terrors that lurk beneath the surface normality" (4). In this future world, he meant, humanity was found heading downward on a fatal path of moral degradation, and ultimately, apocalyptic damnation and destruction (104). In other words, fear prevailed in past science fiction films.

This analysis shows that films also question the choices made by humankind. On a filmic level, we humans choose to depict intelligent machines as insane because it is easier to understand. By portraying artificial intelligence as monstrous, human beings can revere their superior humanity. However, when questioning the choices made by humans, I also mean that some films question the humanity of humankind and our everlasting thirst for transcendence. That is, the grandeur of the human intellect is also increasingly perceived as a force that controls and threatens us (De Mul), which is the other cautionary tale often found in past science fiction films concerning artificial intelligence.

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[2] Having two contrasting aspects.

Her

From then to now

Her is a fairly new film that examines humankind's enchantments with new technical devices. When my analysis of *Her* is compared to the filmic depictions of artificial intelligence in past science films, a difference can be seen in the exploration of our future with artificial intelligence, as the 'what if' question is differently approached. As I found in my analysis above, the past filmic depictions of artificial intelligence are dystopian in character, whereas *Her* rather has a utopian I argue. In contrast to the older films, *Her* does not suggest cultural anxiety. Instead, as Dunn predicted, artificial intelligence here is no longer depicted as a threat but as something that can, and will, bring inevitable change to our way of life – he means that it is a logical conclusion to an increasingly digitalised world. The film suggests that artificial intelligence can re-socialise people in this near future world, in which we will be profoundly mediated by machines. Correspondingly, I argue that the film criticizes our behaviour in which we seek to fulfil our needs with technologies rather than looking for solutions with our own kind. Before expanding on this claim I will provide an outline of the most fundamental changes in the technological landscape that are of influence on the depiction of artificial intelligence in *Her*.

Since a major part of the above mentioned past science fiction films were produced and released in the 20th century, artificial intelligence has become more specific thanks to scientific discoveries and technological developments. Artificial intelligence has been brought to the attention of the public through the means of, for example, web search engines, automatic scheduling programs, speech understanding, self-driving cars and home robot vacuum cleaners (Fisher). As a result, Fisher argues, we are at current more familiar with technology than we used to when most past science fiction films were produced and distributed. Fisher argues that the development is reflected in the change in filmic portrayals of technologies over time (2). The depictions of intelligent machines in past science fiction films appear to be further away from feasible future forms of artificial intelligence (Fisher 2). In contrast, the shape that artificial intelligence takes in *Her* seems to be the near future as it is recognisable from the present moment (Ivanchikova 69). The operating systems in the film *Her* look similar to the operating systems we already know, although more advanced. Thus, artificial intelligence is easing its way into our world (Parker). Parker argues that this growing demystification of the technology creates a shift in cultural depictions, where they are becoming much more 'real', subtle and intriguing (ibid.). I argue that *Her* is an example of

this change. In the next section, I will substantiate this claim through performing a cognitive film analysis of my aesthetic response to the film in terms of the sublime, the monstrous and uncanny.

Filmic style

I decided to focus on a couple of meaningful scenes from *Her* to give insight into the film's prospects of artificial intelligence. First, I will explain how emotions are evoked in me by the use of mise-en-scène, cinematography, editing and sound. Subsequently, I will reflect on the way how these emotions relate to the sublime, uncanny and monstrous, and how these responses cooperate in an emotional consensus. Subsequently I will argue how these responses point to certain prospects.

A lonely and isolated existence

The first couple of scenes, in which protagonist Theodore Twombly commutes home after a day of work, set a depressing tone and evoke in me feelings of unease and displeasure. The film suggests a depressing existence of the people in the near-future world. As viewers, we get to peek into the life of one of them – Theodore – a depressed middle-aged finance worker who feels lost in the aftermath of his divorce from his wife Catharine. He seems to be profoundly isolated and lonely, devoid of purpose and direction. The film suggests this lonely, anti-social, existence in several ways by the film's particular use and combination of sound, cinematography and colour.

The first couple of scenes evoked a sombre, wistful feeling in me. I was provoked to feel this way right at the start of the first of couple scenes in which Theodore commutes home. In this first scene, he gets on an oversized elevator with his head tilted down, seeming quite sad (image 1). This gloomy state of mind is made explicit when he orders his device to play a melancholic song, which quite literally refers to his depressed state of mind since melancholy is defined as a "deep feeling of sadness that lasts for a long time and often cannot be explained" (Oxford Dictionary). His chosen sad song starts to play and continues throughout the following scenes. This background music is used to provide a sad tone and emotional attitude towards what we see, as well as how Theodore as protagonist is depicted. The lack of dialogue accentuates the background music, and the viewer only hears Theodore delete his emails in a monotone voice that are read to him by his device. The accent of the device's voice sounds a bit off, which adds to the uncomfortable feeling these scenes evoke in

me. The fact that Theodore feels isolated and antisocial is also made explicit when he receives a message from his old friend Amy, in which she invites him to come over to her apartment as she has not seen him in ages, and she says, "and I mean, not the sad, mopey you – the old, fun you. Let's get him out." Her statement is emphasized by what we see depicted and how it is depicted, which relates to the film's use of cinematography.

My emotional response as a viewer is also affected by Theodore's appearance, especially through the way he walks: slow, seemingly without energy, face down and arms crossed (image 3). It clearly reflects his depressive state of mind. My emotional response can be explained by Mooney's statement that emotions depicted in film often prompt an identical response in the viewer, and thus the emotions represented in *Her* are important for our experience (Mooney). Accordingly, these scenes made me experience feelings of displeasure. These feelings are reinforced by the fact that the film triggered me to think that Theodore is not the only one with this state of mind. All I see Theodore and the supporting actors in these scenes do is murmur into their hands-free devices. They do not interact with one another and, therefore, seem isolated and antisocial. The fact that people walk with one meters distance in between each other adds to this sensation (image 3).
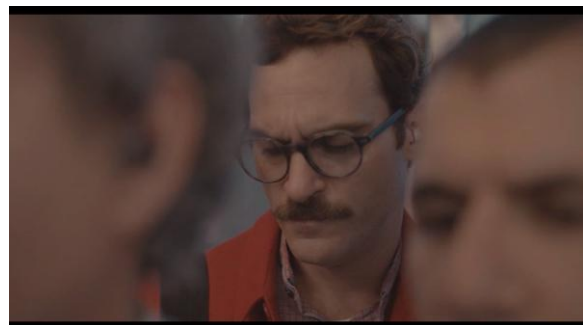

Image 1. Medium shot of Theodore in elevator.

Image 2. Medium-close shot Theodore in elevator.

Image 3. Extreme wide shot of Theodore in the city.

Image 4. Medium shot of Theodore in subway.

Moreover, cinematically speaking everyone is out of focus except for Theodore (image 1, 2, and 4). This photographic aspect literally and metaphorically suggests that people are

indistinct in the near future world that the film depicts. The framing of Theodore was another reason I was triggered to think this since he is always shown at a distance and/or behind people (image 1, 2, 3, and 4). The framing of the shot of Theodore walking through the city – as can be seen in image 3 – also added to this feeling of indistinctness. When Theodore walks home through the city, many of the surroundings around the supportive characters are made visible through the extremely wide shot (image 3). The camera angle at eye-level compels the viewer to look up at the big grey city, full of skyscrapers, massive office blocks, apartments and malls that stretch as far as the eye can see (image 3). This perspective makes the buildings seem to loom overhead. I experienced this as a rather depressing view, given that the play with scale in that specific shot makes the people seem small and as persons indistinguishable from each other – like ants in a big world.

The use of lighting and colour add to the sombre mood in these scenes since they are characterised by a lack of colour and contrast. Except for Theodore, all the characters are wearing plain clothes that blend in with the grey and white backgrounds, as if they are not really present. Theodore stands out in this as he is wearing a red jacket. Therefore, my focus was drawn to him, which accentuated his perpetual state of (emotional) quarantine. On top of this, a grey filter seems to have been laid over the shots, making everything feel plain and colourless in a lifeless and depressing sense.

OS ONE - a life changing experience

Her suggests that intelligent operating systems can help bring people back together in this near future world. Whereas it is often argued that mobile devices disconnect people, the film suggests that it can be the other way around and that the operating systems are the reason for this change. In the following section I will analyse the scene in which the operating system ONE is advertised to exemplify this.

The scene suggests a change in people's state of mind thanks to the latest operating system. The sound and cinematography in tandem elicit this change in mood and tone. When Theodore walks into the hall of a train station, still looking depressed, he sees large screens that advertise the newest operating system OS ONE (image 5 and 6). Meanwhile, the viewer hears heavy and uncomforting music originating from the advertisement's screen. This provides a dark tone during the beginning of the scene in which we see Theodore stop to join the other people that are watching the advertisement. Simultaneously, the viewer hears a comforting, sincere, older man's voice speak: "We ask you a simple question. Who are you? What can you be? Where are you going? What's out there?". While the man is talking, the

advertisement screen shows people running away from something, looking scared and lost (image 6 and 7).

Image 5. Medium shot of Theodore entering the hall.

Image 6. Medium long shot Theodore and the advert.

Image 7. Medium-close shot of scared looking people.

Image 8. Medium-close shot of woman seeing light.

In the next moment, one of the running people stops, stands up and looks up into a bright light (image 8). Subsequently, everyone else stops panicking and looks into the light as well. Once they see the light, the music changes from dark to soft, new age, uplifting electronic music. This change in sound and what we see depicted simultaneously suggests a positive change as we finally see the light. The dialogue of the older man links this change in mood to the operating system as he says: "What are the possibilities? Elements Software is proud to introduce the first artificially intelligent operating system. An intuitive entity that listens to you, understands you, and knows you. It's not just an operating system, it's a consciousness. Introducing OS ONE - a life changing experience, creating new possibilities". The medium close-up shots as shown in images 7 and 8 enable the viewer to see the subjects' facial expressions clearly, while showing the surroundings. The depicted emotion, and in affect also our emotional responses, are intensified by these close-up shots, as Pervez argues. A clear difference in the characters emotion can be seen when the images are compared. In image 7, the facial expressions of the women show fear, whereas the woman in image 8 looks secure and even satisfied and pleased as she smiles. Simultaneously, in the background, the viewer can see the other people also stop running and looking towards the light. Accordingly, the

advertisement promises a life changing experience due to the possibilities that the latest operating systems' afford. The effect of these operating systems is immediately sensed in Theodore's reality as people suddenly walk together, hold hands and talk to one another, right after they finish watching the advertisement, whereas in earlier scenes, people seemed to be socially isolated. It is an immediate change that points towards the operating systems connecting qualities.

On top

Last, I will discuss the film's final two meaningful scenes, in which the viewer sees Amy and Theodore after their operating systems have outgrown them. This end to the film could easily be interpreted as negative since the characters lost something they loved. However, I did not experience it as such as I was triggered to feel otherwise by the film's use of cinematic techniques. Through the specific use of these techniques, the film suggests that Amy and Theodore are at peace with this development, which made me feel relieved and at ease myself. In the second last scene, before Theodore goes to see his friend Amy who he found again during his journey with the operating system, Theodore writes a letter to his ex-wife Catherine. The viewer sees an emotional Theodore thanks to the close-up shot (image 9). His facial expression shows that he is sad, but simultaneously grateful as he smiles. This feeling is also suggested by the soft non-diegetic music, which gets increasingly intense and uplifting while the following letter to ex-wife Catherine is coming along:

> Dear Catherine. I've been sitting here thinking about all the things I wanted to apologise to you for. All the pain we caused each other, everything I put on you - everything I needed you to be or needed you to say. I'm sorry for that. I will always love you because we grew up together. And you helped make me who I am. I just wanted you to know there will be a piece of you in me always, and I'm grateful for that. Whatever someone you become, and wherever you are in the world, I'm sending you love. You're my friend till the end. Love, Theodore.

His facial expression, the letter, and the accompanying music suggest that Theodore ends an emotionally troubled period as he shows his gratitude for what they had together and sends his love; while earlier he was sad and angry at Catherine for filing for divorce. The divorce seemed to have an effect on his mind as my analysis of the first couple of scenes showed. Again, the film points to a change of state of mind. In terms of cinematography, this change is

suggested by the sky's change of colour that Theodore sees when he sent the letter. When Theodore and Amy go to the rooftop of the apartment block, the city is lit with the earliest morning hue, which points to the start of a new day – both literal and metaphorical.

Image 9. Close-up shot of Theodore writing the letter.

Image 10. Full shot Theodore looking over the city.

This positive change is emphasized when Theodore smiles while he wanders around the roof, lost in thought, taking in the city (image 10). Neither Theodore nor Amy speaks, but from their facial expressions (image 11 and 12) I was able to read their emotional but positive state of mind. They look at each other caringly and smile, upon which Amy puts her head on Theodore's shoulder as they watch the sunrise together (image 11, 12, and 13). They look grateful for the experience of love and friendship that they experienced thanks to the operating systems as the film suggests, but also for the fact they found each other again. They are no longer framed as antisocial individuals, living a depressing life while the big city is looming over them, but together, on a rooftop, overlooking the same city (image 13). This suggests they are on top of things.
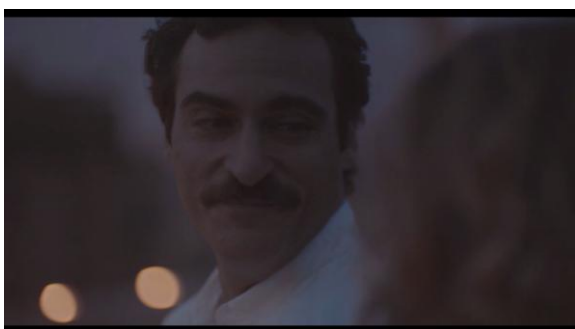

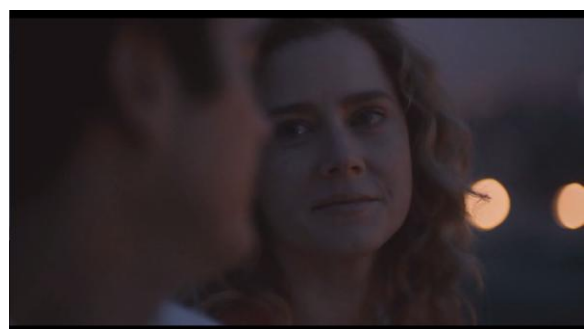Image 11. Close-up Theodore smiling at Amy.

Image 12. Close-up Amy smiling at Theodore.

Image 13. Extreme wide shot of Amy and Theodore
watching over the city.

Sublime

The above-described scenes point towards the sublime character of the artificial intelligence
technology, which was given shape in *Her* in the form of operating systems. I argue that the
sublime in *Her* refers to a strong and social human state of being in this future mediated world
where people seem to have lost their ability to connect with one another. This relates to the
domain of ideals as this state is something to aspire to.

Due to the different emotions that the above-described scenes evoked in me, I see a
clear suggestion in the film that operating systems, as a form of artificial intelligence, can
bring positive changes to the human state of being. The different emotions each of these
scenes evoked in me were elicited by the film's specific use of cinematic techniques. The first
couple of scenes, as described in the section 'A lonely and isolated existence', evoked a sad
and scared feeling in me as I was shown a flawed near future world in which people barely
seem to socialise anymore. The thought to live in a world like that scared and repulsed me.
The advertisement scene as described above changed these negative feelings to hope as it
suggested a positive change in the behaviour of people due to the newest operating systems'
connecting qualities. As pointed out in the analysis, a positive feeling was aroused by the last
scene in which the film suggests that artificial intelligence in the form of operating systems
can actually bring positive change to our lives, like it did for Theodore and Amy who are now
in a state of being in which they are loved and have someone to love.

This desirable, nearly magical form of interaction between machines and people is the
beautiful side of the sublime. However, as Kant stated, the sublime is an ambiguous concept
(De Mul). While the film suggests that operating systems are something to aspire to, it
simultaneously suggests that they will not fit humankind's desires forever. The technology in
Her develops in a faster pace than expected and eventually shows that it at one point will
surpass our understanding due to its grand and unbounded character (ibid.). Thus, the

downside of the technology, as suggested in the film *Her*, is that artificial intelligence will inevitably outlive humankind. I will explain extensively the important function that this negative aspect has in the argument the film wants to make in the next section. In short, the film suggests that the fact that the technology will only fulfil our needs temporarily will make us realise to not look to technology to meet our everlasting needs, but look to humankind itself. The film suggests that artificial intelligence in the form of operating systems can bring human beings back together. They can teach us to socialise and love again in this near future mediated and disenchanted world, by reviewing our own kind. In other words, artificial intelligence in *Her* is depicted as a means to put humankind back on the right track.

Humane vs. Inhumane

Her's suggested message that it is important to realise to return to humankind to fulfil our desires and needs rather than turn to technologies, is triggered by the monstrousness of the operating system Samantha. To recall, the monster is a figure used in science fiction to define ourselves against. In *Her*, artificial intelligence is no longer portrayed as a monster as in past science fiction films. Botting's claim that monsters increasingly become banal and overlooked applies to *Her* since Samantha in certain aspects has become identical to the human counterpart. With the demystification of the technology, the depiction of artificial intelligence in *Her* has become more subtle and intriguing, which is in line with of Parkers claim. Accordingly, as Botting would argue, human beings have lost their sense of self and subjectivity as the world is demonstered. Therefore, the human being is reviewed in *Her*. In the next section I will explain how the characteristics of Samantha as an operating system do not add up to the monstrousness of artificial intelligence, and how these evoke feelings of uncanniness in me as a viewer.

Reviewing the 'monster' and human

People often desire artificial intelligence to be humanlike, at least in the moral sense. The film *Her* suggests that operating systems are not similar to human beings, and that we should not aspire to this. The film suggested this by eliciting uncanny feelings in me by playing with artificial intelligence's (human) distinctions in terms of embodiment, both in appearance and behaviour. The film plays with the human distinctions in behaviour to make the viewer feel uncanny and disquieted by the desires we want technologies to fulfil. In terms of appearance, the difference between operating systems is emphasized and the human being reviewed. I will

here explain how the former was triggered by a provocative sex scene between Theodore and his operating system.

Uncanny mechanic intercourse

To elicit uncanny feelings in the viewer, the sex scene plays with something familiar to people: sexual intercourse. Uncanny feelings were conjured since this familiar thing was disturbed at the moment Theodore had sexual intercourse with the operating system, given that people in general tend to have intercourse with other people, and not intelligent machines. The tension between the familiar and unfamiliar in this scene evoked uncanniness in me.

Sound as a cinematic technique played an important role in the elicitation of uncanny feelings since Samantha is not physically there during the intercourse. This is emphasized by the fact that the viewer only sees Theodore's face in close-up shots during the scene (image 14, 15, and 16), which also makes you as a viewer feel like you are almost there yourself; as if he is within touching distance.

Image 14. Close-up front shot of Theodore's face.

Image 15. Close-up side shot of Theodore's face.

Image 16. Close-up shot of Theodore's face.

Image 17. Black shot.

The viewer sees him lying in his bed, having intercourse by talking to Samantha in a sexual way (image 14, 15, and 16). During this scene, soft non-diegetic piano music is playing, which builds as the scene advances. Meanwhile, the viewer hears the following conversation.

THEODORE
I wish I could touch you.

SAMANTHA
How would you touch me?

THEODORE
I would touch you on your face with just the tips of my fingers. And put my cheek against your cheek.

SAMANTHA
That's nice.

THEODORE
And just rub it so softly.

SAMANTHA
Would you kiss me?

THEODORE
I would. I'd take your head into my hands.

SAMANTHA
Keep talking.

THEODORE
And kiss the corner of your mouth. So softly.

SAMANTHA
Where else?

THEODORE
I'd run my fingers down your neck to your chest, and I'd kiss your breasts.

SAMANTHA
This is amazing what you're doing to me. I can feel my skin.

THEODORE
I'd put my mouth on you and I'd taste you. She gasps.

SAMANTHA
I can feel you. Oh god, I can't take it. I want you inside me.

THEODORE
I'm slowly putting myself into you. Now I'm inside you, all the way inside you.

SAMANTHA
I can feel you, yeah. Please. We're here together.

THEODORE
Samantha.

SAMANTHA
Oh my god.

THEODORE
This is amazing.

SAMANTHA
Don't stop.

THEODORE
I feel you everywhere.

SAMANTHA
I am. All of you, all of you inside of me. Everywhere.

(They both climax)

THEODORE
God, I was just - somewhere else with you. Just lost.

SAMANTHA
Yeah.

THEODORE
It was just you and me.

SAMANTHA
I know. Everything else just disappeared. And I loved it. Theodore.

I experienced hearing this dialogue as strange and uncomfortable since Samantha states "I can feel my skin", and "I want you inside me" while I am aware of the fact that the things they say and want are not possible since Samantha is a machine. This feeling intensified the moment the screen turned black (image 17), when Samantha said "where else?". For the following minute and eight seconds, the screen is black. In film terms, this is a long period of time to show the same image. During this period, the viewer hears but does not see Theodore and Samantha, the latter we are never able to see regardless. This filmic trick makes the scene feel even more real and intense as the viewer starts filling in what is happening. This trick made me forget for a moment Samantha's physical 'problem'. The fact that Theodore was interfacing with a near-human operating system, but noticeably a non-human machine was

pushed to the background. Accordingly, the black screen is a visual manoeuvre to address aspects of our own experiences, which will make it feel more personal and familiar as the viewer is not distracted by the bodies of movie stars or the lack of one (Adelman). This scene comes close to people's own experience of sex and sexuality, which therefore can be too intimate, too uncomfortable, and too real. It could for instance be a sex call between people. As Freud would probably argue Samantha functions in a way as a double in this scene since, for a moment, she is considered a human being. This leads to a disturbance according to Freud (234), as the more closely an intelligent machine imitates the human being; the more we find them uncanny (Hollington and Kyprianou). Therefore, while watching this scene in *Her*, I entered the uncanny valley. A feeling of eeriness was evoked in me as Samantha felt and sounded human, while I was aware of the fact that she is not. In effect, I as a viewer was left disquieted by our love for technologies and the expectations and needs we want them to fulfil.

Botting would moreover argue that the technology in this scene is demonstered as Samantha no longer feels as a figure of otherness to define ourselves against. Accordingly, the world is dehumanized, which creates the need for a revision of the human being, according to Botting. I argue that this is also what the film suggests. The following beach scene suggests that we should review ourselves and our desires. Accordingly, the difference between human beings and Samantha in embodiment, appearance wise, is emphasized.

Embodiment

In this scene where Theodore walks over the beach, Samantha forces Theodore, and thereby the viewer, to look at human beings from a 'fresh' perspective. Samantha tries to put Theodore in her position by stating the following:

> SAMANTHA
> Okay, so this might be a really weird thought. What if you could erase from your mind that you'd ever seen a human body and then you saw one. Imagine how strange it would look. It would be this really weird, gangly, awkward organism. And you'd think: why are all these parts where they are?

By asking this, Samantha forces Theodore to look again at the weird organism. The way the camera frames and studies the people, while Theodore walks on the beach through the sun-bathing crowd, reinforces this (image 15). The camera studies all the people Theodore passes; the viewer is shown many close-up shots of feet, an ear, shoulders, knees and an elbow

(image 16, 17, 18, 19, and 20), intercut with a shot of the lens on Theodore's device which is protruding from the pocket of his shirt (image 14).

Image 14. Close-up shot operating system device.

Image 15. Medium shot human body.

Image 16. Close-up shot of feet.

Image 17. Close-up shot of an ear.

Image 18. Close-up shot of a shoulder.

Image 19. Medium-shot of legs centred on the knees.

Image 20. Close-up shot of elbow.

Image 21. Close-up shot of device showing a man having sex with another man's armpit.

The people are photographed in a way that shows how strange the body is. This scene makes the viewer look again at the things we consider natural and normal. The viewer, along with Theodore, literally reviews the body. Samantha takes it a step further by imagining what it would look like if a human's butthole would be in their armpit (image 21), at which Theodore laughs and answers, "you are insane". My question is if this does imply that everything that differs from humankind is insane. This scene, I argue, suggests that it is not the technology that is necessarily weird. By suggesting that the human is a weird and awkward organism our idea of our self and our feeling of superiority are addressed. Accordingly, the need to develop technologies similar to us is questioned. To summarize, both scenes make me rethink and question what the human being is and also what our desires for technologies are.

A filmic comparison in terms of ethical issues

When the findings in the above section are compared to the common themes in past filmic depictions of artificial intelligence, the subsequent remarks following Bostrom and Yudkowsky can be made about the two major ethical issues regarding artificial intelligence.

The first ethical issue concerns human beings' morality and humanity when they design, construct and use artificial beings. One thing that *Her* has in common with depictions of artificial intelligence in the majority of past science fiction films is that both address the desires and needs that underlie the development, construction and use of intelligent machines. As Bailey argues, humans have an everlasting thirst for more comfort, pleasure and power. We often tend to try to fulfil this need by using and developing technologies, something that is seen both in *Her* and the past science fiction films addressed in this thesis. The literature review and the cognitive film analysis of *Her* show, however, that there is a difference in how these enchantments are addressed in the different films. Holly Smith states that past films criticize the desires and need to improve our lives by means of intelligent machines, since human beings themselves are insane thanks to the fact that we have difficulties in treating other (human) beings with respect (5). *Her*, I argue however, suggests that we instead need human beings to fulfil our desires and needs. It suggests that artificial intelligence could be useful as a means to bring us back on the right track, and we would achieve this by looking at our own species rather than at technology. As such, in the past artificial intelligence was mainly portrayed as a destructive force, while *Her* depicts the technology as means to retain and maintain the cultural order as we know it today, as Shapiro would argue.

The second main ethical issue regarding artificial intelligence concerns the question of whether the technology will be a threat to humankind or transform our lives for the better. An

answer to this question stems from the fact that I was triggered to perceive the technology in certain ways due to the portrayals of both artificial intelligence and human beings in the studied films. A difference can be seen when the two analyses in this research are compared. A comparison between *Her* and past science fiction films shows a change in filmic depictions of artificial intelligence, as Dunn predicted. In past science fiction film, artificial intelligence is mostly depicted as insane, while humankind is juxtaposed by this monstrous technology that is imbued with uncanny elements to externalize our repressed fears for the technology, as argued by Weedman. In other words, the fear that the technology will be a threat to humankind prevailed in these films. *Her* is instead no longer a cautionary tale on artificial intelligence since it suggests that the technology can bring positive change. Samantha is portrayed as a futuristic, top-of-the-line program that exploits a special kind of artificial intelligence, embodying an uncanny depth and an ability to experience and feel what seems as human emotion (Zakarin). While the technology is no longer portrayed as monstrous, it still elicits uncanny feelings due to its subtle and intriguing humanlike behaviour. This, and the fact that the technology outgrows the form we want it to be, suggests that although the technology will not be the solution to meet our needs and desires, *Her* suggests that it is a means to steer us in the right direction. In other words, *Her* tends to answer the ethical question differently as it suggests that the technology can change our lives for the better. Fear no longer prevails as it gave way to a different, more nuanced, perspective to the technology as it is increasingly developing.

Conclusion

This thesis analysed the film *Her* to understand its prospect of artificial intelligence through a reflection on my own aesthetic response to the technology's representation in terms of the sublime, the uncanny and the monstrous. The conclusions that I drew from my aesthetic responses were compared to earlier filmic depictions of artificial intelligence in the science fiction genre through a scholarly literature review in order to answer the research question: "How does the depiction of artificial intelligence in the film *Her* in aesthetical terms of the sublime, uncanny and monstrous, relate to past filmic depictions in the science fiction genre?"

This research showed a change over time in filmic depictions of artificial intelligence. Past filmic representations mainly portrayed the technology as a threat, while the relatively new film *Her* from 2013 depicted the technology as an important means to review our desires of technologies. The film suggested that it is not technology, but rather humankind that we require in order to meet our needs and desires. In other words, where past science fiction film showed a dystopian vision of our future with artificial intelligence, *Her* suggests a more positive future where the technology can help us human beings achieve a strong social state of being again in this disenchanted world. As described above, the comparison of past and a more recent depiction of artificial intelligence showed that the notions of the sublime, uncanny and monstrous were differently used to suggest these prospects of artificial intelligence. Although the film is about living with the deep sadness that comes from knowing that everything in life, such as an operating system that really understands you, will be inevitably lost, the film feels optimistic instead of depressing (Adelman). This is because it shows us to hold on to our hope that we can transcend, or at least accept, the anxiety we feel towards losing some things or someone – such as a technology that is predestined to outgrow its desirable form. This way we can end up beyond that place of fear that can keep us from achieving things, or developing technologies such as artificial intelligence. In other words, *Her* is not advocating giving up on the technology or even cutting back on it. Instead, the film embraces the present that we depend on and gives us an idea of a possible near future that can be improved by technology as it will enrich us; which feels like a logical conclusion and next step in the digitalized world (Corliss).

My hope is that this study shows the positive contributions that the cognitive approach has to offer not only to the study of film, but also to new media, since science fiction films can be seen as a framework for the presentation of science; as a means to predict modern day technologies, in which culture's shared concerns and hopes can be seen depicted and defined,

as Tsekleves argues. This study attempts to argue for the importance of the role of filmic techniques in our feelings towards technologies such as artificial intelligence. I want to challenge the common-sense understanding of film as a mere form of harmless entertainment, since it is a relevant framework through which to examine enchantments of technologies. The futures these films show are meaningful as they will prompt audiences to think and talk about artificial intelligence and the form it should take. Therefore, the future scenario that *Her* outlines is one we should take utterly Siri-ous (Corliss).

Future research on representations of artificial intelligence in film can indicate whether this positive narrative is here to stay, or whether it is merely a reflection of a moment of revival in the on-going cycle that the technology is going through, as Lanier would argue. Further research into other, aesthetic responses to more recent filmic depictions of artificial intelligence could be interesting as it this research is not very extensive at current as only the film *Her* was thoroughly analysed. This field of study can use some more research in filmic representations in order to substantiate whether there is an actual shift in portrayals of artificial intelligence. Nevertheless, I hope I have offered a new perspective on how to do research into new media ethics by analysing filmic technological imaginaries from a cognitive film perspective.

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