

Utopia in images

Continuity in the human-robot relationship
in 20th century cinema



Fiona Endres

4126815

Utrecht University

August 2015

Table of Contents

Introduction	2
Introduction to the topic	2
Literature review	3
The Historical Continuity Approach	4
Research gap and research questions	7
Measuring utopia: the tools for the analysis	9
Utopia and key terms	9
Choice of sources	10
Research method	12
1 ❖ The Machine Age	19
Historical context	19
Summary of the plot: <i>Metropolis</i>	21
Summary of the plot: <i>Algol</i>	22
Analysis	23
2 ❖ The Space Age	27
Historical context	27
Summary of the plot: <i>Forbidden Planet</i>	28
Summary of the plot <i>2001: A Space Odyssey</i>	29
Analysis	31
3 ❖ The Age of the Internet	37
Historical context	37
Summary of the plot: <i>The Matrix</i>	38
Summary of the plot: <i>Artificial Intelligence (A.I.)</i>	39
Analysis	41
4 ❖ Continuity in the human-robot relationship	46
Utopian elements	46
Dystopian elements	47
Interaction between robot and human	48
Ambivalence utopia-dystopia	49
Conclusion	54
Bibliography	55
Appendix A: Codeplan	60
Appendix B: Analysis	62
Appendix C: List of illustrations	63

Introduction

“Technological progress has merely provided us with more efficient means for going backwards.”

Aldous Huxley, *Ends and Means*¹

Introduction to the topic

New technologies in the last century brought much progress and massive changes to our daily lives in Western societies. The feelings Huxley expresses represent the typical ambivalence people show towards new technologies such as Google Glass or the Apple Watch. But in the end, this ambivalent relationship comes down to very fundamental questions of the human being. What are we? Can we be replaced? What distinguishes us from animals or machines? These questions have been a dominant part of films in the last century and come to the surface most when looking at our attitude towards robots.

However, the fears and fascinations we feel are not new. Scholars of different fields² have discussed our relationship with technology and found that similar feelings accompany the introduction of each new technology. But can we also identify continuity in the human-robot relationship portrayed in films?

This paper examines this relationship by focussing on continuous utopian and dystopian elements. It intends to contribute to the continuity debate by looking at six relevant films of the last century: *Metropolis*, *Algol*, *Forbidden Planet*, *2001: A Space Odyssey*, *The Matrix* and *Artificial Intelligence (A.I.)*.

This thesis starts with a review of the most relevant literature. Then we will present the concept of the ‘historical continuity approach’ and relate this to the debate about continuity in the attitude towards technology. We will then justify the selection of films and discuss the methodology of analysis. The three following chapters each represent a time period. Each chapter will begin by giving the historical context of the given period, with a specific focus on technology, followed by a synopsis of the selected films and finally the analysis. The fourth chapter will be a synthesis of the results of the six case studies where we will show the continuity. Finally, in the conclusion we will answer the research question and finish this thesis with some final remarks.

¹ Huxley, *Ends and Means*, 9.

² For example Vincent Mosco (sociologist) or Howard Segal (historian).

Literature Review

The focus of most researchers of science fiction cinema has been rooted in the humanist tradition. Placing the films in a broader – and also historical – context, they try to understand developments and processes in the real world. Examples of scholars are John Baxter³ and William Johnson⁴. Susan Sontag published one of the most cited articles about science fiction: “The imagination of disaster”. She argues that the genre is purely about the end of the world and that the genre was so popular during the Cold War because of the attitudes and anxieties of American culture at that time.⁵ Others, such as Vivian Sobchack, attempt to take science fiction cinema out of the shadow of its older brother, science fiction literature.⁶

Most of the research into robots in films attempts to categorize them. Sesslen and Jung describe three types of robots in science fiction films: the copy of the human, the robot as potential danger and the robot as outsider.⁷ Höltgen, however, categorizes the robot either as friend, enemy or sex object.⁸ Otherwise most research on robots in films has been done in the form of single studies of one film.⁹ Finally, there is the work of Wolfgang Ruge, who analysed the relationship between human and robots by focussing on the cinematic techniques.¹⁰

There has not been much research done about the relationship between human and machine. Van der Laan sees science fiction movies as propaganda that denies the threat of technology for humanity. He analyses two trilogies (*The Matrix* and *Terminator*) and concludes that these films all first depict the human-robot relationship as threatening, but then present a solution where humans have to collaborate with the machines in order to save humanity. However, Van der Laan claims that in all six movies humans would stay inferior.¹¹

Geraci analyses the relationship between human and robot in science fiction films and compares it with people’s relationship to god. He claims that the attitude towards robots, a combination of fascination and fear, is comparable to the common attitude towards or the image of god. Amongst others he analysed *Forbidden Planet* and *the Matrix*.¹² According to him, robotic technology manifests a certain kind of holiness in the twentieth century: “Technology promises salvation with one hand while threatening damnation with the other This

³ See Baxter, John (1970), *Science Fiction in Cinema*. New York: Paperback Library.

⁴ See Johnson, William, ‘Journey into Science Fiction’, in: Johnson, ed. *Focus on the Science Fiction Film*, 1-12.

⁵ Baxter, *Science Fiction in Cinema*, 40.

⁶ Sobchack, Vivian (2001), *Screening Space: The American Science Fiction Film*, Rutgers University Press, New Jersey, 20.

⁷ Sesslen, Georg / Jung, Fernand (2003), *Science Fiction. Geschichte und Mythologie des Science-Fiction-Films*. Schüren. Marburg, 39-41.

⁸ Höltgen, Stefan (2009), ‘Mensch-Maschinen’, in: *Telepolis*, url: <http://www.heise.de/tp/r4/artikel/31/31773/1.html.s>

⁹ See for example Recht, Marcus (2012), *Homo Artificialis. Androiden- und Cyborg-Konzepte am Beispiel der Science Fiction Serie Star Trek*. Akademikerverlag: Saarbrücken.

¹⁰ Ruge (2012), *Roboter im Film. Audiovisuelle Artikulationen des Verhältnisses zwischen Mensch und Technik*. Ibidem. Stuttgart.

¹¹ Van der Laan, ‘Machines and Human Beings in the Movies’, 34-36.

¹² Geraci, ‘Robots and the Sacred in Science and Science Fiction’, 4-6.

coincidence of opposites appears most prominently in depictions of intelligent robots”.¹³

Telotte, in an extensive film analysis, concentrates on the question to what extent the robots in the films are human. He focuses on the how they look (body) and what tasks they fulfil.¹⁴ His analysis is rather descriptive and he does not bring his results on a more abstract level. All the same, his work is relevant for this paper as it examines thoroughly the presentation of different robots in 60 films.

What we consider the most relevant study for this thesis is an analysis of the human-robot relationship in literature. Klass shows that the image of ‘the robot’ transformed several times in the course of the last century. The first robots consisted of human flesh, later becoming mechanical androids. However, he claims that there are several continuing elements in the relationship between human and robots. First, the robot in literature was always a threat to our world. And second, despite the potential dangers, it remained the human’s servant, or even his companion.¹⁵ Klass also stresses the ambivalence of this relationship: “In any case, there is something that draws us to the robot, despite all our fears. We would like to embrace it even though we do worry occasionally whether it will be necessary in the end to destroy it before it destroys us”.¹⁶

In summary, some research has been done into the human-robot relationship in films (and literature). Scholars seem to agree on the ambivalence of the relationship between humans and technology, in real life studies as well as in fiction cinema and literature.

The Historical Continuity Approach

The current age could be considered as a time of new technologies. From the self-driving car to Google Glass: almost every year a new gadget that transforms our daily lives is introduced. As a corollary of the praise of these new ‘technical wonders’, critical voices that feel threatened by these new technologies arise.¹⁷ New technology can thus be seen as leading to utopia or dystopia, depending on one’s perspective. But are the fears and fascinations towards these technologies a continuing or a new phenomenon?

Whether the attitude towards technology has continuity or is a recent phenomenon, is the question of an academic debate that rose with the arrival of the Internet.¹⁸ In order to embed

¹³ Geraci, ‘Robots and the Sacred in Science and Science Fiction’, 6.

¹⁴ Telotte, J.P. (1995), *Replications. A Robotic History of the Science Fiction Film*. University of Illinois Press, Urbana.

¹⁵ Klass, ‘The Artificial Alien: Transformation of the Robot in Science Fiction’, 176-179.

¹⁶ *Ibid.*, here 179.

¹⁷ See for example Arthur, ‘Google Glass: Is It a Threat to Our Privacy?’

¹⁸ Katz-Kimchi, ‘Historicizing Utopian Popular Discourse on the Internet’, 5-7.

our thesis in this debate, we will discuss the two opposing approaches and then clarify our own position.

The core of the debate is whether we can compare people's reactions and attitudes towards new technologies even though their context changes. With context, three things are meant: the time in which technologies arrive, their form and their socio-political context. Is it justifiable to compare the fears and fascinations towards the Internet with the fears and fascinations people had 50 years ago towards the television?

Gerschenkron discusses the concept of continuity in history in general¹⁹ and he suggests that continuity is not just the absence of change but: "the stability of certain elements in an otherwise changing world"²⁰. He adds that any kind of continuity based on historical change needs comparisons over time. By abstracting from differences and concentrating on similarities the historian establishes the continuity.²¹ For this thesis we will use the terms²² of Katz-Kimchi who analyses the debate about potential continuity in the public discourse on the Internet. She uses the term 'historical continuity approach' (hereafter HCA) for proponents of a comparison of attitudes towards technology over different time periods and contexts. For their opponents she uses the term 'contextualist position'²³. Supporters of the HCA consider our attitude towards technology as repetitive and continuing, whereas the contextualist position fixes each discourse to its particular context and time. Contextualists argue that we cannot compare different periods of time as every event and every time period is unique, and should therefore be interpreted in its unique context.²⁴

In this thesis, however, we argue that it is indeed possible to compare different time periods and even to identify common patterns. As Vincent Mosco, one of the strongest supporters of the HCA, suggests, our time is not as unique as we think:

"We want to believe that our era is unique in transforming the world as we have known it. The end is preferred to more of the same; the transcendent to the routine; the sublime to the banal. So we not only view our age as revolutionary. We forget that others looked at earlier technologies in much the same way".²⁵

¹⁹ It would be too far for this paper to show the various academic works where continuity played an important role. Many current historians deal with questions of continuity and change related to the bigger picture. One example would be the paper of North, Summerhill and Weingast discussing the continuity of Spanish colonial institutions in Latin America where the only way out would be dramatic change such as a revolution. See North, Douglass C. / Summerhill, William / Weingast, Barry R. (1999), 'Order, Disorder and Economic Change: Latin America vs. North America. Yale University Press, New Haven.

²⁰ Gerschenkron, Alexander (1962), 'On the Concept of Continuity in History', in: Proceedings of the American Philosophical Society, Vol. 106(3), 195-209, here 195.

²¹ Gerschenkron, On the concept of continuity in history', 196 and 208.

²² We refer to the concept of continuity in history as a general concept. This should not be confused with the concept of continuity thesis in the history of ideas that deals with the continuity of the intellectual developments of the Middle Ages and the Renaissance.

²³ Katz-Kimchi, 'Historicizing Utopian Popular Discourse on the Internet', 5-7.

²⁴ Ibid.

²⁵ Mosco, *The Digital Sublime*, 180.

In his book *The Digital Sublime* Mosco discusses the introduction of different technologies such as telephone, television and cyberspace and analyses the perception people had towards the new technologies. He concludes that the reactions and attitudes towards it were very similar over the course of the last century. The fears and the hopes towards telephone, television and cyberspace were almost identical. On one hand they would make children more intelligent, bring more understanding between the cultures and more safety to families. But on the other hand, they would make people unsocial, selfish and technology was not to be trusted (in the beginning). Furthermore, he says that almost every wave of new technology brought the declaration of the end, in the way that technology could not go further.²⁶ Armand Mattelart says that the utopian discourse on communication technologies is a repetitive phenomenon and that it was used to impose power and regulation.²⁷ Then there is Schüler, who analysed the discourse about technology in the 20th century. He makes an intriguing point: that the criticism on technology does not correlate with actual technological advancements. Furthermore, and this is also relevant for this paper, he argues that techno-criticism was dominated by recurring patterns of arguments.²⁸

Howard Segal analysed statements of technological utopianism (a mode of thought and activity that vaunts technology as the means of bringing about utopia) and concludes that such statements were to be found in all the discourses about the industrial revolution (1880-1930) but also about high-tech technologies, such as computers, robotics or space travel.²⁹

In short, these scholars claim that despite the many different forms of technologies, the relationships between human and technology remained the same over the course of a longer time period.

The supporters of the HCA are challenged by the arguments of the contextualists. The most relevant of them in the debate about continuity in the relationship between human and technology is Carolyn Marvin. She argues that new communication technologies changed the established habits of social transactions and concepts of social relationships. She emphasises the fact that the historical contexts in each period were very specific and that we cannot compare these differing contexts. According to her, the introduction of new media in the last century was “a special historical occasion”.³⁰

²⁶ Mosco, *The Digital Sublime*, 117-140.

²⁷ Mattelart, *L'invention de la communication*, 1-10.

²⁸ Schüler, *Erfindergeist und Technikkritik*, 14.

²⁹ Segal, 'The Cultural Contradiction of High Tech', 200-216.

³⁰ Marvin, *When Old Technologies Were New*, 4.

We do agree with her argument that new technologies change established habits. However, we think that the fact that technology causes change is true for every time new technology is introduced. Therefore in this case the *change* itself is the repetitive pattern. This is also what Gerschenkron says: “Continuous change is by no means a contradiction in terms”.³¹ We also see the question in a bigger context. Maybe the introduction of new technology is “a special historical occasion” at a certain time. We argue, however, that it is only special as long it is in the present. As soon as it is in the past, we argue, it can be compared with other past occasions.

Another contextualist, John Peters, argues that the introduction of electronic communications changed how we see communication technologies in general. Communication has become central to reflections on concepts like democracy, love and changing times since the introduction of electronic communications. In this way, he looks at technological utopianism as a much more closed, individual and unique concept.³² However, we have seen with Mosco³³ that the reflections of such concepts also happened with the introduction of other technologies before communication technologies in the sense of Peters. This is why we assume in this thesis that technological utopianism is not that unique as contextualists suggests but that there is continuity.

Mieczkowska criticizes Mosco’s work because he started the analysis for *The Digital Sublime* in 1996, when the Internet was not established widely.³⁴ We agree with her that he probably could not estimate the full attitude towards the Internet at that time, but he presents sufficient other examples of public discourses so that his main argument remains valid.

Research gap and research questions

In this thesis we aim to contribute to this debate. Mosco, Segal and others say that the attitude towards technology is continuing despite different contexts. Klass shows the same for the human-robot relationship in science fiction literature. Similarly, we argue in this thesis that the human-robot relationship in films is continuing despite their changed contexts.

Although there is not much, some research has been done into the human-robot relationship in films. Some even searched for continuity in the attitude towards technology. However, the combination of the two till now has not been done yet: showing continuity in the human-robot relationship in films over a larger period of time.

³¹ Gerschenkron, ‘A Concept of Continuity in History’, 196.

³² Peters, *Speaking into the Air*, 5.

³³ Mosco, *The Digital Sublime*, 120-140.

³⁴ Mieczkowska, Suzanne (2004), ‘Book review: the Digital Sublime by Vincent Mosco’, in: *Prometheus*, Vol. 22 (4), 464-467, here 466.

Secondly, we have seen that the ambivalence between positive and negative, between utopia and dystopia, is one of the key elements of the human-robot relationship. But there is still potential in analysing these elements. Finally, most scholars focussed on the description of single films without comparing them with others or putting them in a broader context. We attempt to address this shortfall by comparing films from a whole century. That is why we chose a method that will enable us to compare the three time periods efficiently, allowing us to draw conclusions about the continuity of the human-robot relationship.

This rather lengthy introduction to the existing literature as well as the concept of HCA is necessary to appropriately contextualise the aims of this paper. In short, it will analyse to what extent there is continuity in the human-robot relationship in six selected films of the time period between 1900 and 2001.

We will answer this question with the help of sub-questions. In order to cover the ambivalence of utopian and dystopian views on technology we will focus on these elements. Therefore we will analyse which utopian and which dystopian elements are continuous in the human-robot relationship. Moreover, we will analyse which role the robots in the films take and to what extent this changes. Can we also identify continuity in this matter?

On the basis of Šmihula³⁵ and Freemann³⁶ we suggest dividing the 20th century in three technological waves: The Machine Age (1900 – 1940), the Space Age (1940 – 1980) and the Age of the Internet (1980 – now).³⁷ These three cycles were shaped by the arrival of new technologies³⁸, in all kinds of forms. This thesis argues that – despite all the technological changes – our relationship towards technology remained effectively the same. We will focus on the human-robot relationship because the ‘artificial creation’ is one of the key elements of the science fiction film.³⁹ With the example of six films – two for each period – we will show that human-robot relationship shows continuity in utopian and dystopian elements.

³⁵ Šmihula, Daniel (2010), ‘Waves of Technological Innovations and the End of the Information Revolution’, in: *Journal of Economics and International Finance*, Vol.2 (4), 58-67, here 59.

³⁶ Freeman, Christopher (1985), *Die Computerrevolution in den langen Zyklen der ökonomischen Entwicklung*. Carl Friedrich von Siemens Stiftung. München, 17.

³⁷ These terms are used by some scholars, others use: the age of electricity (1890-1940), the age of electronics and microelectronics (1940-80) and the age of information and telecommunications (1980 till present).

³⁸ We will expand on that in the three chapters each representing a wave of technology.

³⁹ Other key elements are: the future, technological invention, extra-terrestrial contact, time travel, physical or mental mutation, scientific experimentation and fantastic natural disaster. Johnston, Keith M. (2011), *Science Fiction Film. A Critical Introduction*. Berg, London/New York.

Measuring utopia: the tools for the analysis

Definitions and key terms

At this point we will define the key terms ‘robot’, ‘utopia’ and ‘dystopia’ for this thesis. With the help of these definitions and relevant literature we created lists for each utopian and dystopian characteristics. These in turn will be the variables for the analysis.⁴⁰

Robot: In contrast to Telotte⁴¹ we will see the definition of robot in a more abstract way. The Merriam Webster Dictionary provides the following definition of ‘robot’: “a machine that can do the work of a person and that works automatically or is controlled by a computer”.⁴² Based on this definition we also consider clever gadgets or production machines as robots. However, they have to be able to fulfil complex tasks without the help of a human.⁴³ Thus, the robots in this thesis do not necessarily have a human-like appearance.

Utopia: The Oxford Dictionary says: “an imagined place or state of things in which everything is perfect” and “the opposite of dystopia”.⁴⁴ This place ‘utopia’ can be in the future or in the present, as Ruth Levitas defines it.⁴⁵ Utopianism is rooted in the science-based thoughts of the French Enlightenment. The technological domination of nature was interpreted as a promise for freedom from “scarcity, want, and arbitrariness of natural calamity”.⁴⁶ Segal defines utopia as the praise of technology and the perfect society.⁴⁷ Utopia is characterised by the following utopian elements: Improvement in health⁴⁸, improvement in knowledge (science)⁴⁹, general betterment of the world⁵⁰, unification of a nation or the whole earth⁵¹, solidarity⁵², world peace⁵³, abolishment of loneliness⁵⁴, new jobs⁵⁵, global understanding⁵⁶, equality⁵⁷, individuality and self-expression⁵⁸, new communities⁵⁹, more productivity⁶⁰, improvement of lifestyle⁶¹ and more safety⁶².

⁴⁰ See the next sub-chapter ‘Research method and choice of sources’ on page 10.

⁴¹ Telotte limits his analysis on android (human-like) robots. He leaves out films such as *The Matrix* because there the robot does not have a humanlike form. See Telotte, *Replications*.

⁴² Merriam Webster Dictionary, ‘robot’.

⁴³ This means that we included gadgets such as the robot Teddybear in *A.I.* or the working machines in *Metropolis* in the analysis of this paper. They work automatically, fulfill complex tasks and even make independent decisions. However, we excluded gadgets such as the magnetic shoes in *2001: A Space Odyssey* and transport means such as the beamer in *Forbidden Planet*. These technologies only work with human help or instruction and therefore do not fit in our definition of the robot.

⁴⁴ Oxford Dictionary (2015), ‘utopia’, url: <http://www.oxforddictionaries.com/definition/english/utopia> (03.07.15).

⁴⁵ Levitas, *The Concept of Utopia*, 197.

⁴⁶ Harvey, *The Condition of Postmodernity*, 12.

⁴⁷ Segal, *Technological Utopianism in American Culture*, 10.

⁴⁸ Harvey, *The Condition of Postmodernity*, 12.

⁴⁹ Segal, *Technological Utopianism in American Culture*, 10.

⁵⁰ Ibid.

⁵¹ Katz-Kimchi, ‘Historicing Utopian Popular Disource’, 26.

⁵² Ibid.

⁵³ Ibid., 24

⁵⁴ Mosco, *The Digital Sublime*, 120-140.

⁵⁵ Harvey, *The Condition of Postmodernity*, 12.

⁵⁶ Katz-Kimchi, ‘Historicing Utopian Popular Disource’, 24.

Dystopia: As Oxford suggests: “An imagined place or state in which everything is unpleasant or bad, typically a totalitarian or environmentally degraded one” or simply: “the opposite of utopia”.⁶³

Dystopia is characterised by the following elements: Destroyer of culture⁶⁴ / dehumanization⁶⁵, war (destroyer of world peace)⁶⁶, destroyer of knowledge⁶⁷, destroyer of individuality⁶⁸, destroyer of safety⁶⁹ and ⁷⁰, less jobs⁷¹, general decline of the world or humanity⁷², destroyer of unity⁷³, destroyer of solidarity⁷⁴, makes us unsocial and lonely⁷⁵ and pressure/stress⁷⁶.

Choice of sources

We will analyse two films per time period, each representing one wave of technology in the 20th century.⁷⁷ Thereby we will compare these three periods and show that there is continuity in the human-robot relationship. All analysed films are science fiction films. The choice for this genre is obvious as this genre is home to many robots. However, some films can touch other genres.⁷⁸ Similar to Kaveney we did not choose the films from all science fiction films but from films where technology played an important role.⁷⁹ The main body from where we selected the films were the lists Telotte⁸⁰, Ruge⁸¹ and Geraci⁸². We will now comment on the choice of every film individually.

⁵⁷ Katz-Kimchi, ‘Historicing Utopian Popular Disource’, 21.

⁵⁸ Ibid., 26.

⁵⁹ Mosco, *The Digital Sublime*, 120-140.

⁶⁰ Marcuse, Herbert / Kellner, Douglas / Pierce, Clayton (2014), *Marxism, Revolution and Utopia*. Collected Papers of Herbert Marcuse. Routledge. Oxon/New York, 90-102.

⁶¹ Levitas, *The Concept of Utopia*, 197.

⁶² Björnberg, Karin Edvardsson (2008), ‘Utopian Goals: Four Objections and a Cautious Defense’, in: *Philosophy in the Contemporary World*, Vol.15(1), 139-154, here 139 and 140.

⁶³ Oxford Dictionary (2015), ‘dystopia’, url: <http://www.oxforddictionaries.com/definition/english/dystopia> (03.07.2015).

⁶⁴ Mendelsohn, Everett / Nowotny, Helga (1984), *Nineteen eighty-four: science between utopia and dystopia*. Reidel. Dordrecht, 221-223.

⁶⁵ Graham, Elaine. L (2002), *Representations of the Post/Human*. Monsters, aliens and Others in Popular Culture. Manchester University Press. Manchester, 177.

⁶⁶ Oxford Dictionaires (2015), ‘dystopia’, url: <http://www.oxforddictionaries.com/definition/english/dystopia> (03.07.2015).

⁶⁷ This characteristic we develop as an opposite of the utopian characteristic ‘improvement in knowledge’. Dystopia is defined as the opposite of utopia see Oxford Dictionaires (2015), ‘dystopia’, url: <http://www.oxforddictionaries.com/definition/english/dystopia> (03.07.2015).

⁶⁸ Hughes, ‘The Ends of the Earth’, 26.

⁶⁹ Oxford Dictionary (2015), ‘dystopia’, url: <http://www.oxforddictionaries.com/definition/english/dystopia> (03.07.2015).

⁷⁰ Hughes, Rowland (2013), ‘The Ends of the Earth: Nature, Narrative and Identity in Dystopian Films’, in: *Critical Survey*, Vol.25 (2), 22-39, here 22-24 and 37.

⁷¹ Nourbakhsh, Illah R. (2015), ‘The Coming Robot Dystopia’, in: *Foreign Affairs*, Vol. 94(4), 23-28, here 23 and 24.

⁷² Oxford Dictionaires (2015), ‘dystopia’, url: <http://www.oxforddictionaries.com/definition/english/dystopia> (03.07.2015).

⁷³ Mendelsohn, *Nineteen Eighty-Four*, 240-245.

⁷⁴ Bartky, Sandra L. (2002), *Sympathy and Solidarity: and Other Essays*. Rowman & Littlefield Publishers, Oxford, 43.

⁷⁵ We develop this characteristic as the opposite of the utopian characteristic, as described at footnote number 65.

⁷⁶ We added this characteristic after the first viewing of the films as we realised that there is the constant feeling of stress and pressure towards the figures. As it appears so often we decided to create an own element for this.

⁷⁷ See page 7.

⁷⁸ For example *Forbidden Planet* could also be a thriller. See Telotte, *Science Fiction Film*, 5 and 7.

⁷⁹ Kaveney, Roz (2005), *From Alien to the Matrix*. I.B. Tauris. London/New York, 3.

⁸⁰ Telotte, J.P. (1995), *Replications*, appendixes.

⁸¹ Ruge, *Roboter im Film*, appendix ‘filmography’

⁸² Geraci, ‘Robots and the Sacred in Science and Science Fiction’, 961.

The selected films for the period of 1900-1940 (the Machine Age) are *Algol* and *Metropolis*. The latter is mentioned in the literature as the perfect example of, and a landmark for, the utopian-dystopian human-robot relationship in films.⁸³ The interaction between the human and the machines, as well as the human and the robot Maria makes this film indispensable for the analysis. Moreover, *Metropolis* was the first film where a robot changes into a human.⁸⁴ That makes its analysis particularly interesting. However, this meant that we have a German film. In order to balance this choice in regard to the other time periods where only American films were selected, we decided for a second German film: *Algol*. This is justified as in this period the German film industry was ahead of the American because it was closer to the inspirational source of the French filmmakers. The German films from that time can also be considered as influential, thus relevant for this paper. *Algol* also deals intensively with the relationship between human and machine, as the main figure loses his life because he trusts a machine from space.

For the Space Age and the Age of the Internet we chose American films because the American film industry became leading after the Second World War. European filmmakers immigrated to the United States.⁸⁵

For the period of 1940-1980 (the Space Age) we selected *Forbidden Planet* and *2001: A Space Odyssey*. Again both films deal intensively with the relationship between robots and humans. In *Forbidden Planet*, the planet itself turns out to be a machine whose disastrous character can only be stopped by Robby, a friendly robot. Thus, we have dystopian robots and utopian robots coming together in the film. The choice for *2001: A Space Odyssey* was an easy one because it was selected for many relevant studies as well.⁸⁶ The film is also known to have a large impact on engineers and urban planners.⁸⁷ For Telotte, *Forbidden Planet* is a representative work because it shows for the first time a robot in a lighter and friendly perspective.⁸⁸

For the last period (The Age of the Internet) from 1980-present we chose *The Matrix* and *A.I. (Artificial Intelligence)*. Again this selection can be backed up by the fact that these films were used for other studies for human-robot relationship.⁸⁹ Moreover, *The Matrix* is in our opinion a direct reaction to the arrival of the Internet, as in the course of the film there is a net of machines controlling the whole world. This direct response to an event in real-life makes

⁸³ Telotte, *Replications*, 57.

⁸⁴ Trutnau, John-Paul (2005), *Metropolis and Its Influence on the American Science Fiction Film*. Die Blaue Eule, Essen, 46-51.

⁸⁵ Encyclopaedia Britannica (2015), 'History of Motion Pictures', url: <http://www.britannica.com/art/history-of-the-motion-picture#508075.hook> (14.07.15).

⁸⁶ See for example Telotte, *Replications*.

⁸⁷ Bizony, Piers (2013), 'An Odyssey into the Future', in: *Engineering & Technology*, Vol. 8 (8), 48-51, here 48.

⁸⁸ Telotte, *Replications*, 114.

⁸⁹ See Telotte, *Replications* and Geraci, 'Robots and the Sacred in Science and Science Fiction' and Van der Laan, 'Machines and Human Beings'.

the analysis of this film more intriguing. *A.I.*, finally, was selected because it deals very intensively with the emotions and the human potential of robots. The robot child David is created with the only task of learning to love. We did not find a film that depicts the emotional relationship between human and robot stronger. These four films are also relevant because, with the exception of *A.I.*, they are all on the list of significant films of the US National Film Preservation Board.⁹⁰

Considering all this the choice of films is justified because they are the most relevant and representative ones for the analysis of the human-robot relationship in films of the Euro-American cinema in the 20th century.⁹¹

As described we chose films from two different countries. We do not consider this as a problem because other scholars as well analysed German and American films. Like them we will use the term Euro-American cinema.⁹² However, it is important to stress that we will not compare the two countries but the three time periods.

Research method

We have to think about how researchers can best analyse fiction films about human-robot relationships⁹³, or in general technology.⁹⁴ Pike suggests applying a mediation of methods from history and cultural science.⁹⁵

Traditionally, two methods for film analysis exist: the *hermeneutic* and the *empirical*. We will combine these two approaches. The *hermeneutic* analysis aims to identify the different meanings of elements in the film by taking different (contextual) perspectives.⁹⁶ We will apply this approach by putting the films in their historical context and by discussing them from a social and a technological perspective. Hermeneutic analysis means to watch each film first without any prejudgements, summarize it, describe its form and name the first subjective impression.⁹⁷

⁹⁰ National Film Preservation Board (2015), url: <http://www.loc.gov/programs/national-film-preservation-board/film-registry/complete-national-film-registry-listing/> (18.07.15).

⁹¹ Of course we have to be aware that six films, two per period, is not comprehensive enough to make an overall statement about the Euro-American cinema. In contrast, we have to see them as six case studies to illustrate the continuity of the human-robot relationship as this thesis intends to show.

⁹² Telotte, *Replications*, 4.

⁹³ We have to consider of the fact that the relationship depicted in films is a construction of the self-image, it is how filmmakers imagine it or wished it. See Früchtl, *The Impertinent Self*.

⁹⁴ Worth mentioning is also Leo Marx about the "trap" of technological history: "Technology as such makes nothing happen. By now, however, the concept has been endowed with a thing-like autonomy and a seemingly magical power of historical agency". This thesis therefore also aims to see technology not as a 'magic agent' that forces people to act in a certain way but rather as a form of 'inspiration' that becomes influential through utopian or dystopian imagination. See Marx, 'Technology: The Emergence of a Hazardous Concept', 577.

⁹⁵ According to Pike the relationship between culture and the history of technology is strongly influenced by the relationship between speculating about the future and studying the past. He claims that historians should use a middle ground in terms of methodology. On the one hand, historians should find a balance between attentiveness to the surface and digging for what is hidden. But, in order to see 'the more complete view of reality' he suggests not to make a choice between opposing methodologies but to find a way to exercise multiple methodologies simultaneously. See Pike, 'Headlong into futurity', 229-233.

⁹⁶ Hickethier, *Film- und Fernsehanalyse*, 30-35.

⁹⁷ Früh, Werner (1998), *Inhaltsanalyse: Theorie und Praxis*. UVK Medien, Konstanz, 51.

As Pike suggests, we will also apply a method of cultural science. Due to the author's background in media and communication sciences⁹⁸ this will be an *empirical* method from media science. This paper intends to analyse the content of the films, not how they were produced technically.⁹⁹ Therefore the choice fell on a content analysis.

As Mikos suggests we will divide the film analysis in three parts: With the actual content analysis in the beginning we find out how what utopian and what dystopian elements appear in the robot-human relationship in the films. Then we describe them and finally interpret them in their social and historical context.¹⁰⁰ The interdisciplinary combination¹⁰¹ of methods from media science and historical methods contributes to the originality of this thesis because allows us to investigate the question of this thesis from an, among historians, rather uncommon perspective. Quantitative research into the human-robot relationship has not yet been done. Perhaps it will be able to show the continuity in a clearer fashion. As this paper aims to show the continuity of the human-robot relationship we need an efficient method to compare the time periods. We assume that the quantitative content analysis is that.

Content analysis is a common method in media science in order to analyse the content of newspapers, radio- or television programmes.¹⁰² According to the classic definition by Berelson, it is "a research technique for the objective, systematic, and quantitative description of the manifest content of communication".¹⁰³

Essential to the content analysis is the development of the coding system (code plan). Coding is "the process whereby data is transformed into units that permit precise description of relevant content characteristics".¹⁰⁴ Simply said, with coding we can take a film apart and analyse the specific elements that interest us. In our case: the appearance of the robot, the utopian and the dystopian characteristics. For the coding it is important to develop rules, those will be our coding system.¹⁰⁵

⁹⁸ The author did her bachelor in mass media and communication sciences at the University of Fribourg, Switzerland. For her bachelor thesis 'Afrika und seine Stereotypen in Nachrichtensendungen des Schweizer Fernsehens' she compared the daily news of the Swiss German and the Swiss French part and analysed the appearance of stereotypes.

⁹⁹ That means we will look at how the robot is depicted, how it looks, how it talks, how it moves, what it does and how the humans in the film react to all this. It is important to say, however, that we do not analyse the 'mise-en-scene' of the films like set building, use of light and position of camera. See for example Ruge, *Roboter im Film*.

¹⁰⁰ Mikos, Lothar (2003), *Film- und Fernsehanalyse*. UVK Verlagsgesellschaft. Zürich, 70.

¹⁰¹ The use of a combined method is a common solution in film analysis. Therefore, we will use an empirical, quantified content analysis in order to make the films comparable but by interpreting the film in its historical context we will also use the hermeneutic approach. This gives us the possibility to use the quantizing way of analysis whenever it is reasonable but also gives us space for a more open interpretation of the films. See Korte, *Einführung in die Systematische Filmanalyse*, 14-16.

¹⁰² The author applied this method while working for a project as scientific assistant for the University of Fribourg. Every year the University of Fribourg analyses the TV programmes of Switzerland on behalf of the Federal Department of Communication (Bakom). The used method is a content analysis. See Fiechtner, Stephanie / Gertsch, Franziska (2014), *Kontinuierliche Fernsehprogrammforshung in der Schweiz: Die Programme der SRG SSR*. Zusammenfassender Schlussbericht. Universität Fribourg. Or Trebbe, Joachim / Grossenbacher, René (2009), *Qualität in Radio und Fernsehen*. Rüegger. Zürich/Chur.

¹⁰³ Berelson, Bernard (1952), *Content Analysis in Communication Research*. Free Press, New York, 18.

¹⁰⁴ Holsti, Ole R. (1969), *Content Analysis for the Social Sciences and Humanities*. Addison-Wesley, London, 94.

¹⁰⁵ Ibid.

As Berelson says: “Content analysis stands or falls by its categories”¹⁰⁶, so the most important thing is the development of categories that reflect the research question.¹⁰⁷ These will be the characteristics we want to analyse in order to answer the question of this paper. In these categories the content of the films will be classified. It is important that the categories are exclusive and do not overlap, which means that it cannot be that both categories have the same units.¹⁰⁸

In addition to the categories we have to designate the units to be coded. The unit is the variable of the category. In other words, the units are the possible characteristics the category can have.¹⁰⁹ For example, ‘World peace’ is a unit from the category ‘utopian elements’. Finally, it is important to decide on a “system of enumeration” that determines if the frequency or only the appearance of a unit will be coded¹¹⁰. We opted for the system of enumeration of appearance because this paper intends to measure which utopian or dystopian elements appear in the films and not how many.

On page 9 we developed a list of utopian and dystopian characteristics based on relevant literature. These are now the units for the categories ‘utopian elements’ and ‘dystopian elements’. For each category we added the unit ‘others’ to make sure that no relevant content is missed.

The units for the category ‘utopian elements’ are: Improvement in health, improvement in knowledge (science), general betterment of the world, unification of a nation or the whole earth, solidarity, world peace, abolishment of loneliness, new jobs, global understanding, equality, individuality and self-expression, new communities, more productivity, improvement of lifestyle, more safety and others.

The units for the category ‘dystopian elements’ are: Destroyer of culture/ dehumanization, war (destroyer of world peace), destroyer of knowledge, destroyer of individuality, destroyer of safety, less jobs, general decline of the world or humanity, destroyer of unity, destroyer of solidarity, makes us unsocial and lonely, pressure/stress and others.¹¹¹

¹⁰⁶ Berelson, *Content Analysis in Communication Research*, 147.

¹⁰⁷ Holsti, *Content Analysis for the Social Sciences and Humanities*, 95.

¹⁰⁸ Früh, *Inhaltsanalyse: Theorie und Praxis*, 80.

¹⁰⁹ Holsti, *Content Analysis for the Social Science*, 116-117.

¹¹⁰ *Ibid.*, 119.

¹¹¹ Please see footnotes on page 9 for references to understand how we developed this lists of units.

In most of the analysed films there are several utopian elements and several dystopian elements. However, we limited the amount of elements to three utopian and three dystopian, coding only for the three strongest ones.¹¹²

The analysis of the categories ‘utopian elements’ and ‘dystopian elements’ will be the main part of the analysis. However, we will also analyse the human-robot interaction as we consider that a part of the human-robot relationship.

In the films, humans have different types of relationships with the robots. As mentioned in the introduction, Höltgen categorized robots in films and defined three types: friend, enemy or sex object.¹¹³ And according to Klass, robots in fiction can also be the human’s servants.¹¹⁴ These types of robots become the units for our categories ‘Role of the robot in the beginning of the film’ and ‘Role of the robot in the end of the film’. We distinguish between the beginning and the end of the film in order to identify if there is change of this role in the course of the film.

We consider the first encounter of the human with the robot in the films as the most impressive and added a category to analyse this moment. The units are: surprised, curious, anxious, scared, intrigued, glad, used to it (routine), neutral, amazed.

Furthermore, we analysed the relationship between the robot and the human body. With this we mean the appearance of the robot: if it appears as a fusion of the human body (cyborg), as an extension of the human body, as a tool, as android¹¹⁵ or completely external.

The units for the category ‘First encounter of the human with the robot’ and ‘relationship between human body and robot’ were created after the author watched all films and made a list of the different types¹¹⁶. We are aware of the fact that the creation of the units for this category is subjective of the author and we will consider this when interpreting the results of this category.

Finally, we also added two formal categories: ‘Film’ will be coded with the name of the films as units. And ‘number of robot’ will give every analysed a robot a number to distinguish them easily. In order to make the interpretation of the coding more efficient later we will replace the unit-names with numbers. For example, the first utopian element ‘improvement in health’ will be number 1 in category ‘utopian elements’. However, this has no bearing on the

¹¹² The purpose of this paper is to show the continuity of these elements and not to count how many different ones in one film appears. We assume that if an element is not one of the three strongest of utopian / dystopian elements, then it will also not be that relevant concerning the film’s effect on the audience or the intention of the filmmakers.

¹¹³ Höltgen, Stefan (2009), ‘Mensch-Maschinen’, in: *Telepolis*, url: <http://www.heise.de/tp/r4/artikel/31/31773/1.html.s>

¹¹⁴ Klass, ‘The Artificial Alien: Transformation of the Robot in Science Fiction’, 176-179.

¹¹⁵ Human-like robot

¹¹⁶ Unfortunately there has not been done research yet about this first encounter between robots and humans in fiction.

relevance or the frequency of the appearance of this unit. This all together creates the codeplan and was the basis for the analysis. Please refer to Appendix A for an overview.

Some general comments regarding the disadvantages of the quantitative content analysis are in order.

According to Berger, it is challenging to ensure that the sample for a content analysis is representative. It is also not possible to prove that the inferences made on the basis of a content analysis are correct.¹¹⁷ Rössler agrees in saying that with help of the content analysis alone it is strictly said not possible to proof causality or effects of contents.¹¹⁸ We agree that it is difficult to claim representativeness by analysing only six films. However, this paper does not intend to make statements about the overall amount of films in the 20th century but to analyse intensively relevant films to this topic. Furthermore, the focus of this thesis is on showing continuity in the human-robot relationship. On the other hand, we will analyse two films for each time period in order to make sure that our conclusions are not only due to the coincidence of the film selection.

It would go too far for this paper to discuss all advantages and disadvantages of films as historical sources.¹¹⁹ However, we will make some remarks concerning the meaning of the results of this paper. We will compare the relationship depicted in six movies in the last century. This relationship is shaped by the directors, by the actors and by the producers of the film. But it remains fiction and does not necessarily represent the opinion of the public. When comparing the films we will compare the ideas of these filmmakers from different periods and how they implemented them. This does not mean that this paper has no meaning. We can also consider these ideas as reactions to conditions in the past, as Sobchack says that the science fiction film is always grounded in its culture – in the economic, technological, political, social, and linguistic present of its production.¹²⁰

And films have an influence on the public opinion. According to Maurice Halbwachs they are important for the construction and maintenance of the collective memory of a society.¹²¹

¹¹⁷ Berger, *Media Analysis Techniques*, 135–138.

¹¹⁸ Rössler, Patrick (2005), *Inhaltsanalyse*. UVK Verlagsgesellschaft. Konstanz, 31.

¹¹⁹ Firstly, films would contest history in the gap between the abstract idea of the past and the specific instance shown in the film. A film could even encompass the unspoken assumptions upon which could rest an entire culture or civilization. Secondly, visual elements and sound can be used by the filmmaker to create stories that envision history in terms of how individual lives are influenced by processes such as modernization or technological advances. And finally, films can revision the past in building an own construction of the past. See Rosenstein, *Revisioning History*, 3-13.

¹²⁰ Todorov, *The Fantastic*, 8.

¹²¹ Concerning the development of the collective memory it is worth mentioning Aleida Assmann. She considers two forms of memory that shape the cultural memory of a society: The 'Speichergedächtnis' that consists of historical archives and real sources, and the 'Funktionsgedächtnis' that is on equal terms with the current discourses. These are values and impressions that are only valid for a certain moment: "Die Struktur des kulturellen Gedächtnisses besteht in diesem Spannungsverhältnis von Funktions- und Speichergedächtnis, von

Films help people classify incidences and shape their understanding of the current world because individual memories are always shaped by the collective memory.¹²² And Anna Bohn claims that films are one of the most important memorials for history.¹²³ Thus, we consider that these films can be a) relevant for the current and past discourses about the human-robot and human-technology relationship and about utopianism and b) for the construction and maintenance of the cultural memory.

Secondly, a remark concerning the utopian-dystopian nature of the films we will analyse. Pike emphasizes the particularity of art or literature as a source because they tend to the extremes of embrace and disapprobation (and usually both at once) and describe the world in such a way that no object within it can be neutral: “Each new technology that promises, according to its advocates, visions of unfettered freedom and autonomy is often accompanied or soon followed by a counter-response invoking nightmares”. He argues that art does not allow us to see technology as a whole, but that it captures the spatial and temporal extremes of the technological imaginary.¹²⁴ According to philosopher Slavoj Žižek, art, in this case film, is a medium that presents neutral concepts such as technology in a particularly ambivalent way. He calls it ‘the parallax gap’.¹²⁵

Quantitative research means we make something measurable and quantifiable. While for a long time qualitative research was more popular under historians, quantitative research has become more and more accepted as a historical method. Quantitative evidence is usually more representative than qualitative data and it facilitates large-scale studies.¹²⁶ According to Ohler, quantitative research for historians makes sense because new questions can be asked and new data can be analysed. For history, quantitative methods can help to find the special cases in the crowd of sources. And we can prove if assumptions are also true when we measure them.¹²⁷ According to Hudson, the disadvantages of quantitative research for history are incomplete data¹²⁸, difficulties when developing categories¹²⁹ and the danger of manipulation¹³⁰ when analysing the data.¹³¹

Erinnertem und Vergessenem, Bewusstem und Unbewusstem, Manifestem und Latentem.” See Assmann, *Der lange Schatten der Vergangenheit*, 57.

¹²² Halbwachs, *Das Gedächtnis und seine sozialen Bedingungen*, 121.

¹²³ Bohn, *Denkmal Film*, 10-14, 31-35.

¹²⁴ Pike, 'Headlong Into Futurity', 234.

¹²⁵ Žižek, *The Parallax View*, 4.

¹²⁶ Hudson, Pat (2000), *History by Numbers. An Introduction to Quantitative Approaches*. Arnold, London, 6-11.

¹²⁷ Ohler, Norbert (1980) *Quantitative Methoden für Historiker*. Beck. München, 195-196.

¹²⁸ Meaning that it was not possible to obtain all relevant data.

¹²⁹ It is essential that the categories do not overlap but also cover all the data, meaning that no unit is left out.

¹³⁰ Meaning that some historians would use quantitative research and leave out all the results that do not fit into their hypothesis.

¹³¹ Hudson, *History by Numbers*, 13-19.

In history there has not been much research that used a content analysis. An example, however, would be Romanowski's study of history books about 9/11.¹³² In addition, there has been some research with content analysis of films in contemporary history.¹³³

Finally, there are two things to consider. We should not over-interpret the performance of a robot in the films. It does not necessarily mean that the filmmaker intended to make a statement. It could also just mean that he chose for this type of robot as an appealing film figure. We should always be aware that these films are fiction.

Secondly, the author analysed the films in watching them several times and coding all the films twice in order to not miss anything. All the same, we are aware that coding is a subjective task and that this can bias the results. This was considered in the interpretation of the results.

In the Introduction chapter we have discussed the purposes of this paper and introduced the concept of the historical continuity approach. This chapter concerned a discussion of methods. In addition, we have explained how we have developed the codeplan that is the base for our analysis. We now turn to the three time periods and analyse the human-robot relationship depicted in science fiction films on the base of our case studies. First, we will give the relevant technological and historical context for these periods and summarize the plot of the films. This is important in order to embed the analysis of the human-robot relationship in the films related to the period. The analysis will be done with the methodology and the codeplan developed in this chapter in order to draw objective conclusions about the human-robot relationship. The chapter 'The Machine Age', 'The Spage Age' and 'The Age of the Internet' will each be structured that way. The fourth chapter will be a synthesis of these periods where we will compare all the six films and show the continuity in the human-robot relationship.

¹³² Romanowski, Michael H. (2009), 'What you don't know can hurt you: Textbook Omissions and 9/11', in: *Clearing House*, Vol. 82(6), 290-296, here 290.

¹³³ Lee, Joseph G. L. et al. (2014), 'Out Smoking on the big Screen: Tobacco Use in LGBT Movies, 2000-2011', in: *Tobacco Control*, Vol. 23(1), 156-158.

1 ❖ The Machine Age

Historical context

Although the First World War left Europe politically and economically more destroyed than the United States, the two continents both experienced equally turbulent years in the 1920s. The term 'Roaring Twenties' describes the decade's distinctive cultural edge in major cities of the United States, Canada and the United Kingdom. In America it was also named the Jazz Age, the Age of Intolerance, and the Age of Wonderful Nonsense.

Technologically, the 1920s were full of new advancements, new discoveries and new inventions. Even though Henry Ford invented the car in 1896, it was not until the 1920s that it became popular for the common public. In Europe, the introduction of the automobile was also a success, even though it remained a luxury good a while longer. While in 1923 there was one automobile for each 8,3 inhabitants in the United States, it was one car for over 600 inhabitants in Germany.¹³⁴ The spread of the automobile was followed by an increase in recreation because people saved time and were able to move independently. The fact that people now could drive to cinemas helped to create a boom of the film industry. Improvements in film technology, such as the first film ever made with sound ("The Jazz Singer" in 1922) and the advent of technicolor (in 1926) accelerated this development. Watching films became America's favourite entertainment.¹³⁵ Another technological invention was the radio, becoming an important part of each family household during the 1920s. Moreover, it also brought changes to how people lived their daily lives: new ideas, new entertainment and the ability for everyone to form new opinions. On the other hand, the increased use of radio also had the side effect of leading to a more close-minded, ignorant and disillusioned life.¹³⁶ Finally, the most important development in the technological history of the 1920s was increased mechanization and standardization in the production of consumption goods. This is why we named this period 'The Age of Mechanization'. The mass production of cars and other goods led to a higher demand of consumption products, which resulted in increased demand for labour. In order to accommodate for the labour shortages, simple tasks in factories, such as packaging and cleaning of parts and tools, were handed over to machines that were more effective than humans.¹³⁷ Even though this development was less obvious in Europe, the success of the film industry in the States also had an influence on the film

¹³⁴ Merki, *Der holprige Siegeszug des Automobils 1895-1930*, 40.

¹³⁵ Gordon/Gordon, *American Chronicle*, 68.

¹³⁶ Stevenson, *The American 1920s*, 150-152.

¹³⁷ Gordon/Gordon, *American Chronicle*, 86.

industry in Europe due to the Americanization¹³⁸ that had a strong impact on the popular culture of Europe in the Interwar period. Generally, one important reason for the intensified discourse on technology – that also led to these rather radical utopian and dystopian views - by the start of the 20th century is the narrowing gap between technology and science, starting in the 1850s. Until this day the connection between the two is seen as recipe for economic success and technological progress. And, as Schüler states, in this process engineers and scientists influenced each other.¹³⁹

It is also interesting to mention that in the Interwar period the image of the human body experienced a renovation. One example is the belief and practice of Eugenics, aiming to improve the genetic quality of the human population. It was spread around 1900 by Francis Galton and led to a strong connection between science and politics, science and practice. Eugenics was legitimated by the idea of a “healthy population” and of the “new, healthy human”. This new stream of thought was supported by many scholars, especially in Germany, but also led to racist actions and forced sterilisations.¹⁴⁰ The idea of the new human who could even be “bred” also resulted in an increased sport movement. The image of the human as a soldier from the First World War already showed similarities to the image of a machine. The new enthusiasm for sport reminds of the mechanization of the human body. Boxing, for instance, became popular again. It combined courage, durability, discipline and concentration with the male body. There was also the idea of the “rationalisation” of the human body, similar to the standardization of products in factories.¹⁴¹ But not only the male body experienced a renovation of its image, the same we can find for the image of the modern women, shaped by the uprising of the 'flappers'. The term was influenced by the idea of a young bird that is not able to actually fly yet but tries it anyway. The young women wore short skirts, bobbed their hair, listened to jazz and disdained with pride every social rule of good behaviour.¹⁴² Their smoking, drinking, casual sex, driving cars and wearing make-up shocked the public but the new trend was unstoppable and it soon reached Europe as well. In Germany, the flappers were called 'Backfisch', a term that refers to a young fish being too small to be sold on the market.¹⁴³ The flappers also contributed to a more confident and self-decisive attitude towards the human body. This changed attitude towards the human body

¹³⁸ Rosenberg, *Spreading the American Dream*, 3-13.

¹³⁹ Schüler, *Erfindergeist und Technikkritik*, 20.

¹⁴⁰ Kuehl, *Die Internationale der Rassisten*.

¹⁴¹ Wedemeyer-Kolwe, 'Der neue Mensch'.

¹⁴² Allen, *Only Yesterday: An informal History of the Nineteen-Twenties*, 90-96.

¹⁴³ Kube, *Wie kommt die Katze in den Sack und was weiss der Kuckuck davon?*, 15.

coincided with the discovery of many vitamins, because research into health and medicine also advanced greatly during this period.¹⁴⁴

Another concept that played an important role in this period is the Art Deco Movement. This influential visual art design style became popular in the 1920s and survived until the end of the 1940s. It combines traditional craft motifs with Machine Age imagery and materials, such as rich colours, bold geometric shapes and lavish ornamentation as well as a general embracement of technology. Similarly to eugenics, some scholars see Art Deco as the result of a symmetrical society. It is a representation of luxury, glamour, exuberance and faith in social and technological progress. It shows the radical and traditionalist design responses to twentieth-century challenges. Art Deco is known for its polarization, showing a certain ambivalence of values between utopian and dystopian visions, transformed into architecture. The movement captured the fears as well as the hopes in the interwar period in America and Europe in exuding *joie de vivre* and celebrating progress through technology. Another strong characteristic of Art Deco was to blend ancient with futuristic imagery, as we will see in *Metropolis* where the ancient concept of God is set in a futuristic environment.¹⁴⁵ As a last relevant concept we have to mention Futurism, an artistic and social movement originating in Italy in the early 20th century. It glorified topics associated with contemporary concepts of future, technology, youth and violence as well as objects such as the automobile or the airplane. It spread during the course of the 1920s and 1930s throughout Europe and Russia. Futurism influenced design, as we have seen in the Art Deco Movement, but also painting, architecture and filmmaking.¹⁴⁶

All this shaped how filmmakers constructed their realities and therefore also how they portrayed the human-robot in their films. In the next part of this paper we will analyse two films of this period, *Algol* and *Metropolis*, where we will see how filmmakers responded to the events in this period and to what extent this shaped the human-robot relationship in their films.

Summary of the plot: *Metropolis*

Directed by Fritz Lang in 1927, *Metropolis* is regarded as a pioneer work of science fiction movies. It is a silent movie, filmed at a cost of approximately five million Reichsmarks and the most expensive film released up to that point in Germany. The film is based on a novel of Thea von Harbou.¹⁴⁷ Set in a futuristic urban dystopia where wealthy industrialists rule the

¹⁴⁴ Noggle, *Into the Twenties*, 161.

¹⁴⁵ Striner, 'Art Deco: Polemics and Synthesis', 21-30.

¹⁴⁶ Poggi, *Inventing Futurism*, 5-30.

¹⁴⁷ Bachmann, 'The Production and Contemporary Reception of *Metropolis*', in pp. 7-12.

vast city of Metropolis, the storyline follows the attempts of Freder, the son of the city's ruler, and his lover Maria to overcome social inequality. While the city rulers enjoy a luxury life in the utopian skyscraper, a lower class of underground-dwelling workers has to work in the town's factory. When naïve and spoiled Freder goes to these machine rooms for the first time he realises that it is a dystopian place of death and horror. After witnessing an accident in the factory, he realises nobody in the utopian world actually cares about the future of the lower class workers. Meanwhile there is also Rotwang, the former lover of Freder's mother Hel, who builds a robot in order to replace his lost love. Hel died when giving birth to Freder. The city ruler, Fredersen, convinces Rotwang to change the appearance of the robot into Maria in order to harm her reputation. After many fights about the legitimization of the two-class society Freder has an important role as mediator between the two classes and brings them closer again.

The responses to the film's release were very mixed. While many critics embraced its technical achievements and social metaphors, others found it simplistic, naïve and trivial. Due to this and its long running time, the film was cut directly after its release. Large portions of the film were lost for almost 80 years; they were eventually rediscovered in Buenos Aires.¹⁴⁸

Summary of the plot: *Algol*

Algol (Tragödie der Macht) was directed by Hans Werckmeister and was released in 1920. The film is about the mineworker Robert Herne who encounters an alien at work. This surprisingly friendly creature gives him a machine that transforms waves coming from the star Algol into energy. Herne sees the chance of a lifetime and uses the machine in order to provide the whole globe with energy. This makes him successful, powerful and popular. His wife Maria however, does not feel the same way and leaves him. Later, Herne's new wife Leonore dies because of an accident with the machine and his own son wants to kill Herne out of greed for power and money. As Herne realizes that the machine changed him into a bad person and that it only brings suffering to the world, he destroys it. The reactions to the film were rather positive. The film is known for its use of light as a cinematic element in order to show ambivalences and the conflicts between opposites. Others criticized its unusual combination of realism and fantasy. According to some, the story line was weak because there was a lack of logic.¹⁴⁹

¹⁴⁸ Elsaesser, *Metropolis*, 7-34.

¹⁴⁹ Seeber, 'Legends of Light and Shadow', 74-77.

Analysis

Comparing the two films, we see many similarities but also some differences. In *Metropolis*, robot-like machines seem already very established, whereas in *Algol* we could only identify one machine (the energy machine) and it seemed to be rather exotic in an otherwise very normal world. In *Metropolis* we coded three robots corresponding to our definition for this paper: the robot Maria, the working machines in the city's underground and Rotwang's robotic cyborg hand. The film actually starts with the image of working machines that go over to an image of an unrealistically fast ticking clock and then to working people. The connection between these three elements can be identified repetitively during *Metropolis* and it is also associated with a certain moment of stress and unstoppable movement. This is one of the dystopian elements related to the working machines. The rhythmic soundtrack and sounds of stamping machines that appear regularly during the film emphasize this stressful feeling. The working crowd in *Metropolis* is for Bergvall even a meaningful sign. She sees the flooding caused by a mob of workers the as the "manifestation of the apocalyptic beast".¹⁵⁰ Generally, *Metropolis* shows crowds of people constantly as anti-individualistic and monotonous that behave like a machine. We identify therefore also the dystopian elements destroyer of individuality. The robot in *Metropolis* convinces the underground people, who consider it to be Maria, to destroy the "heart-machine" and to fight the other inhabitants of the city. This ends in the complete chaos of the city until Freder acts as mediator and recreates solidarity between the city dwellers. The robot is in this scene also destroyer of solidarity. In *Algol* there is only one robot. The energy machine appears in the beginning of the film and the storyline revolves purely around this machine that can turn rays from the star Algol into energy. In line with the machines in *Metropolis* we can identify the dystopian element destroyer of unity and of solidarity. The machine is to blame for Herne losing everything he has, leaving his family and even that his own son wants to kill him. Furthermore, because Herne gives up his real personality the machine is also shown as a destroyer of individuality. In both films, machines have the utopian element that they would bring more productivity. The working machines as well as the energy machine make the people's life easier and more efficient. For Telotte, the robot in *Metropolis* even means the promise of saving society of slavery.¹⁵¹ Herne, the poor mineworker in *Algol*, even becomes powerful and rich with the help of his machine. The utopian element of improved lifestyle can be found in Rotwang's robotic hand as well as in the energy machine.

¹⁵⁰ Bergvall, Åke (2012), 'Apocalyptic Imagery in Fritz Lang's *Metropolis*', in: *Literature Film Quarterly*, Vol. 40(4), 9-13, here 9.

¹⁵¹ Telotte, *Replications*, 65.

These robots clearly show the influence of the mechanization of work in this period. We can see this particularly in how *Metropolis* shows the figures with machine-like appearances and behaviours. But *Algol* too shows elements of the Age of Mechanization: the idea of the machine as such an influential object was in all likelihood influenced by developments such as mechanization and standardization taking place in factories in the real world at that time. According to Telotte, the dominance of the machine at this time had a strong influence on the cinema world. And it eventuated in the production of the first truly distinct body of science fiction films. He also mentions that at that time there were created “utopian and dystopian tales”.¹⁵²

It is striking that both films play with this ambivalent attitude towards robots and technology. Both films show a transition in the perception of the robots in the course of the story. In the beginning, the robots are treated with admiration and curiosity. The interaction with them is friendly and they are useful for the work of the figures in the film. In the beginning of the films the roles of the robots are mostly coded as servants. They seem to be the better humans that are handy, practical and not distracted by emotions. Or, as Čapek¹⁵³ said: “Robots are not people. Mechanically they are more perfect than we are, but they have no soul”.¹⁵⁴ In the case of Maria in *Metropolis* the role is identified as sex object. This contradicts with what Bergvall says. For her, the robot Maria should be seen as “satanic witch”.¹⁵⁵ Telotte, however, would agree with us as he sees the creation of the robot Maria as “seductive” act.¹⁵⁶ Also for De Fren Maria is a sex object. She puts her in the long history of femme-fatale androids that have “a beautiful outside” but “a mechanical interior”.¹⁵⁷ For Huyssen, Maria not only a sex object but also “a vamp” and “a sign for the threat of castration” to Freder, the main figure in the film.¹⁵⁸ Moreover, for us Maria the robot is very central to the film, which starts and ends with her. The robot leads the whole society in *Metropolis* and controls their actions. This, however, does not agree with Stoicea who sees the robot Maria as excluded from society. According to her the film is an example that women are kept outside of the cinematic space.¹⁵⁹

It is striking that, upon first meeting the robots, the figures in both films show thoroughly positive reactions. Either they were used to it like their interaction with the working machines

¹⁵² Telotte, *Science Fiction Film*, 81.

¹⁵³ Karel Čapek was a Czech writer in the 20s. His play ‘Rossum’ became famous for showing one of the first robots on stage.

¹⁵⁴ Čapek, Karel (2001): *R.U.R. Rossums universal robots*. Dover Publications. Mineola, 6.

¹⁵⁵ Bergvall, ‘Apocalyptic Imagery in Fritz Lang’s *Metropolis*’, 9.

¹⁵⁶ Telotte, *Replications*, 59.

¹⁵⁷ De Fren, Allison (2009), ‘Technofetishism and the Uncanny Desires of A.S.F.R. (alt.sex.fetish.robots)’, in: *Science Fiction Studies*, Vol. 36(3), 404-440, here 404.

¹⁵⁸ Huyssen, Andreas (1982), ‘The Vamp and the Machine’, in: *New German Critique*, Vol. 24(3), 221-237, here 221-225.

¹⁵⁹ Stoicea, Gabriela (2006), ‘Re-Producing the Class and Gender Divide: Fritz Lang’s *Metropolis*’, in: *Women in German Yearbook* (22), 21-42, here 21-22.

or the cyborg hand in *Metropolis* shows, or surprised (Freder meets Maria) and intrigued (Herne meets the energy machine). During the film, however, the attitude towards these technologies changes. The robots turn into enemies and danger for humanity in different ways. It is interesting to see that both films therefore first show these technologies in a very utopian way and turn them then into a dystopian vision. We could even say in those two films the “moral of the story” is that humans are tempted by the utopian possibilities of new technologies but should be careful because they might lead to dystopia instead of utopia.

The utopian-dystopian ambivalence becomes obvious when we look at the light in the films. *Algol* takes the cinematic element of light and the topic of technology as a symbol for social hierarchy. In the scenes that embrace Herne’s success with the energy machine, the light is very bright. On the other hand, the film uses darkness as a visual element as soon as the story turns and it is shown how the people without this technology live. *Metropolis* plays with the same element. As soon the utopian city is in view, it is shown in bright light and there is grand, worshipful music played. Whenever the story goes underground, technologies (the machines and the robot) are portrayed as something negative and dangerous, the feeling underlined by dark images, sluggish rhythms and blurry sounds.

Both films thus use visual elements to show the utopian side of technology in brighter scenes, and use darkness to show the dystopian side of technology.

Telotte also stresses this ambivalence in *Metropolis*: “On the one hand it talks about the consequences of society given over to the forces of technology and production; on the other, it finds much of its attraction in the vision of those forces”¹⁶⁰. According to him, this film best sums up the sort of ambivalence we can identify in many films about human artifice.

Concerning references to the historical context, we can also identify some similarities. Both films use Art Deco elements. Geometric forms and lavish ornaments dominate the architecture, for instance the tower of Babel in *Metropolis*. For Telotte there is plenty of ornamentation and excess in the film: “Excess marks every element of the film, and that excess is linked not simply to the monolithic, domineering world it describes but to its seductive lure and power – the technology that makes it all possible”.¹⁶¹ Moreover, both films show an uprising of “new things” at that time, in line with what we saw in the historical context. The robot in *Metropolis* and the energy machine in *Algol* are both new things that are celebrated with enthusiasm by the figures in the films. Additionally, both films portray a

¹⁶⁰ Telotte, *Replications*, 58.

¹⁶¹ *Ibid.*, 60.

feeling of higher productivity and economic uprising, which was probably influenced by the enthusiastic feeling of a new start for Germany's economy as we described above.

The main difference is how these films show the robot in interaction with the human body. Whereas in *Algol* the energy machine stays completely external, in *Metropolis* the robots emerge with the human bodies. For instance, the utopian city of Metropolis only works because the lower class people in the underground work with the so-called "heart machine", a human medical term used for technology. The utopian upper class population as well as the dystopian underground society both show behavioural aspects that are associated with the movement of machines. Whereas the workers move with machine-like movements, the utopian society does sport like a machine (this seems a reference to the movement of "the new human" we discussed above). Moreover, they go to dance balls and swim with the flow without individual, rational thinking. This becomes very obvious in *Metropolis* as the film mixes images of working machines with images of how the people live their daily lives.

To sum up, both films show a very clear ambivalence between utopian and dystopian visions. Both films play with this black and white, the up and down. *Algol* and *Metropolis* start with a utopian world, where technology and robots can save their societies and brings only positive aspects to their lives. The strong common utopian elements are productivity and more lifestyle. However, if we consider the whole plot of the film, it is striking that the dystopian elements prevail. Soon the dark side of the robots becomes obvious and the worlds of *Algol* and *Metropolis* turn into dystopia. The robots in the films of this first period become destroyers of unity, solidarity and individuality.

Our analysis goes in the same direction of most literature we have reviewed. Scholars agree with the way we interpreted the ambivalence between utopia and dystopia. Also they would agree with us that for both films, technology and robots play a central role and that the films were influenced by the social and technological effects of the mechanization at that period. The image of Maria the robot in terms of its femininity and sexuality seems to be a rather debated matter.

2 ❖ The Space Age

The historical context

As case studies for this time period we chose *Forbidden Planet* (1956) and *2001: A Space Odyssey* (1968). To cover the historical context of both films we will now discuss the most important happenings in the 50s and 60s, as in the chapter before, with the emphasis on the cultural-social and technological perspective.

The 1950s, similar to the 1920s, were turbulent years dominated by the recovery from the war before. The economic and political uncertainties emerging in post-war America and Europe promoted by the threat of Soviet communism shaped the Truman administration, which led to a fresh sense of purpose and solidarity. The clashes between communism and capitalism dominated this time.¹⁶² The results were the Korean War, atomic tests and the so-called Space Race introduced with the launch of the Sputnik satellite. Officially the Space Race took place from 1955 until 1972. This race about technological superiority was considered necessary for national security and ideological superiority. In 1957, the Soviets launched Sputnik 1, the first satellite in outer space. The race reached its peak in the success of the US Apollo 11 landing on the moon in 1969. Seemingly political at first sight, the Space Race most of all contributed to an increase in spending on education and research leading to the development of new technologies.¹⁶³

In terms of technological advances, the spread of television at home played an important role. At the end of the 1950s, most American households owned a television. Americans devoted most of their free time to television broadcasts. Even though the technology for colour television already existed, it was the cheaper black-white version remaining popular in the coming decades. The television revolutionized the American way of living and their understanding of the world.¹⁶⁴ These decades, for example with the founding of the CERN in Geneva in 1954, were also the time of atomic experimentation.¹⁶⁵ Other inventions changing the relationship between body and technology in a direct way were the introduction of the female birth-control contraceptive, the pill, in 1960 and the first heart transplantation 1967. Technological advances and the spread of the television also had an impact on the art movements at that time. Pop Art used the iconography of television, advertising and cinema. Rooting in Dadaism, it was an abstract and surreal art movement that became famous through works of Andy Warhol. Pop Art aimed to create a challenge to traditions of fine art by

¹⁶² Harbutt, *The Cold War Era*, 61-64.

¹⁶³ Burrows, *This New Ocean*, 186-210, 387-401.

¹⁶⁴ Kallen, *A Cultural History of the United States*, 10-30.

¹⁶⁵ See <http://home.web.cern.ch/about>

including imagery from popular culture, also ironic and kitschy ones.¹⁶⁶ The fact that material was sometimes visually removed from its own context and combined with new things made it very surreal. The decade was dominated by a counterculture in social norms about clothing, music, drugs and formalities. Young people started fighting social taboos, especially related to racism and sexism. It was the time of Elvis Presley, Bob Dylan and Woodstock. This social revolution was a revolt against the conservative norms of the time and a reaction against the US military intervention in Vietnam. In the same vein we see the Anti War Movement promoting world peace, the gay rights movement and the Black Power Movement that fought for equality.¹⁶⁷ These developments and the Space Race had an important impact on the cultural field and in particular on filmmaking, influencing German filmmakers just as much as American ones.¹⁶⁸ In 1961, the first robot (Unimate) and the first computer video game (SpaceWar) were introduced.¹⁶⁹ Films started breaking social taboos such as sex and violence, causing both controversy and fascination. This so-called New Hollywood dominated the film industry with its dramatic and unbalanced art works. Films of this decade were also influenced by cinematic experimentation with the introduction of lightweight and affordable cameras.¹⁷⁰

Summary of the plot: Forbidden Planet

Forbidden Planet was released 1956. It was the first science fiction film depicting humans travelling in a star ship and also the first one that was entirely set in outer space. It is interesting to note that, even before the first moon landing, films treated the topic of planet colonization and space travel. *Forbidden Planet* was an inspiration for science fiction films of the next decade. The film received surprising reactions for its soundtrack by Louis and Bebe Barron using electronic sounds.¹⁷¹ Being shot entirely indoors, the films used unprecedented film sets and visual effects. It was entered into the Library of congress' National Film Registry in 2013 as "culturally, historically or aesthetically significant".¹⁷² The storyline of *Forbidden Planet* follows the space ship expedition of commander John Adams who aims to find out the truth about an expedition sent 20 years earlier to an unknown planet. At the arrival on the planet he receives a transmission of Dr. Morbius, the only survivor of the former expedition. Morbius warns them to stay away, saying he cannot guarantee their safety. Adams ignores the warning and lands on the planet where he finds Morbius' home with the

¹⁶⁶ Livingstone, *Pop Art: A Continuing History*, 5-22.

¹⁶⁷ Baugess/Debold, *Encyclopedia of the Sixties*, 35-40 and 66-68.

¹⁶⁸ Rosenberg, *Spreading the American Dream*, 202-234.

¹⁶⁹ Markoff, 'Alan Kotok, 64, a Pioneer In Computer Video Games'.

¹⁷⁰ Baugess/Debold, *Encyclopedia of the Sixties*, 50-66.

¹⁷¹ Wierzbicki, James (2005), *Louis and Bebe Barron's Forbidden Planet: a film score guide*. Scarecrow Press, Oxford, 65.

¹⁷² Sullivan, 'Library of Congress announces 2013 National Film Registry selections'.

help of Robby the Robot. Later, equipment on the star ship is sabotaged and the astronauts start doubting their mission. Morbius shows Adam a hidden laboratory with very old but sophisticated technologies. Adam is most fascinated by the “plastic educator” building 3D holograms. But one night, the chief engineer Quinn gets murdered by a creature leaving immense foot prints in the sand. In the course of the coming days, Adam realizes that it is Morbius’ sub-consciousness in combination with the “plastic educator” that creates those invisible, but brutal creatures. He concludes that the former expedition must have been killed in the same way. First, Morbius refuses to accept this conclusion but starts believing it as he realizes that the same monsters appear in his dreams. Morbius stays at the planet that will be destroyed while the others fly back to Earth. Adam says the experience will forever remind humanity that “we are, after all, not God”, which are the final words of the film.

Summary of the plot: 2001: A Space Odyssey

2001: A Space Odyssey is based on one of the most influential futuristic works after Second World War: the essay “The challenge of the spaceship” by Arthur C. Clarke in 1946. Clarke’s visions are good examples of the ambivalent utopia-dystopia relationship. On one hand he saw technology as the determinant factor for stages of society. These considerations were based on the ideas of Roger Launius, who built on the four stages theory of society, commonly attributed to Adam Smith.¹⁷³ The theory divides human development the following way: hunting, herding, agriculture and commerce. Launius added technology as the most determinant factor for the stage changes.¹⁷⁴ Robert Poole analysed and historized Clarke’s essay saying that it had a significant influence on historians and philosophers. Poole also identified visions of the future transmitted through this essay that were on the one hand technology-driven utopias but on the other hand also quite pessimist. Clarke described interplanetary travel as the destiny of humanity bringing new forms of life and opportunities to humans. On the other hand, Clarke shared rather dystopian views. For example he imagined creatures on other planets as “suprahuman”.¹⁷⁵

The film *2001: A Space Odyssey* is a British-American production directed by Stanley Kubrick. The main theme of the film is the recurrent encounters between humans and mysterious black monoliths that affect human evolution, and a journey to Jupiter tracing a signal emitted by one such monolith found on the moon. Elements such as the human

¹⁷³ Ter Ellingson (17 December 2000). *The Myth of the Noble Savage*. University of California Press. p. 159

¹⁷⁴ Launius, 'Perfect Worlds, Perfect Societies', 339.

¹⁷⁵ Poole, 'The challenge of the spaceship', 255-260.

evolution, technology, artificial intelligence and extraterrestrial life are dominant in the storyline. Although the reactions after the film's release were not entirely positive, critics and filmmakers nowadays recognize it as one of the greatest and most influential films ever made. Like the *Forbidden Planet*, the US Library of Congress deemed it as "culturally, historically or aesthetically significant".

The first act (The Dawn of Man) starts with a scene of hunting animals that are distracted by the appearance of a mysterious, black monolith. In the beginning the early hominids react curiously and anxiously but they touch the "new thing" cautiously after a while. Soon after, one of the man-apes, realizes how to use a bone as a tool and weapon and uses it in order to defend the water hole against other tribes.

In the second act, the audience is taken on a trip through outer space with floating satellites and a great view on the Earth. The film presents all sorts of new technologies and fancy gadgets people use on the space ship, for instance self-speaking computers that are able to communicate in all languages or videophones enabling calling to Earth. The storyline follows Dr. Floyd who is travelling to Clavius, a lunar US outpost. On the space station he meets a Soviet scientist who asks him about "odd things" going on at Clavius and the rumour of a mysterious epidemic at the base. Floyd's mission, as it becomes more clear when he arrives at Clavius, is to analyse a recently discovered artefact, called the TMA-1. Travelling to the artefact in a moonbus, the audience already recognizes the artefact: the black monolith. Now, however, it makes very loud, high-pitched radio sounds coming from its inside.

The third act plays 18 months later and starts in the star ship "Discovery One" where there are again new, technological gadgets such as an "iPad"-like portable television and a food machine. The storyline follows Bowman and Poole, two scientists that are in the beginning of the act still in cryogenic hibernation. HAL 9000, an artificial intelligence computer, is responsible for controlling of all the spacecraft's functions. The computer is very human-like in terms of its behaviour and skills. It is curious, shows emotions such as pride and asks personal questions. Soon, however, HAL notices an error in the ship and suggests replacing a part of the spacecraft. As the astronauts cannot find the problem, they suspect that HAL is for the first time wrong. After a secret discussion they agree that if HAL makes a mistake, they will disconnect the computer from the system. Later, Poole is on a space-walk when HAL sets him adrift. When Bowman also goes outside in order to rescue Poole, HAL refuses to let him inside the spacecraft again. The computer admits that he read the lip movements when the astronauts were talking secretly about disconnecting HAL and that he is convinced that the astronauts endanger the success of the mission. Bowman finally manages to disconnect HAL

despite the computer using every trick to stay “alive” like expressing anger and fear like a human being. After, a pre-recorded message from Floyd is played explaining the story of the monolith on the moon and that it sends emissions aimed at Jupiter. In the fourth act, Bowman explores Jupiter and is suddenly pulled into a colour tunnel. He travels through space and time and finds himself in a neoclassical bedroom. But as the journey goes on Bowman finds progressively older versions of himself until he is lying as an elderly man in a bed. Then again the mysterious, black monolith appears. As Bowman touches it, he turns into a fetal creature enclosed in a transparent orb of light and flies outside in the direction of the Earth.

Analysis

It seems like in these two films the filmmakers had endless fantasies about the possibilities of technology. They invented all kinds of gadgets and robots. *Forbidden Planet* is packed with the appearances of surprising and amazing new technologies, such as the robot Robby, beaming transportation, electronic weapons, 3D hologram computers and star ships. These technologies all are shown in a very positive way, being very useful and improving lifestyle. And, as *Forbidden Planet* is set in an imagined future of the 23th century, it gives utopian visions about scientific progress in giving the impression that these technologies will be commonly used in the near future. Therefore we also coded the utopian element ‘improvement of knowledge (science)’ for all the robots in this period. For Telotte, *Forbidden Planet* has warnings about the scientific advances that could be dangerous: “It brings into sharp focus not simply the dangers implicit in our scientific and technological accomplishments but a dangerous redefining of the human that seems to attend an overemphasis on science and technology.”¹⁷⁶

The utopian way to present robots can also be seen in *2001: A Space Odyssey*. In the second scene of the film, for instance, showing life in outer space, the film uses cheerful waltz rhythms, which give the impression of a happy, utopian world. This soundtrack pops up each time when technology is showed as a useful, amazing tool for humanity together with almost admiring images of satellites and space ships.

Forbidden Planet is home to Robby the robot, a very classic version of the robot. Robby has an own personality and can make his own conclusions. His behaviour reminds in many ways of a human, he even makes jokes and moral decisions, for example when he refuses to shoot commander Adam because the order to do so conflicts with its moral understanding of not harming other people. This might be a reference to the first of three robot laws developed by

¹⁷⁶ Telotte, *Replications*, 112.

Isaac Asimov: “(1) A robot may not injure a human being or, through inaction, allow a human being to come to harm.”¹⁷⁷ In addition, the humans in the film treat Robby like another human. The commander, for instance, asks him when first meeting Robby: “This is no offence, but you are a robot, aren’t you?” and he calls him “gentleman”. The idea that these pieces of metal will be offended shows the more complex human-robot relationship. The appearance of Robby the Robot, however, is not very human-like. Together with the sounds he makes, he has a very exotic appearance.

We consider Morbius’ conscious in combination with the ‘plastic educator’ as a robot (in the form of a cyborg) because it becomes independent and the electronic part seems to dominate Morbius’ human side. Moreover, we also identified an electronic window opener as robot, because it opens the window itself without any human order. Similarly, in *2001: A Space Odyssey*, we found practical gadgets showing robots as utopian improvements of productivity: the automatic food machine and a self-speaking computer. They help the astronauts in the film with daily tasks such as eating and organising their missions and are therefore also the utopian vision of an improved lifestyle.

And of course there is also HAL. Similar to Robby the Robot in *Forbidden Planet* the behaviour is very human-like. He asks curious questions and expresses emotions such as pride and fear. It even plays chess and has its own opinion about every question that is discussed on the spacecraft. It is also interesting to see that the humans in the spacecraft interact with the computer like they would interact with a human. They answer its questions and apologize for inconveniences. And, they start lying to the computer as soon as they think that the computer would not like their answer. Most impressive is the “death” of HAL, when it shows desperate actions just like a human would do and tries to stay alive no matter what. It pleads with Boowe to stop disconnecting it by saying “I can feel it, my mind is going”.

It is striking that almost all of the robots in these two films show the utopian idea of more safety. Important and delicate tasks are handed over to robots. HAL is the brain of the mission, the window opens automatically and Robby the Robot, for instance, carries a wounded crewman to safety in the end of the film. However, this utopian idea of more safety changes soon into the dystopian element of destroyer of safety. HAL in *2001: A Space Odyssey* gets disconnected because it endangers the mission. It becomes in a human-like way stubborn and self-defending. Realising that the humans in the film start questioning him, he would rather kill them than giving them back control. In *Forbidden Planet*, the cyborg-robot of Morbius’ conscious in combination with the ‘plastic educator’ becomes a deadly threat for

¹⁷⁷ Asimov, Isaac (1950), *I, Robot*. The robot series. Gnome Press: New York,

the crew in creating invisible creatures. Eventually also Robby the Robot becomes a threat as he refuses to kill the monster. This reaction is also due to the fact that he is programmed according to Asimov's robot laws, which was a good thing in the beginning of the film. Later, however, the robot is not able to see the urgency of a reaction in a moment of danger, therefore we attribute him also the dystopian element of destroyer of safety.

Especially *2001: A Space Odyssey* plays with many dystopian elements. Apart from life-threatening versions of dystopian robots it also shows the rather mild version of technological dystopia: that the lifestyle people get with the help of technology, makes them unsocial and stressed. One example is the videophone call of Dr. Floyd in the second act (TMA-1) when he comforts his daughter because he cannot make it to her birthday party. The dystopian element of the stress we can also identify in *Forbidden Planet's* Morbius' conscious. Whereas he seems alright in the beginning of the film, the more it become clear that the cyborg-robot connected to his brain affects his mood and his ability to think as the plot moves on.

The films also play with the ambivalent perception of technology. In *2001: A Space Odyssey* on the one hand, technology is associated with utopian visions and the robots are embraced as amazing tools for humanity. We find this intention particularly obvious in the use of a happy waltz rhythm every time the plot plays in the space station. On the other hand, technology has its dark side as well. The ambience is scary and mysterious whenever the black monolith appears. For example when Dr. Floyd investigates it with other astronauts, the soundtrack is dominated by dark noises and there is no rhythm. This is then underlined by the creepy, high-pitched sound coming from the inside of the monolith. When it goes back to the space ship in the beginning of the third act (Jupiter Mission), we can identify a rather utopian presentation of technology again. And of course also the development of the perception of HAL is a good example for the ambivalent visions the films show about technology. Embraced as a super-intelligent and emotional computer that is responsible for every important decision on the spacecraft, it turns into a technological dangerous opponent, as soon the computer feels threatened itself. We think that the film plays with the dystopian idea of Singularity, the concept that artificial intelligence could become more intelligent and more skilled than humans and that they would use this power to "dethrone" humans. This concept was introduced by Ray Kurzweil in 2005: "It's a future period during which the pace of technological change will be so rapid, its impact so deep, that human life will be irreversibly

transformed”.¹⁷⁸ Similarly, HAL becomes an uncontrolled life-threatening enemy for the mission and for the astronauts’ lives.

It is striking that the humans in the films are already very used to the appearance of robots. We found that most human-robot interaction could be identified as routine. The crew in *2001: A Space Odyssey*, for instance, finds it very normal to talk to a computer. A journalist even conducts an interview with this electronic machine and seems to take HAL’s answer serious. However, this routine is more obvious in *2001: A Space Odyssey* than in *Forbidden Planet*, where Robby as well as the plastic educator have a surprising and intriguing effect on humans during the first encounter.

Finally, it is interesting to say that in the beginning of both films the robots were mostly coded as servants of the humans (window opener, food machine, plastic educator, self-speaking computer) or as friends. HAL and Robby the robot both serve the humans as well in helping them on their mission and obeying to orders. However, we think the crewmembers have a rather friendly relationship to the robots. They talk to them, ask them about their opinion and express pity and joy towards them. However, as the films come to an end, the plastic educator and HAL turn into enemies. It becomes clear in both films that only the destruction of the two can save the mission, the crewmembers life and eventually humanity. That is why with both we can identify the dystopian vision of general decline of humanity as a threat in case the figures in the film cannot stop the robots.

This transition from utopian to dystopian shows the ambivalence of the human-robot relationship in this period most obviously. As we discussed before both films play with this ambivalent image of technology. Almost every robot in the films has a utopian and a dystopian side. Robby the robot, for instance, is the perfect servant and friend of the human but when it matters he fails in estimating a dangerous situation because in the end he only obeys to a program. Here Ruge would agree because for him the film emphasizes the dependence of the robot to a program. For him this is one of the main morals of the *Forbidden Planet*. There are no scenes in the film where Robby acts and decides independently.¹⁷⁹ Contrary, HAL seems to be essential for the success of the mission. A lot of responsibility is given to him, as the scene with the interviewer suggests: “HAL, you have an enormous responsibility on this mission, in many ways perhaps the greatest responsibility of

¹⁷⁸ Kurzweil, Ray (2005), *The Singularity is Near: When Humans Transcend Biology*. Penguin Group, New York, 10.

¹⁷⁹ Ruge, *Roboter im Film*, 94.

any single mission element. You're the brain, and central nervous system of the ship, and your responsibilities include watching over the men in hibernation.”¹⁸⁰

Geraci also sees this ambivalence: “The heroes of *Forbidden Planet* succeed in realizing that the alien technology has a dark side and therefore escape its power. They conclude that the only safe response to its presence is to demolish the entire planet and the technology that it contains.”¹⁸¹ In contrast to us, however, he thinks the victory of the crew fails because despite they destroy the planet they take Robby the robot with themselves. For Geraci this means that they still did not get rid of the dangerous technology, since Robby was created through the same technology.¹⁸² He would then probably not agree with us that in the end the crew saves humanity.

Both films use light and music to make the ambivalence more obvious. Sometimes, like the waltz in *2001: A Space Odyssey* it seems almost like an ironic parody of the utopian visions about technology of that time. With this Scheurer would agree and he even goes a step further, saying that Strauss’ Waltz illustrates the dangerous trap of technologies.¹⁸³

Interestingly, utopian visions were even more influenced by space travel and space exploration *before* the first successes in outer space than after. Alexander Geppert’s research focuses on utopian discourses around astroculture and extraterrestrial life in the 20th century. According to him, space travel inspired movements of ‘astrofuturism’, emphasizing a close nexus between imperial expansion and utopian speculation. He emphasizes the influence of Space Age visions on cultural life, also on filmmakers. And he emphasizes that space travel in the 20th century was bound with notions of modernity and utopian visions of human progress.¹⁸⁴ It is also interesting to that filmmakers also influenced the ideas of engineers and scientists. According to Bizony *2001: A Space Odyssey* had a strong influence on how scientists imagined future technologies: their appearances and functions.¹⁸⁵ Some scholars, such as Corbett, even claim that the film had an influence on the space shuttle program of the NASA.¹⁸⁶

Telotte approves that there is as well an ambivalence of utopian and dystopian elements in the human-robot relationship. He considers the dark side as more strong in the films of the 50s

¹⁸⁰ Journalist during the Interview with HAL in the beginning of the mission in *2001: A Space Odyssey*.

¹⁸¹ Geraci, *Robots and the Sacred*, 968.

¹⁸² *Ibid.*

¹⁸³ Scheurer, Timothy E. (1998), ‘The Score For *2001: A Space Odyssey*’, in: *Journal of Popular Film and Television*, Vol. 25(4), 172-183, here 174-178.

¹⁸⁴ Geppert, ‘Rethinking the Spage Age’, 222-223.

¹⁸⁵ Bizony, *An Odyssey Into the Future*, 48.

¹⁸⁶ See Corbett, Claire (2014), ‘The Last Space Waltz’, in: *Overland* (214), 42-49.

and 60s observing a “far more sinister and menacing attitude”.¹⁸⁷ Still, he considers *Forbidden Planet* as demonstrating a “fundamental sort of double vision”, showing that new and old melts together and that technology is seen as alluring and threatening at the same time. Moreover, he states, that there are different views on technology expressed by the figures in the films: enthusiastic and sceptical. These double worlds he considers most relevant in the form of the robots created by Morbius. On the one hand there is Robby the robot: useful, loyal and harmless. On the other hand, the invisible monsters are murderers and uncontrollable.¹⁸⁸

Moreover, atomic energy is a recurrent topic in *Forbidden Planet*. There are also some references to the Pop Art culture. Robby the Robot, for instance, has an appearance like a robot from a comic. He does not look like a human or like the robot Maria in *Metropolis*. The whole film, especially the sound design of the film or also the weapons that shoot with turquoise light ammunition, has a tendency to kitschy and surreal elements, as we know them from the Pop Art culture. Moreover, *Forbidden Planet* has a relaxed relation to topics such as sexuality and alcohol. Examples are the astronauts talking in a clearly sexual way about Altaira and the cook of the crew looking for alcohol during the whole film. In *2001: A Space Odyssey* we see a good example for the tendency for experimentation in the film industry of the 1960s. The beginning for example is a 3-minute long sequence of exhausting sound patterns followed by a long, incoherent scene of eating and hunting animals. In addition, the film does almost without dialogues and rather uses sounds as communication means. For the 1960s this was an unprecedented and very experimental form of story telling. Finally, the fourth is clearly influenced by cinematic experiments when Bowman enters the colour tunnel and the film shows for almost 20 minutes only colours and stars. The colour tunnel could also be a reference to the use of hallucinogenic drugs in the 1960s.

In this period we could identify the utopian elements of improvement of science, productivity and more safety. However in the end of the films the dystopian elements prevail where safety gets destroyed and robots could endanger humanity. The dystopian idea of stress and pressure is dominant in both films during the whole plot.

¹⁸⁷ Telotte, *Replications*, 112.

¹⁸⁸ *Ibid.*, 113-116.

3 ❖ The Age of the Internet

Historical context

This chapter begins historically where the second chapter ended. In the context of the Cold War and the Space Race, the US government intended to create a safe and stable communication tool for their military actions. The purpose of the first Internet, the ARPANET, was therefore simply to communicate between military members even in times of war. Step by step it was used by others institutions such as universities and research institutes. But it was not before the development of the World Wide Web by Tim Beerners-Lee in 1990 that the Internet became popular for the general public and was used for commercial purposes.¹⁸⁹ The Internet as alternative media shaped the 1990s leading to an increased scepticism towards government and a tendency towards privatization. Many countries, such as Canada and Sweden, privatized large parts of their economy. The Internet showed new potential for a world with less power for the government and more for the common people.¹⁹⁰ In combination with the development of cable television, the new media inspired movements such as grunge, the rave scene and hip hop. Youth culture in the 1990s was shaped by a wish of individuality (tattoos and body piercing) but also of a certain retro-culture.¹⁹¹ In combination with globalisation processes, the Internet also helped increasing multiculturalism. The cultural diversity of communities grew even more because of an increased immigration supported by policies that promote this diversity.¹⁹² Moreover, in 1990, the World Health Organization removed homosexuality from its list of diseases, which led to an increased tolerance of homosexuality in the western world.¹⁹³

Next to the Internet, the 1990s was the decade of digital technology revolution. While in the 1990s the World Wide Web was only just introduced and only a small percentage of the population used cell phones, 50 percent of the population had access to Internet by 2001 and 25 percent had access to a cell phone. The digital revolution also changed our perception of news. The Gulf War in late 1990 until early 1991 was the first event that was covered 24 hours by news from CNN. Only since then the world is supplied with the 24 hours news cycle.¹⁹⁴ Moreover, the two scientists Aleksander Wolszczan and Dale Frail discovered the first exoplanet (a planet that orbits around another star than our own sun) in 1992.

¹⁸⁹ Castells, *The Internet Galaxy*, 10-30.

¹⁹⁰ Stiglitz, *The Roaring Nineties*, 192-198.

¹⁹¹ Chang, *Can't Stop, Won't Stop*, 357-400.

¹⁹² Bloor, *The Definitive Guide to Political Ideologies*, 272.

¹⁹³ Haggerty, *Encyclopedia of Gay Histories and Cultures*, 961.

¹⁹⁴ Salwen e.a., *Online News and the Public*, 54.

Technological advances for example improved spectroscopy with the invention of the Hubble space telescope led to a series of new discoveries in space. In the same decade, the NASA spacecraft “Pathfinder” lands on Mars and starts exploring its geology and atmosphere. And, in 1998, the construction of the International Space Station (ISS) began.¹⁹⁵ Another scientific event that led to many discourses in the 1990s was the first cloned mammal, Dolly the sheep. It would trigger a raging controversy on cloning and bioethical concerns regarding possible human cloning.¹⁹⁶

Summary of the plot: The Matrix

The Matrix is an American-Australian production written and directed by Wachowski Brothers. It shows a dystopian world where reality and virtuality merge. The reality most people perceive is in fact a simulated reality (“the Matrix”). This system uses the human bodies as a power source for heat and electrical activity. The storyline follows the computer programmer Thomas Anderson who has a double life. As “Neo” he finds out about the Matrix and joins a group of revolutionaries. There he realizes that reality and dream in this world cannot be distinguished clearly anymore. Neo learns the story of the Matrix: In the 21st century, humans fought a war against intelligent machines they themselves created. In an attempt to block the computers from their energy, the use of solar energy is made impossible. The machines then start using the humans for bioelectricity power, keeping them in the Matrix, which is a shared simulation of the world as it was in 1999. As slaves they work unconsciously for the machines in order to provide them with power. Neo finds himself naked and connected to power cables next to machines where he realizes that this is reality and his other life was just a dream implanted by the machines. Morpheus is the leader of the rebel group that frees slaves from this world and fights against the Matrix system. He tells Neo that he thinks that Neo is “the One”, a man prophesied to end the war between machines and humans. Later the group enters the Matrix to visit the Oracle and Neo learns that he is not “the One” but that he will have to choose soon between his life and the life of Morpheus. Before they return to reality, agents attack the group because Cypher, a crewmember who wants to have a comfortable life in the Matrix again, betrayed them. Morpheus allows himself to be captured in order to save Neo because he is still convinced that Neo is “the One”. Cypher then disconnects from the Matrix and before he gets killed by Tank, he murders the crewmembers that are still connected to the Matrix as they lie there without any defence. In

¹⁹⁵ Schilling, *Atlas of Astronomical Discoveries*, 193-194.

¹⁹⁶ Renneberg/Demain, *Biotechnology for Beginners*, 252.

the Matrix, the agents try to find out the access code for the computer in Zion, the last human village in the real world. Neo still thinks that he is not “the One” and goes back to the Matrix in order to save Morpheus with the help of Trinity. They manage to rescue him but Neo gets killed in a fight. Trinity, in the real world again, stands over Neo and whispers to him that the Oracle told her that she would fall in love with “the One”. She kisses Neo who gains power and belief in his abilities, reanimating him. He destroys the agents in the Matrix and makes a phone call to the machines where he promises to find a solution for both sides. *The Matrix* plays with references to philosophical and religious ideas. Amongst others, the Matrix system as a simulated reality is a reference to Plato’s allegory of the cave where the shadows on the cave’s wall are seen as fake reality.¹⁹⁷ Another reference is made to Alice’s adventures in Wonderland when Morpheus gives Neo the choice of the red and the blue pill, and he says: “If you take the red pill, you stay in Wonderland and I will show you how deep the rabbit hole goes”.¹⁹⁸ The reactions and critics to *Matrix* after its release were very positive. Reviewers embraced the film for its visual effects and its entertainment. The film won four Academy Awards. The Wachowski Brothers produced two feature films, *The Matrix Reloaded* and *The Matrix Revolutions*.¹⁹⁹ *The Matrix* is known for the invention and the use of the visual effect “bullet time”. During fight scenes, certain figures move in slow motion while the camera seems to move in real speed through the scene. This cinematic technique gives the impression that the figures have skills “beyond human”. The fight scenes are also inspired by martial arts films and Japanese animation, which shows the influence of globalization and multiculturalism also in the film industry.²⁰⁰

Summary of the plot: A.I.

A.I. Artificial Intelligence was written, directed and produced by Steven Spielberg in 2001. It is based on Brian Aldiss’ short story *Super-Toys Last All Summer Long*. The film is set in a near future where robots with artificial intelligence are replacing humans. Due to climate change, the ice on Earth has melted and the water destroyed many resources and large parts of the land. Therefore the company Cybertronics started constructing robots (a new class of robots called mecha) that do not need food and that are able to create own thoughts and emotions. The storyline of *A.I* follows a childlike android called David who is unique, because in contrast to the other robots, he is programmed with the ability to love. This first prototype of a child replacement is tested in the family of Henry, an employee of

¹⁹⁷ William Irwin, *The Matrix and Philosophy: Welcome to the Desert of the Real*, Open Court Publishing 2002, p. 11-13.

¹⁹⁸ See Matrixwiki, url: http://matrix.wikia.com/wiki/Alice%27s_Adventures_in_Wonderland (20.07.15)

¹⁹⁹ Ruge, *Roboter im Film*, 153.

²⁰⁰ Miller, Edward (2000), ‘The Matrix and the Medium’s Message’, in: *Social Policy*, Vol.30(4), 56-59, here 56-57.

Cybertronics. Martin, the real son of Henry and his wife Monica, was placed in suspended animation due to a rare disease. First, robot David frightens Monica but she starts having mother-feelings for him soon. However, David is not a normal child, for example he never has to sleep or to eat and he always obeys his parents. Monica needs some time to think if she wants to keep the artificial child but she chooses David and “activates his heart” with a code provided by Cybertronics. Soon, however, there are first conflicts when David realizes that his mother will die one day whereas he is immortal. A cure is then found for the disease of Monica’s biological child Martin. When Martin comes back to the house, David the robot child feels unwelcome and sad. Martin provokes him to eat spinach, which ends in the robotic hospital because David cannot digest any food. More and more it becomes clear that there are many differences between the real son Martin and the mechanical son David. Because of two misunderstandings Monica and Henry start thinking that David develops into a danger for their family because they fear that he would do anything to be loved by Monica, even kill his brother Martin. Monica drives David to the countryside and leaves him in a forest even though it almost breaks her heart. David and Teddy, another robotic toy, try to find the Blue Fairy from the story ‘The Adventures of Pinocchio’, because David thinks that if he turns into a real boy he can return to Monica. But in the forest he gets captured for an anti-mecha flesh fair, an event where obsolete and unlicensed mecha get destroyed in front of a human audience. Because the crowd is amazed by David’s human-like appearance, he manages to escape together with Joe, a male prostitute robot who is accused of murder. The two go to Rouge City to find the Blue Fairy. In Manhattan, David meets his human creator, Professor Hobby, where he realizes that he is not unique. There are several copies of David and he sees the factory where he was constructed. Hopeless he tries committing suicide in the ocean but gets rescued by Joe. Underwater, David thinks to see the Blue Fairy and wants to go down again. In that moment, Joe gets arrested by the police but he can still activate the submerge mode of David’s vehicle. Teddy and David go underwater again to find the Blue Fairy. When they arrive at the statue of the fairy, they get stuck in a cage. David starts repeating his wish to become a real boy and will not stop for 2000 years. Then, humans are extinct and Manhattan is buried under glacial ice. Now highly intelligent Mecha are ruling the world and they study their past in looking for human fossils. In that way they find Teddy and David – a big scientific surprise for them because David had known real humans. In this new world, he is finally special and unique. The highly intelligent mecha recreate Monica from DNA in a hair lock Teddy had kept. Even though Monica is here again only for one day, David spends the happiest day of his life.

Originally, it was not Spielberg but Stanley Kubrick that started developing the film *A.I.* already in the early 1970s. Kubrick felt that computer imagery were not advanced enough to portray David in a convincing way. Thus, the film was never produced and then handed over to Spielberg in 1995.²⁰¹ The film received generally positive reviews. Some critics, however, wondered how it might have been had Kubrick directed the film.²⁰²

Analysis

In the films of this last period, all seems to be electronic and robotic. The films both play in utopian futures where science has reached a point far away from the current state of technology. Therefore we also meet many robots over the course of these films. In *The Matrix* the machines that extract energy from the human slaves are very central. Furthermore, there is a robot insect, a machine to take out the insect of Neo's stomach, robotic soldiers and huge robot spiders. The robots in *A.I.* at first sight look friendlier: the robot child David, his robotic bear Teddy, the android Sheila, the robot prostitute Joe and finally the mysterious and highly intelligent mecha.

We find that both films are specifically embracing technological progress. Both films imagine a future where the population will interact with technologies we have not yet started developing nowadays. In terms of scientific progress both films show some kind of utopia, the technologies analysed in the films all give the impression of improving the people's lifestyle and being a great scientific invention. In our analysis we coded for all the robots in this period the utopian element of 'improvement in knowledge (science)'.

Both films deal with the bigger topic of artificial intelligence, though addressing the theme of artificial intelligence in a very different way: *A.I.* investigates intensively the question if machines can have emotions and what would be the consequences. In the beginning of the film the scientists discuss the construction of artificial child that can genuinely love its parents. But this idea also raises questions, for example what responsibility this gives to the parents. Do they have to give the same love back? In *A.I.* the robots look like humans and act like humans. And, in the case of David, they are even able to feel like humans. Concerning this, the film transfers a utopian vision that we will be able to build robot children with emotions in the near future. That brings us to a particularity of this period: one strong utopian element is the abolishment of loneliness. Most of all in *A.I.* robots serve the purpose of being the human's friends, sex object or family member.

²⁰¹ Harlan/Struthers, *A.I. Artificial Intelligence*, 10-22.

²⁰² See http://news.bbc.co.uk/2/hi/in_depth/sci_tech/2001/artificial_intelligence/1542794.stm. (7.7.14).

These findings correspondent with a study conducted in this period showing that people interact with robots and computers much like they do with humans. It says that people are often not aware that they are talking and showing empathy towards a machine.²⁰³ We could assume that this human behaviour had an influence on how Spielberg directed *A.I.* and that he made an allusion to this.

Connected to the abolishment of loneliness, we also identified a strong appearance of the utopian element that robots improve lifestyle. Everything seems easier and more pleasant when robots are around in *A.I.* In *The Matrix* the dark vision of the robots prevails soon, in the beginning however it also seems to be a fast and successful world thanks to the robots. Moreover the films in this period show utopian worlds where robots bring more productivity to the societies: the energy machines and the machine that takes out the insect in *The Matrix* as well as Sheila, the android in the beginning of *A.I.* working better and faster than a human. It is worth mentioning that the utopian elements identified in the films of the Age of the Internet correspond with the utopian elements Merav Katz-Kimchi found in the public discourse of this period about the Internet. She found strong utopian beliefs that the Internet brings improvement and betterment for social and economic life. Moreover, she adds that the Internet brings the utopian vision of more individuality for society and the forming of new communities. And in that case, it is not an enhancement of traditional communities, for example the national unity. The Internet enables minorities to connect broadly with people all over the world. Globalization opposes in that way national unity, and the Internet increased globalization significantly. Moreover, she mentions the ‘coalition of spokesmen’ in these discourses. It is surprising how people from various backgrounds (culturally or politically) tend to embrace the Internet in a similar utopian way.²⁰⁴

But again, the dystopian sides are stronger than the utopian views. *A.I.* shows how fragile the concept of uniqueness is. David can replace the real child even though he is actually just a robot. We find *A.I.* shows the dystopian element of the robot as destroyer of individuality. Furthermore, the world in which the film is set, for example when Joe and David go to City Rouge, is a destroyed place where people are heartless and monitored. It is therefore also a world shaped by the dystopian element ‘destroyer of solidarity’. The city is also a place where humans use robots as prostitutes and use machines as distraction and even replace their sick children with a robot child. Therefore we coded as well ‘makes us unsocial and lonely’. And *A.I.* suggests that in 2000 years humanity will be extinct and artificial intelligence will rule

²⁰³ Reeves, Byron / Nass, Clifford (1996), *The Media Equation*. Cambridge University Press, Cambridge, 23-24.

²⁰⁴ Katz-Kimchi, ‘Historicizing Utopian Popular Discourse on the Internet in America in the 1990s’,

the Earth. This we can also observe in *The Matrix*. In total the dystopian view of declining humanity is very strong in this period. Because *The Matrix* shows many dangerous and aggressive robots the results of this period are also dominated by the dystopian elements of ‘war (destroyer of peace)’ and ‘destroyer of safety’.

The dystopian vision of robots is more obvious in *The Matrix* using dark colours and images of scary robot-machines that jeopardize the existence of humanity and of the free human mind. Machines and robots in *Matrix* took power over the humans because they became more intelligent and powerful than human beings who originally created them. There we see again a reference to the idea of Singularity.²⁰⁵ This superiority of robots we also see in *A.I.*: The mechas are all good-looking, they can live without food and they don’t have to sleep. And the highly developed mechas in the end of the film can even do telekinesis and telepathy.

Concerning the role of the robot it is striking that in this period the transition between utopian views of technology to dystopian views in the course of the films was visible but not very strong. It seems like in this period the attitude towards the robots set in the beginning stayed mostly until the end. However, there are robots where the attitude showed by filmmakers change. In *The Matrix* first the machines were depicted in a more positive than negative light. That changes as soon Neo finds out that he actually lives in virtuality and in reality humans are slaves of machines. In *A.I.* we identified as well a change from the role of robot as ‘friend’ towards the role of ‘enemy’.²⁰⁶ Even though the robot child David seems accepted in the beginning, the relationship towards him changes towards fear. Also Sterrit observed this and tries to explain his shift in attitude with the appearance of David. He argues that humans are not ready for robots that are too human-like²⁰⁷, this would create “an image of horrors”. This is why, Sterrit says, that David is excluded in *A.I.*²⁰⁸

Also we can see the ambivalence between utopia and dystopia in both films. Both films show the utopian elements ‘improvement of knowledge (science)’, ‘abolishment of loneliness’ and ‘more productivity’ and ‘improvement in lifestyle’. But at the same time, and even overlapping, we could identify the dystopian elements ‘destroyer of safety’, ‘war’, ‘makes us unsocial and lonely’, ‘stress and pressure’ and ‘destroyer of solidarity’. Concerning the latter

²⁰⁵ Kurzweil, *The Singularity is Near*, 10.

²⁰⁶ Here we have to mention that we looked at the relationship between humans in the films and the robots. In the end of the film the humans are scared of the robots and want to destroy them. However, the robots are not depicted as dangerous or dark as in other films when we coded ‘enemy’ as the role of robot.

²⁰⁷ The theory of the Uncanny Valley says that the acceptance of machines reaches a limit when machines become too human-like. A robot should therefore resemble humans in order to make us feel comfortable, but on the other hand it should be distinguishable from a real human being. But how high this limit is, that is a question of generations. See Hamilton, James R. (2015), ‘The ‘Uncanny Valley’ and Spectating Animated Objects’, in: *Performance Research*, Vol. 20(2), 60-69.

²⁰⁸ Sterrit, David (2009), ‘Spielberg, Iconophobia, and the Mimetic Uncanny’, in: *New Review of Film and Television Studies*, 51-65, here 52.

Miller would agree with us saying that *The Matrix* is politically disappointing: “Where collective action and resistant strategies fail, the force of the hero succeeds”.²⁰⁹ With this he means that Neo does not need other people in order to save the world, this gives the impression that one is better off alone.²¹⁰

It is also interesting to see that there is also a regional distinction of utopia and dystopia in the films of this period. In *The Matrix* the city represents utopia: clean, fast, white. The real world, however, is dystopia: dark, mysterious, aggressive robots and hopeless people. In *A.I.* we can observe the similar. Monica’s home and the village where they live is utopia, whereas the city is a black and dangerous spot. Geraci would agree with our statement that the human-robot relationship in *The Matrix* is ambivalent: “Intelligent machines threaten the human species with extinction, real and virtual, but remain vital to human survival”.²¹¹

The differences between the two films of this period are most obvious in terms of the human-robot interaction. In *A.I.* it is dominated by positive experiences and surprises. In contrast, *Matrix* portrays the artificial intelligences as enemies. In both films we coded often that people are used to the robots when first meeting them. However, in this period it is striking that the humans are most often ‘scared’ on the first encounter with the robot. We find *The Matrix* plays with many allusions towards the Introduction of the Internet as the Matrix is built as a collection of individual brains, similarly to the Internet as a collection of several computer providers. For example we coded the utopian vision of ‘new communities’ for the net of machines feeding the world with electricity. In the film the world actually only exists in virtual life and Internet, the real world is destroyed. The main dystopian technology in the film is the Matrix itself, which looks in the films like a warning of a world where humanity depends to strongly on technology.

We could add Miller who says that *The Matrix* makes reference to our stressful and closed daily lives: “In this coordinated and micro-managed realm, the digital selves of the imprisoned live and work in cities not unlike our own”.²¹² In *A.I.* we could, however, not identify a direct link to the introduction and the spread of the Internet. The film seemed to be more inspired by the developments in robotic engineering at that time.²¹³

Worth mentioning is also that we think that *The Matrix* was influenced by the first cloning experiments in the 90s. The film deals intensively with the topic of cyborgs and the

²⁰⁹ Miller, ‘The Matrix and the Medium’s Message’, 59.

²¹⁰ Ibid.

²¹¹ Geraci, *Robots and the Sacred*, 968.

²¹² Miller, *The Matrix and the Medium’s Message*, 57.

²¹³ Niku, Saeed B. (2011), *Introduction to Robotics*. John Wiley & Sons Inc., Denver, 5.

combination of technology and the human body. The robotic insect was coded as a cyborg in the category human and body. Machines in *Matrix* crawl in the human body as enemies but also are implanted to help the human body. Also the idea in *The Matrix* that machines with artificial intelligences would grow humans and use them as energy sources, could be a reference to the historical context of the first clones. The birth of Dolly, the first cloned sheep, started discussions about creating life without sexual intercourse and about biotechnology. The same can be said about *A.I.* as theoretically David is a clone in form of a mechanical version. The film also raises questions about uniqueness and the border between machine, cyborg and machine. The films of this period seem to tie up with these controversial debates.

4 ❖ Continuity in the human-robot relationship

The purpose of this paper is to show the continuity in the human-robot relationship in six films over the 20th century. To this end, we analysed and discussed what utopian and what dystopian elements show up in each period. We also showed the interaction between human and robot as well as relationship towards the human body. In this chapter we will show what elements of this human-robot relationship show common patterns throughout all the analysed six films. Which aspects show continuity over all the three time periods?

It is already clear that all the films dealt intensively with the topic this of paper.²¹⁴ But we can say that the number of robots in films increased in the course of the century. In total we

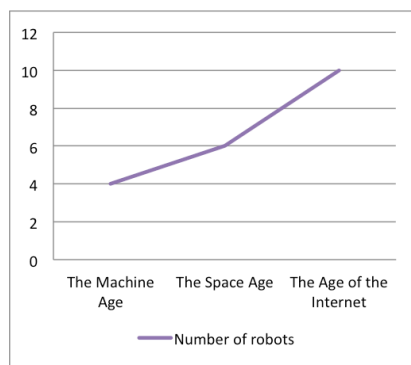


Illustration 1: number of robots per time period

identified 21 robots that correspond with our definition. The least robots appeared in *Algol* (1), the most in *The Matrix* and in *A.I.* We can explain this difference with the simple fact that, at the start of the century, robots were new.. Later in the century, however, people were already so used to robotic machines that they were part of their daily lives and thus also more integrated in films.

Continuity in utopian elements

There are several utopian elements that are continuous in the films over the whole century. The strongest utopian vision we identified in the films is ‘more productivity’. This utopian element was coded in every time period. Robots help the humans with their work or even replace them. Generally, they facilitate and speed up their life. In some cases, they make them rich and successful. In total, nine robots are associated with a more productive lifestyle.

Connected to this, the robots in the films seem also to improve the people’s lifestyle. This element was also identified in each time period.

Moreover, it is striking that most of the robots were showed in the context of the utopian element ‘Improvement in knowledge (science)’. There we can see strong continuity, as technological advances were the basis of every film plot we analysed. But these scientific advancements were not only part of the story they were also embraced in several ways. On the one hand, the figures in the films showed respect towards them (for example Freder when

²¹⁴ This is why we chose them. See sub-chapter ‘Choice of sources’ on page 10.

he meets the robot Maria in *Metropolis* the first time) on the other hand, the soundtrack and the use of light in the films emphasized this praise of science and technology.

The fourth utopian element where we could identify continuity over the whole set of six films was ‘more safety’. Difficult tasks are handed over to robots and the machines in the films get responsibility (for example HAL in *2001: A Space Odyssey*).

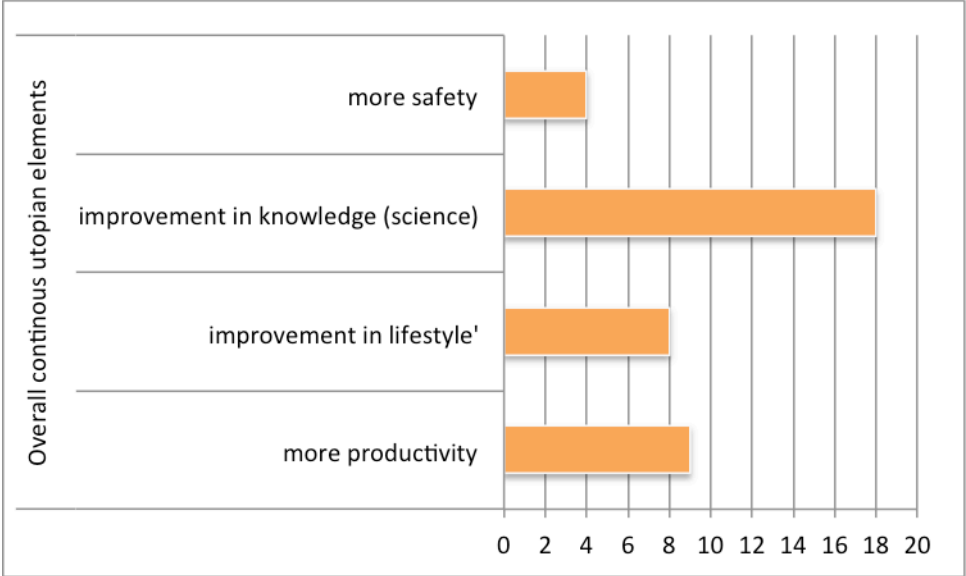


Illustration 2: overall continuous utopian elements

The other utopian elements did not show continuity over the whole period.

Continuity in dystopian elements

Concerning the continuity in dystopia we can identify even more elements that were present throughout the whole century. The dark side of the robots was associated most with ‘destroyer of individuality’: seven robots showed the threat of making people less special but more uniform.

We will take together the dystopian elements of destroyer of solidarity and unity because these elements turned out to show up mostly in combination: six robots were associated with this element. In these cases the robots would either start intrigues and manipulate the figures in the film (for instance Maria in *Metropolis* or Hal in *2001: A Space Odyssey*) or be the issue of a fight between humans (for instance the Teddy the robot bear in *A.I.*).

Furthermore, many robots turned out to be a threat for humanity. This element was also continuous throughout the whole century. In total seven robots were associated with it. They either had to be destroyed in order to save humanity (for example the energy machine in *Algol*

or the whole planet with Morbius' conscious and the plastic educator in *Forbidden Planet*) or the world was already at a point where there were no humans anymore (the highly intelligent mechas in *A.I.*).

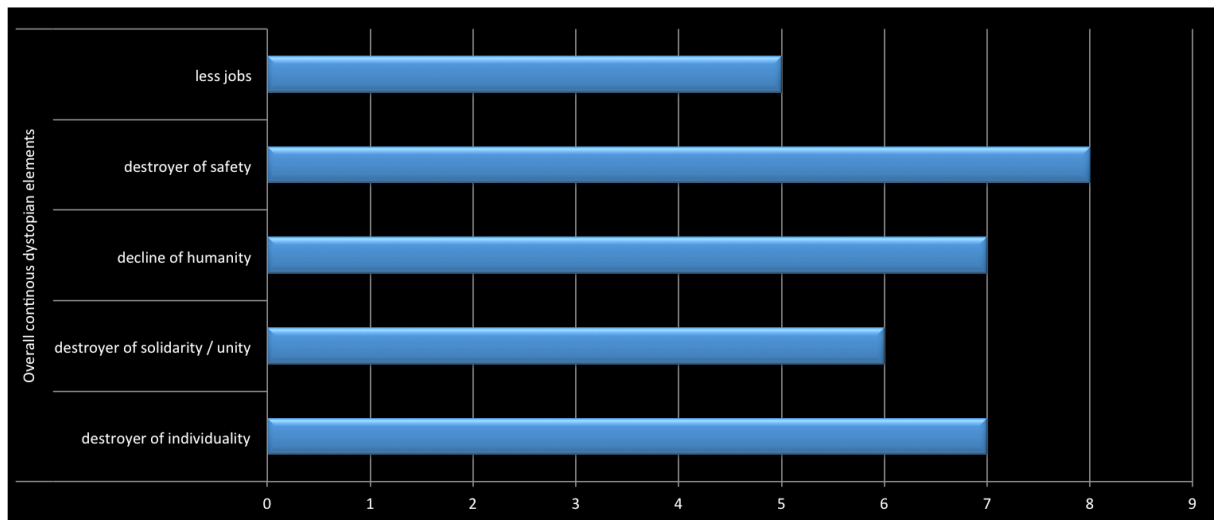


Illustration 3: overall continuous dystopian elements.

For eight robots we found the dystopian element “destroyer of safety”. This is interesting, as we also identified “more safety” as a continuing utopian element. Considering the ambivalent relationship towards robots, however, it makes sense to us that the same element – in its negative form – showed continuity as well. Destroyer of safety would either start a revolution or fight between the film figures (for instance Maria in *Metropolis*), be a danger to the figures because of a lack of abilities (for instance Robby in *Forbidden Planet* when not killing the monster) or would want to control humans by force (for instance the robot spiders in *The Matrix*).

Finally, the dystopian element that showed continuity is ‘less jobs’. Robots in films of all periods replace humans and do their job obviously faster and better than humans. In some films like in *A.I.*, where the robot Sheila is the perfect worker, this shows that humans become redundant.

The rest of the analysed dystopian elements did not show continuity over the whole period.

Continuity in the interaction between robot and human

We analysed the first encounter between the humans and the robots in the films. It is striking that during three time periods and also the most in absolute numbers (seven) was the reaction ‘used to it / routine’. This is particularly interesting because in the Machine Age people were not as used to technology as in the Age of the Internet. All the same, in *Metropolis* people seem not surprised about Rotwang’s cyborg hand. This shows that even though the conditions

in the real world changed massively, the films pretended in the scene where robot and human meet first that there is nothing extraordinary happening. Related to this we also think that, generally, the films clearly overrated scientific development. Their visions about the future and about how mankind will travel space or use amazing gadgets are rather surreal.

In addition, there were in all periods also robots that had an intriguing effect on the humans: the energy machine in *Algol*, the plastic educator in *Forbidden Planet* and Sheila in *A.I.*

Moreover we analysed the relationship between the robotic and the human body. We immediately notice that in all time periods there were robots in the form of cyborgs: Rotwang's cyborg hand in *Metropolis*, the monster planet consisting of Morbius' conscious and the plastic educator in *Forbidden Planet* and the robotic insect in *The Matrix* that melts together with the human body. We find this continuity remarkable because science is still some way off from recreating things such as automatic artificial limbs.

Six robots in these films had a human-like appearance (androids). This is another continuity over all the films. Starting with Maria in *Metropolis* to Robby in *Forbidden Planet* and David in *A.I.* there were robots that looked like humans. This is interesting considering the debate of robotic engineers about how human-like a robot can look like and still be accepted. Our results contradict with the statement of some scholars that this depends on the generation.²¹⁵ Our results clearly show that acceptance of robots is not related to generation.

Also continuous over all the periods is the appearance of robots in form of tools (7).

Continuity in the ambivalence: utopia-dystopia

We argue that there is ambivalence in the human-robot relationship. All robots in the films had utopian elements. With three exceptions also all the robots were associated to at least one dystopian element.

The exceptions are all gadgets such as the electronic window opener in *Forbidden Planet* or the self-speaking computer in *2001: A Space Odyssey*. It is striking that all these exceptions also had the role of a servant in the end of the films. They did not make the transformation from utopia to dystopia as discussed above. We assume that there is a connection: These robots were in the role of the servant the whole film. That is why they also did not have any dystopian elements.

²¹⁵ Hamilton, 'The 'uncanny valley' and spectating animated objects', 60-69.

Aside from these exceptions all robots showed utopian as well as dystopian elements. We can therefore already conclude that there is continuity in an ambivalent human-robot relationship in terms of utopian and dystopian elements.

One could expect that these elements would complete each other, but the opposite is the case. They contradict each other. For example, it is striking that several robots that are associated with bringing more jobs are also associated with bringing less jobs. We think that this contradiction exists because in the beginning of the film the efficiency and working speed of the robots are regarded as a great opportunity for the human figures to spend more time with other things, but eventually they realize that the robots replace them. An example is the machine in *The Matrix* that takes out the insect of Neo’s stomach, a tool essentially removing the need for surgeons.

Remarkable is also that we could identify a continuing combination of ambivalent elements: utopian productivity and dystopian decline of humanity. We could identify this combination in the form of one robot in all periods: The energy machine in *Algol*, HAL in *2001: A Space Odyssey* and the robotic soldiers in *The Matrix*. Thus, the ambivalent view of robots that promote productivity but also endanger humanity seems to show continuity.

Particularly interesting is the interpretation of the roles of robots because we can identify a strong continuing pattern. In the beginning of the film nine robots had the role of servants, six were friends, three were enemies and two sex objects. This changed during the films. In the end there were five servants, four friends and eleven enemies. We can draw two remarkable conclusions from this result: a) most robots that were friends in the beginning of the films were still friends with the humans in the end of the films and b) in the course of the film many robots that were servants and all robots that were sex objects in the beginning became enemies of the humans.

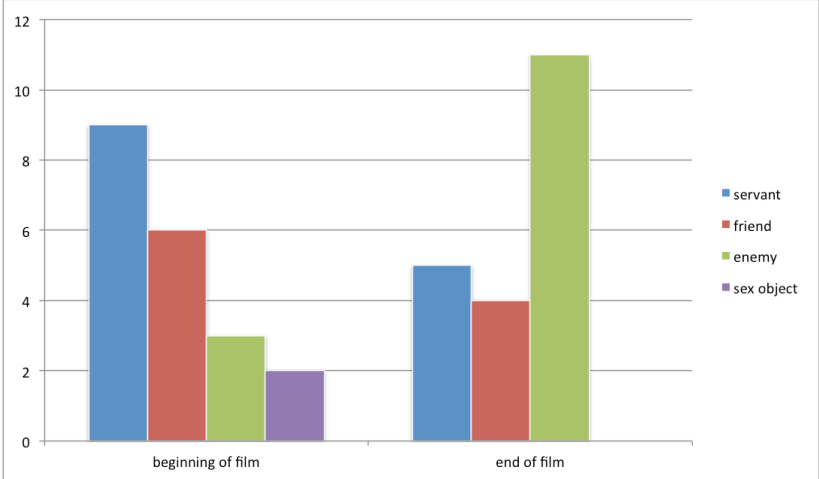


Illustration 4: roles of robots

This development can be observed in all three timeframes. In the Machine Age, for example, the energy machine is first embraced and loved, but soon destroys Henre's whole life. In the Space Age, we can best observe this transition on the base of HAL. At the start of the mission the computer is celebrated and can even give interviews. In the end of the film it kills one astronaut and almost destroys the whole mission. And in *A.I.* we see this transition in the attitude of the humans shown towards the robots David and Joe. First they love David as a child and use Joe as a sex object, but in the end of the film they are scared of the robots and want to destroy them.

We also observed the strong utopian-dystopian ambivalence in the human-robot relationship also in two other points: the dividing of the world into utopia and dystopia. Even though we did not analyse these aspects with the content analysis we still observed it in the films and discussed them in the chapters. Now we see that there is also continuity.

In all the analysed films the worlds are divided into utopia and dystopia. How exactly this is done depends on the style of the filmmaker. In *Metropolis* it is underground (dystopia) and skyscrapers (utopia). In *Algol* the use of light demonstrates the utopian and the dystopian places. In *Forbidden Planet* we see dystopia on the planet and utopia in the space ship. In *2001: A Space Odyssey* utopia as well is in the space shuttle and dystopia outside of it. In *the Matrix* the virtual Matrix is the utopian world with a clean, well-working city with pretty and successful people. But the reality is the dystopian world, a dark, destroyed city where machines have the power. In *A.I.* we can observe the dividing as well between the home and the city.

To sum up, we observed a continuing ambivalent relationship in terms of time (transition of the role of the robot in course of the film) and place (dividing into two worlds). Moreover, there is continuity in the combination of the utopian vision and the dystopian vision. That what Žižek calls the 'parallax gap'²¹⁶ we can also see in our analysis. No robot is purely neutral. Almost all, however, have several utopian and dystopian associated at the same time and these elements often contradict with each other. Furthermore, there are the continuing utopian visions: More productivity, improvement of lifestyle, improvement of knowledge (science) and more safety. And the continuing dystopian visions: Destroyer of individuality/unity, decline of humanity, destroyer of safety and less jobs. Other continuing visions of robots are: that the humans in the films seem to be used to the robotic technologies,

²¹⁶ Žižek, *The Parallax View*, 4.

that the robots can have a human-like appearance and that we found robots in the form of cyborgs in all time periods.

In the sub-chapter ‘The historical continuity approach’ we have discussed the two positions in the debate about continuity in the attitude towards technology. The purpose of this paper was to show the continuity in utopian and dystopian elements of the human-robot relationship in films of the last century.

The results presented above give evidence for the continuity of several aspects. Some elements of the image of the robot in films remain the same despite the real world changed massively in these hundred years. Just as Gerschenkron says: “the stability of certain elements in an otherwise changing world”²¹⁷.

Our results correspondent with the argument of Mosco that the attitude towards technology is continuous no matter what technologies were just introduced.²¹⁸ And scholars like Geraci would agree with our results showing a great ambivalence in the relationship between human and robot in the films.²¹⁹

However, our results do not perfectly match with the findings of Ruge. He analysed the ‘mise en scène’ of robots in films. He concludes that in the course of the century there is a shift in the image of the robot from the “single pieces” to the “threatening mass”.²²⁰ However, we have to consider two things when looking at this difference. Firstly, Ruge analysed technical elements such as the use of light and the film sets whereas we focussed on the content. Secondly, our results are based on the continuity of the utopian and dystopian elements and not as with Ruge on criteria such as the human-like appearance or the acceptance of the robot. To conclude, we shall not forget that the results show what filmmakers did and how they imagined the future.

The graphs on the following page show the continuities in utopian and dystopian elements. We calculated what percentage of the robots in each period was associated with the elements in order to make a comparison.

²¹⁷ Gerschenkron, Alexander (1962), ‘On the Concept of Continuity in History’, in: Proceedings of the American Philosophical Society, Vol. 106(3), 195-209, here 195.

²¹⁸ Mosco, *The Digital Sublime*, 117-140.

²¹⁹ Geraci, ‘Robots and the Sacred in Science and Science Fiction’, 4-6.

²²⁰ Ruge, *Roboter im Film*, 156-157.

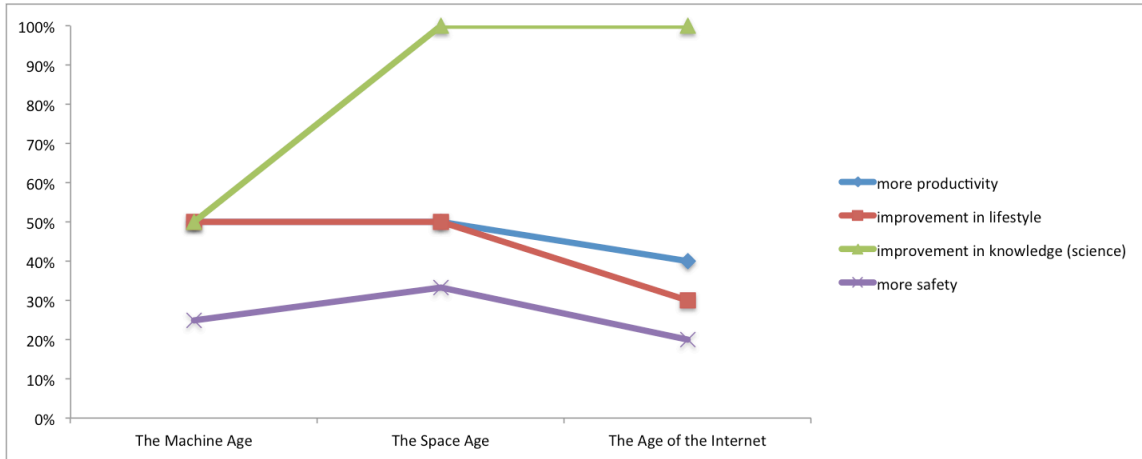


Illustration 5: continuity in utopian elements

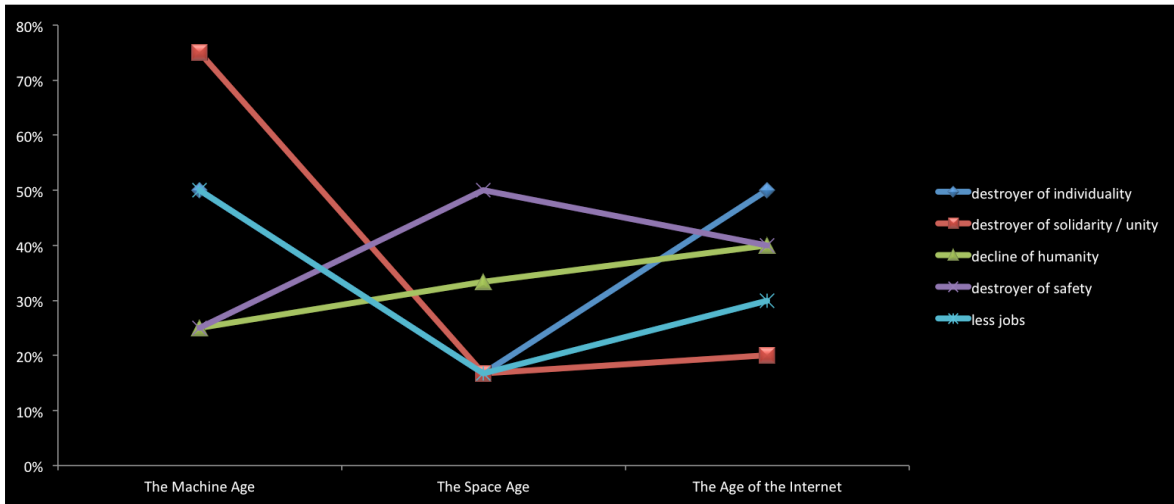


Illustration 6: continuity in the dystopian elements

Conclusion

Do robots in films represent a continuous view of utopia or dystopia? This was the core of this paper. In the course of this master thesis we have discussed the research done about the robot-human relationship and plunged into the current debate about continuity in the attitude towards technology. On the base of six films between 1920 and 2001 we analysed the utopian and dystopian elements associated to robots in science fiction. We selected *Metropolis*, *Algol*, *Forbidden Planet*, *2001: A Space Odyssey*, *The Matrix* and *Artificial Intelligence (A.I.)*.

The analysis provided evidence that the robots in films are associated with continuous utopian as well as dystopian elements. The most dominant aspects were the improvement of lifestyle and robots that bring more productivity and safety. But there was always also a dark side to the robotic machines in the films. Robots would destroy individuality and humanity. That is what these films showed continuously.

With this paper we can also support the idea of a continuing ambivalence in regard to the human-robot relationship in the Euro-American cinema. Being divided in dark and bright the worlds in these films show utopia and dystopia in a very extreme and distinguishable way. There is no neutral ground, as Žižek calls it, the ‘parallax gap’²²¹. Moreover, the analysis showed the transition from utopia and dystopia in the course of the films. Being embraced and celebrated in the beginning of the plots, the robots were seen as threatening monsters in the end. Often only their destruction can save humanity.

The debates about the utopian and dystopian potential of new technologies will go on. And as ambivalent as it will be in real life, as ambivalent filmmakers will show it in their artworks. As a little outlook, we dare to say that the human-robot relationship in films of the beginning of the 21st century would probably show similar patterns as we have seen in this paper. Thus, there would be potential for more research. Or in the words of Robby the Robot in *Forbidden Planet*: “Quiet please. I’m analysing”.

²²¹ Žižek, *The Parallax View*, 4.

Bibliography

Primary Sources:

2001: A Space Odyssey, 1968. Film. Directed by Stanley KUBRICK. USA: Metro-Goldwyn-Mayer.

Algol. 1920. Film. Directed by Hans WERCKMEISTER. GE: UFA.

Artificial Intelligence (A.I.), 2001. Film. Directed by Steven Spielberg. USA: DreamWorks Pictures.

Forbidden Planet, 1956. Film. Directed by Fred M. WILCOX. USA: Metro-Goldwyn-Mayer.

Matrix, The, 1999. Film. Directed by The Wachowski Brothers. USA/Australia: Warner Bros. Pictures.

Metropolis, 1927. Film. Directed by Fritz LANG. GE: UFA (Universum Film A.G.).

Secondary Sources:

Arthur, Charles (2013), 'Google Glass: Is It a Threat To Our Privacy?', in: *The Guardian* (6.3.14), url: <http://www.theguardian.com/technology/2013/mar/06/google-glass-threat-to-our-privacy> (16.6.14).

Assmann, Aleida (2006), *Der lange Schatten der Vergangenheit. Erinnerungskultur und Geschichtspolitik*. C.H. Beck, München.

Bartky, Sandra L. (2002), *Sympathy and Solidarity: and Other Essays*. Rowman & Littlefield Publishers, Oxford.

Berelson, Bernard (1952), *Content Analysis in Communication Research*. Free Press, New York.

Berger, Arthur A. (2012), *Media Analysis Techniques*. Fourth edition. Sage Publications, California.

Bergvall, Åke (2012), 'Apocalyptic Imagery in Fritz Lang's *Metropolis*', in: *Literature Film Quarterly*, Vol. 40(4), 9-13.

Bizony, Piers (2013), 'An Odyssey Into the Future', in: *Engineering & Technology*, Vol. 8(8), 48-51.

Björnberg, Karin Edvardsson (2008), 'Utopian Goals: Four Objections and a Cautious Defense', in: *Philosophy in the Contemporary World*, Vol.15(1), 139-154.

Bohn, Anna (2013), *Denkmal Film. Band 1. Der Film als Kulturerbe*. Böhlau, Wien/Köln/Weimar.

- Čapek, Karel (2001), *R.U.R. Rossums Universal Robots*. Dover Publications, Mineola.
- Corbett, Claire (2014), 'The Last Space Waltz', in: *Overland* (214), 42-49.
- De Fren, Allison (2009), 'Technofetishism and the Uncanny Desires of A.S.F.R. (alt.sex.fetish.robots)', in: *Science Fiction Studies*, Vol. 36(3), 404-440.
- Encyclopaedia Britannica (2015), 'History of Motion Pictures', url: <http://www.britannica.com/art/history-of-the-motion-picture#508075.hook> (14.07.15).
- Fiechtner, Stephanie / Gertsch, Franziska (2014), *Kontinuierliche Fernsehprogramm forschung in der Schweiz: Die Programme der SRG SSR*. Zusammenfassender Schlussbericht. Universität Fribourg, url: www.bakom.admin.ch/themen/radio_tv/01153/01156/04513/index.html?lang=de&download=NHZLpZeg7t,Inp6l0NTU04l2Z6ln1acy4Z2qpnO2Yuq2Z6gpJCDfXt,gmym162epYbg2c_JjKbNoKSn6A-- (10.07.2015).
- Früh, Werner (1998), *Inhaltsanalyse: Theorie und Praxis*. UVK Medien, Konstanz.
- Freeman, Christopher (1985), *Die Computerrevolution in den langen Zyklen der ökonomischen Entwicklung*. Carl Friedrich von Siemens Stiftung, München.
- Geraci, Robert M. (2007), 'Robots and the Sacred in Science and Science Fiction: Theological Implications of Artificial Intelligence', in: *Zygon*, Vol. 42(4), 961-979.
- Gerschenkron, Alexander (1962), 'On the Concept of Continuity in History', in: *Proceedings of the American Philosophical Society*, Vol. 106(3), 195-209.
- Graham, Elaine. L (2002), *Representations of the Post/Human. Monsters, Aliens and Others in Popular Culture*. Manchester University Press, Manchester
- Harvey, David (1989), *The Condition of Postmodernity – an Inquiry into the Origins of Cultural Change*. Blackwell, Oxford.
- Halbwachs, Maurice (1985), *Das Gedächtnis und seine sozialen Bedingungen*. Suhrkamp Verlag, Frankfurt.
- Hamilton, James R. (2015), 'The 'uncanny valley' and spectating animated objects', in: *Performance Research*, Vol. 20(2), 60-69.
- Hickethier, Knut (2001), *Film- und Fernsehanalyse*. Dritte Auflage. Metzler, Weimar.
- Höltgen, Stefan (2009), 'Mensch-Maschinen', in: *Telepolis*, url: <http://www.heise.de/tp/r4/artikel/31/31773/1.html> (07.07.15).
- Hudson, Pat (2000), *History by Numbers. An Introduction to Quantitative Approaches*. Arnold, London.
- Hughes, Rowland (2013), 'The Ends of the Earth: Nature, Narrative and Identity in Dystopian Films', in: *Critical Survey*, Vol.25 (2), 22-39.

- Huysen, Andreas (1982), 'The Vamp and The Machine', in: *New German Critique*, Vol. 24(3), 221-237.
- Johnston, Keith M. (2011), *Science Fiction Film. A Critical Introduction*. Berg, London/New York.
- Katz-Kimchi, Merav (zj), *Historicizing Utopian Popular Discourse on the Internet in America in the 1990s: Positions, Comparison, and Contextualization*. Office for History of Science and Technology, UC Berkeley.
- Kaveney, Roz (2005), *From Alien to the Matrix*. I.B. Tauris. London/New York, 3.
- Klass, Morton (1983), 'The Artificial Alien: Transformations of the Robot in Science Fiction', in: *Annals of the American Academy of Political and Social Science*, Vol. 470, pp. 171 – 179.
- Korte, Helmut (1999), *Einführung in die Systematische Filmanalyse*, Erich Schmid, Berlin.
- Kurzweil, Ray (2005), *The Singularity is Near: When Humans Transcend Biology*. Penguin Group, New York.
- Lee, Joseph G. L. / Agnew-Brune, Christine B. / Clapp, Justin A. / Blosnich, John R. (2014), 'Out Smoking on the big Screen: Tobacco Use in LGBT Movies, 2000-2011', in: *Tobacco Control*, Vol. 23(1), 156-158.
- Levitas, Ruth (2001), *The Concept of Utopia*. Peter Lang AG, Bern.
- Marcuse, Herbert / Kellner, Douglas / Pierce, Clayton (2014), *Marxism, Revolution and Utopia*. Collected Papers of Herbert Marcuse. Routledge, Oxon/New York.
- Marx, Leo (2010), 'Technology: The Emergence of a Hazardous Concept', in: *Technology and Culture*, 51(3), 561-577.
- Mattelart, Armand (2011), *L'invention de la communication*, La Découverte, coll. Poche, Paris.
- Marvin, Carolyn (1988), *When Old Technologies Were New – Thinking About Electric Communication in the Late Nineteenth Century*. Oxford University Press, New York.
- Mendelsohn, Everett / Nowotny, Helga (1984), *Nineteen Eighty-Four: Science Between Utopia and Dystopia*. Reidel, Dordrecht.
- Merriam Webster Dictionary (2015), 'Robot', url: <http://www.merriam-webster.com/dictionary/robot> (10.7.2015).
- Mieczkowska, Suzanne (2004), 'Book Review: the Digital Sublime by Vincent Mosco', in: *Prometheus*, Vol. 22 (4), pp. 464-467.
- Mikos, Lothar (2003), *Film- und Fernsehanalyse*. UVK Verlagsgesellschaft. Zürich.

- Miller, Edward (2000), 'The Matrix and the Medium's Message', in: *Social Policy*, Vol. 30(4), 56-59.
- Mosco, Vincent (2005), *The Digital Sublime – Myth, Power, and Cyberspace*. The MIT Press, Cambridge.
- National Film Preservation Board (2015), url: <http://www.loc.gov/programs/national-film-preservation-board/film-registry/complete-national-film-registry-listing/> (18.07.15).
- Niku, Saeed B. (2011), *Introduction to Robotics*. John Wiley & Sons Inc., Denver.
- Nourbakhsh, Illah R. (2015), 'The Coming Robot Dystopia', in: *Foreign Affairs*, Vol. 94(4), 23-28.
- Ohler, Norbert (1980) *Quantitative Methoden für Historiker*. Beck. München.
- Oxford Dictionary (2015), 'dystopia', url: <http://www.oxforddictionaries.com/definition/english/dystopia> (03.07.2015).
- Oxford Dictionary (2015), 'utopia', url: <http://www.oxforddictionaries.com/definition/english/utopia> (03.07.2015).
- Peters, John D. (1999), *Speaking into the Air – a History of the Idea of Communication*. The University of Chicago Press, Chicago.
- Pike, David (2013), 'Headlong Into Futurity', in: *History and Technology*, 29 (3), pp. 229-246.
- Recht, Marcus (2002), *Homo Artificialis. Androiden- und Cyborg-Konzepte am Beispiel der Science Fiction Serie Star Trek*. Akademikerverlag, Saarbrücken.
- Reeves, Byron / Nass, Clifford (1996), *The Media Equation*. Cambridge University Press, Cambridge.
- Romanowski, Michael H. (2009), 'What you don't know can hurt you: Textbook Omissions and 9/11', in: *Clearing House*, Vol. 82(6), 290-296.
- Rosenstein, Robert A. (1995), *Revisioning History. Introduction*, in: Rosenstein, Robert A. (Ed.), *Revisioning History. Film and the Construction of a New Past*. Princeton University Press, New Jersey.
- Rössler, Patrick (2005), *Inhaltsanalyse*. UVK Verlagsgesellschaft, Konstanz.
- Ruge, Wolfgang (2012), *Roboter im Film. Audiovisuelle Artikulationen des Verhältnisses zwischen Mensch und Technik*. Ibidem, Stuttgart.
- Scheurer, Timothy E. (1998), 'The Score for 2001: A Space Odyssey', in: *Journal of Popular Film and Television*, Vol. 25(4), 172-183.
- Segal, Howard P. (1985), *Technological Utopianism in American Culture*. The University of Chicago Press, Chicago.

- Segal, 'The Cultural Contradiction of High Tech', 200-216.
- Sesslen, Georg / Jung, Fernand (2003), *Science Fiction. Geschichte und Mythologie des Science-Fiction-Films*. Marburg, Schüren.
- Šmihula, Daniel (2010), 'Waves of Technological Innovations and the End of the Information Revolution', in: *Journal of Economics and International Finance*, Vol.2 (4), 58-67.
- Sterrit, David (2009), 'Spielberg, Iconophobia, and the Mimetic Uncanny', in: *New Review of Film and Television Studies*, 51-65.
- Stoicea, Gabriela (2006), 'Re-Producing the Class and Gender Divide: Fritz Lang's Metropolis', in: *Women in German Yearbook* (22), 21-42.
- Telotte, J.P. (2001), *Science Fiction Film*. Cambridge University Press, Cambridge.
- Todorov, Tzvetan (1975), *The Fantastic: A Structural Approach to a Literary Genre*. Cornell University Press, Ithaca.
- Trebbe, Joachim / Grossenbacher, René (2009), *Qualität in Radio und Fernsehen*. Rüegger, Zürich/Chur.
- Trutnau, John-Paul (2005), *Metropolis and Its Influence on the American Science Fiction Film*. Die blaue Eule, Essen.
- Van der Laan, J.M. (2006), 'Machines and Human Beings', in: *Bulletin of Science, Technology & Society*, Vol. 26(1), 31-37.
- Wierzbicki, James (2005), *Louis and Bebe Barron's Forbidden Planet: a film score guide*. Scarecrow Press, Oxford.
- Žižek, Slavoj (2006), *The Parallax View*. MIT Press, Cambridge.

Appendix A

Codeplan for the film analysis

Categories A: formal categories

Category A1: Film

Metropolis	1	2001: A Space Odyssey	4
Algol	2	Matrix	5
Forbidden Planet	3	Artificial Intelligence	6

Category A2: Number of the robot

This starts with the first robot in Metropolis and the counting will go on until the last robot appearing in A.I.

Categories B: Utopian and dystopian elements

Here we analyse the appearance of utopian and dystopian elements in the films.

Category B1: Utopian elements

Improvement in health	1
Improvement in knowledge (science)	2
General betterment of the world	3
Unification of a nation or the whole earth	4
Solidarity	5
World peace	6
Abolishment of loneliness	7
New jobs	8
Global understanding	9
Equality	10
Individuality and self-expression	11
New communities	12
More productivity	13
Improvement of lifestyle	14
More safety	15
Others	16

Category B2: Dystopian elements

Destroyer of culture / dehumanization	1
---------------------------------------	---

War (Destroyer of world peace)	2
Destroyer of knowledge	3
Destroyer of individuality	4
Destroyer of safety	5
Less jobs	6
General decline of the world or humanity	7
Destroyer of unity	8
Destroyer of solidarity	9
Makes us unsocial and lonely	10
Pressure and stress	11
Others	12

Categories C: Interaction with the robot

Category C1: First encounter of the human with the robot:

Surprised	1	Intrigued	5
Curious	2	Glad	6
Anxious	3	Used to it (routine)	7
Scared	4	Neutral	8
		Amazed	9

Category C2: Role of the robot in the beginning of the film:

Servant	1	Enemy	3
Friend	2	Sex object	4

Category C3: Role of the robot in the end of the film:

Servant	1	Enemy	3
Friend	2	Sex object	4

Category C4: Relationship between human body and robot

Cyborg (fusion with the human body)	1
Gadget (extension of human body)	2
Tool	3
Android (human-like)	4
Completely external	5

Content analysis: human-robot relationship

A1 (Film)	A2 (No.)	Description	Utopian elements			dystopian elements			C1	C2	C3	C4
			B1.1	B1.2	B1.3	B2.1	B2.1	B2.3				
1	1	1 Rotwang's robotic cyborg hand	1	2	14	6	4	8	7	1	1	1
1	2	2 Robot Maria	2	7		5	4	8	2	4	3	4
1	3	3 Working machines	13	15		4	9	11	7	1	3	5
2	4	4 Energy machine	3	13	14	6	8	7	5	1	3	3
3	5	5 Electronic window opener	2	14	15				1	1	1	2
3	6	6 Robby the robot	2	13	15	5			3	2	2	4
3	7	7 Morbius conscious and the educator	2	7		7	5	11	5	1	3	1
4	8	8 self-speaking computer	2	14	15	4			7	1	1	3
4	9	9 HAL	2	13	15	5	7	8	7	2	3	3
4	10	10 electronic food machine	2	13	14	6			7	1	1	3
5	11	11 human slaves as energy source	2	13	12	2	5	7	4	1	3	1
5	12	12 robot insect	2			2	5	11	4	3	3	3
5	13	13 machine to take out insect	2	8	13	4	6		3	1	1	3
5	14	14 robotic soldiers	2	5	13	2	5	7	4	3	3	5
5	15	15 Huge robot spiders	2			2	5	7	4	3	3	5
6	16	16 Teddy, the robot bear	2	7	14	4	9	8	7	2	2	3
6	17	17 Sheila, android in the beginning	2	8	13	4	4	11	5	2	2	4
6	18	18 David, the robot child	2	7	14	6	4	4	4	2	3	4
6	19	19 Highly intelligent mecha	2	4	12	4	10	4	4	2	2	4
6	20	20 Joe, robot prostitute	7	14	2	1	6	10	7	4	3	4

Appendix B: analysis

Appendix C: List of illustrations

- a) Cover photo: Screenshot from *Metropolis*
- 1) Illustration 1: number of robots in films
- 2) Illustration 2: overall utopian elements in films
- 3) Illustration 3: overall dystopian elements in films
- 4) Illustration 6: role of robots
- 5) Illustration 4: continuity in utopian elements
- 6) Illustration 5: continuity in dystopian elements