Animation Comes to Life: Anthropomorphism & Wall-E

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Abstract

This study examines the use of anthropomorphism in computer-animated feature films, and seeks to explain how the protagonist is anthropomorphised in the film *Wall-E* (2008). Anthropomorphosis is examined in order to discover the ways in which it is achieved through narrative conventions, as well as the visual and aural aspects of film. Moving on to a detailed discussion of robots in film, it places *Wall-E* within the context of films that portray robots as either having, or being void of, human sensibilities. The taxonomy of gesture and movement that is used in silent films appears in *Wall-E*, and this is compared and contrasted with its use in a largely silent computer-animated environment. *Wall-E* is then investigated as a case study for the use of anthropomorphism in computer-animated film.

Chapter 1: Introduction

The aim of this study is to investigate the narrative functions, characterisation and visual techniques that contribute to anthropomorphosis. As discussion of this topic in film studies is sparse, my approach utilises the tools and taxonomy of literary theory, drawing upon and adapting the principles of Propp's narrative framework to film. This is appropriate since animated narratives are frequently adapted from, or direct interpretations of, the folktale and other classic narrative forms. Narratives are evolving and the animation medium allows for a spectacular journey in which the semiotics are clear, direct and multiple. Every detail placed on screen has a specific reason and motive. These innovations in technique contribute to anthropomorphosis and pique empathy and identification.

This thesis will examine how anthropomorphosis is achieved in animated film. David A. Price, author of The Pixar Touch said that, "Pixar films reach whole audiences because they know how to make characters that are appealing to children and then give them adult problems" (Quoted in Onstad, New York Times, 2008: 2). In this way the approach is comparable to an auteur approach, as Pixar has a clearly defined aesthetic style and builds upon its previous achievements with each new film. Pixar features also share thematic concerns, such as alienation and abandonment of the hero. Having strayed from simply human and basic animal-like characters, Pixar treats anthropomorphosis in a different way than other studios - one that is both visually complex and narratologically in-depth.

To address anthropomorphism, we must focus largely on non-human protagonists. Pixar feature films use an array of super-human and non-human characters in lead roles, but one stood out: the Waste Allocation Load Lifter Earth-Class, or Wall-E. What makes Wall-E interesting is that this mechanical robot was not conventionally anthropomorphised to look like a human (like, for

example, the characters in *Robots* (2005)). Wall-E's huge, binocular shaped eyes and mechanical yet human-like grip hands stand out most, as expressive eyes and hands are central to anthropomorphic animation. What is different about Wall-E, though, is his lack of full facial expressions and a mouth, as well as the treads used to replace legs or feet.

While our primary source is the film *Wall-E*, other films that cultivated the understanding that shaped this argument include the aptly named *Robots* (2005), *Silent Running* (1972), and *Artificial Intelligence: AI* (2001). Studying these films also lends itself to a brief commentary on the evolution of Wall-E's figure and the anthropomorphosis of robots in film.

Since literary theory will be applied and adapted, I consulted a keystone work on narrative theory: Propp's *Morphology of the Folktale* (1927). Assuming that Wall-E is the protagonist of the piece, he will be discussed primarily as the hero. *Morphology of the Folktale* thus becomes the basis for examining Wall-E's narrative functions. While this is a fairly traditional approach to films with classical narratives, the morphology addresses the functions of many types of mythical and magical creatures. Therefore the function of this analysis is to examine and seek to explain *why* and, more importantly, *how* these conventions can be applied to a non-human, non- organic, computer-animated character. The unlikely hero will be pared down to the basics in order to reveal the ways in which he is constructed in order to become more than the sum of his parts.

Chapter 2: Literature Review

The intention of this study is to examine contemporary animation and its techniques in order to identify how anthropomorphosis is achieved through narrative functions, characterisation, identification with the hero, and visual storytelling techniques. Although cel animation will be referenced, the main concern of this study is to investigate the narrative form and anthropomorphosis in contemporary, mainstream computer-animated films. This argument pertains particularly to feature-length animated films from some of the commercial studios in Western, English-speaking culture at this time.

Literature on animation in general is often limited by its focus on visual techniques. Michael O'Pray (1998) claims that computer animation "mimics the realist aesthetic of mainstream live-action film" (1998: 435). While this statement is true in terms of visual techniques, as will be discussed in later chapters, this claim completely disregards the art of animation. Animation re-creates life not as we experience it, but in a way that adheres to the rules of its own aesthetic story-world. When animated characters imitate real life closely but imperfectly, we come up against what Mori (1970: 33) calls 'the uncanny valley of eeriness' (fig. 1) making the character seem out of place, therefore limiting our ability to identify with the character. The "realist aesthetic" O'Pray describes is achieved through stylised means. Although he briefly alludes to the relationship between animated films and fairy-tales, O'Pray merely establishes that animation as a mode of film-making suffers from lack of analysis and serious thought. While it is true that animation follows a live-action aesthetic, its ability to convey the same messages through narrative without being hindered by its visual appearance is never addressed nor explored. This study will look at how, through narrative and visual means, the animators create a visually impressive story-world that communicates its themes and messages without drawing attention away from the narrative.

Lord and Sibley (Cracking Animation, 2004) focus on the visual creation of anthropomorphosis, using Wallace and Gromit as examples to explicate how characters evolve to become more anthropomorphised. While it seems obvious that Wallace - a human character - would be anthropomorphised, characterisation is also added through the movements of his face. "Eee" sounds are accentuated with the outward extension of his cheeks. By exaggerating his facial movements up and outwards emotion is expressed, visually inferring a more intangible expression of character.

Since he does not speak, Gromit's anthropomorphosis is mainly visual and communicated through facial expressions. Gromit's expressions are primarily achieved by attracting attention to his brow and his ears. The book details the evolution of Gromit's face: his brow has become larger, making it more expressive as it can take on more shapes and permutations, thereby creating the potential to impart more individual emotions and thought processes. His ears are also important as the speed and amount by which they lift, drop, move from side to side, and so on, create gestures that inform the viewer as to what Gromit is thinking or feeling. Rather than using his paws, for example, Gromit can flop forwards with fatigue or signal disappointment using only his ears. Together, his ears and brow create a great taxonomy of gesture with countless combinations. Using these examples as a guide can help to explain how Wall-E is anthropomorphised to such great effect.

While much literature on the subject of animation demonstrates the artistic ingenuity of animation, this study seeks to complement his ideals by taking a more sophisticated approach and examining how the mainstream animators captivate audiences through anthropomorphism and narrative in addition to the visual filmmaking techniques.

Stephen Jay Gould's study of the evolution of Mickey Mouse can help us to understand the relationship between juvenile features and anthropomorphism. In 'A Biological Homage to Mickey Mouse' (1980), he provides a timeline of Mickey Mouse's appearance, stating that "over the years, his appearance became more youthful... a larger relative head size, larger eyes, and an enlarged cranium--all traits of juvenility" (1980: 102). Gould also argues that, "When we see a living creature with babyish features, we feel an automatic surge of disarming tenderness" (1980: 102). Juvenile features attract tender feelings, therefore arousing empathy and identification. As we will see later, Wall-E's enlarged cranium consists solely of his large, expressive eyes, making him appear juvenile and contributing to empathy and anthropomorphosis. Still, these discussions from Lord and Sibley (2004) and Stephen Jay Gould are based solely upon visual representations and do not go into concepts of narrative.

Throughout the film, we get to know the characters by sharing their experiences, understanding situations, and empathising with his or her emotions. Ultimately, we project our own imagination and personal emotions onto the film, and this makes the character come to life for us more than the drawing itself ever could (Thomas & Johnston, 1995: 19). Propp's *Morphology of the Folktale* addresses the actions of the hero and the narrative functions that he goes through in order to reach his goal or restore equilibrium.

Propp's analysis is limited to the narratives of his time and spectrum. Nevertheless, his methods are still relevant as they can be applied readily to film. These forms are perhaps most similar to the classical narrative forms of animated features, especially the fairytales. *Morphology* is a strong basis for any argument about construction of character, plot functions, and modes of storytelling. Western thinking and longstanding traditions in narrative functions can be addressed with reference to Propp's work in order to account for the evolution of the folktale and fairytale

narratives. In addition, this study aims to use *Morphology of the Folktale* as a basis for understanding the narrative functions that help us to identify with the hero and to achieve and enhance anthropomorphosis.

From another narrative and literature studies perspective, Suzanne Keen's 'A Theory of Narrative Empathy' (2006) explores the concept of empathy, and the ways in which we might experience empathy for fictional characters. She notes that, while reading fictional literature, what she calls "cognition" occurs. This happens when the reader reminds him or herself that the story is fictional, and therefore become distracted from his or her identification with the story and its characters (Keen, 2006: 213). In animated film, then, due to the visual aesthetic adopted there are even more barriers that must be broken down in order for audiences to identify with the characters.

While Keen focuses on literary theory, Chaminade, Hodgins and Kawato's study 'Anthropomorphism influences perception of computer-animated characters' actions' (2007) investigates the visual corollary of Keen's theory by investigating the perceptual differences between biological and mechanical running motion. One running motion was configured through actual human movement, measured at key points in the human body. The other used the same key points to render, through computer animation, a mechanical version of this running movement. In short, Chaminade et al found that the more they anthropomorphised the running characters, the more likely the study's participants were to consider it a 'mechanical' computer-rendered motion rather than 'biological' human motion. So, on one side we have the literary concept of cognition, which affects the reader's ability empathise with a character they know to be fictional. On the other, we have an anthropomorphised computer-generated character that people have found to be disturbing or odd because it attempts to imitate real life and falls into Mori's "uncanny valley".

Both studies essentially argue against, or at least highlight the difficulties of, a human's ability to identify with characters that we know to be fictional. These characters are often flawed imitations of the real life movements and emotions of humans. Therefore one intention of this study is to illustrate the barriers that prevent audience identification, whether due to our awareness that the film is fictional or because the representations of life on screen lack verisimilitude. Since visual aspects of animated film are stylised, we understand the story worlds as "fantastic dimensions" that serve as a metaphor for reality (Finch, 1975: 109), rather than a reproduction of life itself. Chapter 3 will discuss, in detail, the ways in which animation overcomes these hurdles in order to achieve both anthropomorphism and character identification.

Anthropomorphism is defined in the Dictionary of Zoology (Oxford Reference Online, ed. Michael Allaby, 2009) as,

> The attribution of human characteristics to non-human animals, most commonly by supposing non-human behaviour to be motivated by a human emotion that might motivate superficially similar human behaviour.

While this definition focuses only on non-human animals, it is the most accurate definition for our means as it addresses an important factor: the supposition that the character's actions and emotions are intended to appear to be inherently like those of humans.

This definition links directly to identification as the audience is intended to connect with Wall-E, the anthropomorphised character, on a human level. In visual terms, "it was the audiences who selected the cute, round, anthropomorphic animals with rich personalities as the type of characters they liked best" (Thomas & Johnston, 1995: 509).

Animals are identified as being used to universalise the process of identification as they are "empathy-arousing objects in Western culture" (Crafton, 1982: 299). In Before Mickey, Crafton (1982: 4) states that the audiences of early cel animation "perceived in these animated drawings a personality... an individual with his own quirks of appearance and behaviour that distinguished him from all others." Many of these characters with individual personalities were anthropomorphic animals and the protagonists of short animations. As this type of animation became popular, series production "helped to articulate a vocabulary of gestures which would contribute to the definition of the character's personality" (1982: 272). Therefore, Crafton begins to define what it is that makes these characters sympathetic. However, he does not detail the taxonomy of gesture that was defined at this time. In order to glean a deeper understanding of how characters are anthropomorphised, we must first examine this taxonomy of gestures. As these gestures were created and maintained before sound came to pictures, they are deeply ingrained in animated film and we may assume that they are easily read by anyone who has ever watched a (silent) animated cartoon. What we must now examine is how these gestures evolved and are applied to non-animals. In this case, we are concerned with robots. This is discussed with regards to *Wall-E* in Chapter 5.

How is anthropomorphosis achieved? Which narrative techniques forge the audience's identification with the characters? Finch (1975) says of *Lady and the Tramp* (1955), that Disney made a "good job of grafting human personalities onto the main characters without losing the nuances of dog behaviour that were necessary if the story was to be convincing" (1975: 120). This balance is key to the creation of anthropomorphosis as the characters must have human characteristics with which we can identify, while still carrying the subtle movements, characteristics and attributes of animals. Thomas (1997) highlights that animal characteristics can also apply to human characters, because when Dopey was created (*Snow White and the Seven*

Dwarfs, 1937), Walt Disney instructed the illustrator to "make him a human with dog mannerisms and intellect" (1997: 68).

In *Disney's Illusion of Life,* Thomas and Johnson go on to discuss, in detail, exactly why and how anthropomorphosis is achieved. Thomas and Johnston state that Disney's "goal... is to make the audience feel the emotions of the characters, rather than appreciate them intellectually" (1995: 22). By "tapping the heart", Walt Disney sought to appeal to the widest audience in an emotional, rather than an intellectual, way (1995: 119). Therefore Disney was able to generate empathy and identification through anthropomorphosis. Thomas and Johnston assert that "[s]eldom is emotion established on the screen only through story, graphic art, or animation itself," (1995: 483), and go on to explain what visual techniques are used in order to make the anthropomorphised characters seem to think and feel. Animators at Disney have found that in order to communicate their characters' thoughts and feelings a thought process has to be shown. This is most commonly done through a change of expression (1995: 442). It is in reactions, rather than actions, that the characters interact with the story-world and appear to show emotion. As in the Wallace and Gromit example, their reactions become changes in facial expression that reveal character.

Walt in Wonderland (Merritt & Kaufman, 1993) cite Walt Disney's "genius for personality animation, comic invention and character design," and his "ability to graft selected gestures, features and behavioural traits... onto... animals for sentimental and comical effect" (1992: 24). While this refers to the traits of kittens and puppies being applied to barnyard animals, the same is true of human traits being applied to anthropomorphised animals and, in this case, a robot.

The case study of Wall-E aims to look into what human behavioural traits are applied to Wall-E that anthropomorphise him, as well as which gestures and movements that were defined in the

silent era still apply to our understanding of anthropomorphosis today. What we must seek now are contextual clues that can lead towards an explanation of why Pixar has come full-circle and returned to a largely non-dialogue picture.

Roy P. Madsen (1969: 103) identifies "appealing characters with attractive human qualities" as the key to sympathetic and identifiable characters that embody the idea being taught. Chapter 3 will look at the narrative and visual techniques that contribute to identification and empathy in order to achieve anthropomorphosis. We will discuss how robots are portrayed in film, the ways in which they are anthropomorphised, and how this has evolved in Chapter 4. Basic movements and codified gestures from the silent era can be seen in *Wall- E*, and Chapter 5 will examine the taxonomy of gesture used within the film and examines anthropomorphism in a case study of the film *Wall-E.*

Chapter 3: Anthropomorphosis in Practice

Anthropomorphosis is achieved in a number of ways in film. Narrative conventions are important in the process of anthropomorphosis as the characters perform functions that we perceive to be like the actions of a human. This chapter investigates which narrative functions are carried out by the hero, as well as visual aspects of non-human characters that define them as human-like. This chapter also deals with the problems involved in this process and the reasons why we are able to overcome our cognitive barriers and believe that the animated characters are real. Combined, the function of these techniques is to anthropomorphise a character and achieve audience identification.

Anthropomorphism in this study follows the definition outlined in the Literature Review. This definition will be applied to non-human characters in animated and live-action films that display attributes and behaviour onto which we bestow human importance. In *Morphology of the Folktale,* Propp identifies three categories of folktale: fantastic content, animal tales, and everyday tales (1927: 5). While films may cross boundaries in this regard, this study is primarily concerned with animal tales, as well as how they function in the same way as every day tales with anthropomorphised protagonists rather than humans. Propp states that "we can draw the inference that a tale often attributes identical actions to various personages." (1927: 20). Characters perform functions that are important to the narrative. These functions also contribute to anthropomorphosis. Therefore, the following examples are attributed to the construction of characters, as anthropomorphised characters tend to be of key importance to the plot.

As mentioned above, anthropomorphic animals were best liked by audiences (Crafton, 1982: 509) and, over time, became the norm for animation. Another reason for the proliferation of animal protagonists is that the animation of humans remained primitive, according to Thomas (1997: 70), until Disney's portrayal of humans in *Snow White and the Seven Dwarfs* (1937). Previous

techniques for animating humans included rotoscoping, and Photostats. However, when conveying human movement that sought to imitate "real life", the characters often seemed not to belong to the story-world that they inhabited, making it "impossible to become emotionally involved with this eerie, shadowy creature who was never a real inhabitant of our fantasy world" (Thomas & Johnson, 1995: 323).

In computer-animated narrative films, rotoscoping can create a sense of abnormality or what Mori (1970, cited in Chaminade et al: 206) calls the "uncanny valley of eeriness". Like Marionette dolls, these animated humans can seem soulless and unusual. Lacking the artist's touch, these representations remain flat. They lack emphasis and flair, failing to express the intangible intricacies of movement - as discussed in the Wallace and Gromit example - that define character. Therefore, in time, in the Disney Studio a "gentle caricature" was employed in drawing humans (Finch, 1975: 71), making them seem more realistic as part of the story-world. The aim is for characters to be part of a story-world that is separate from - but in most cases similar to - what we deem to be real life. Thus the story-world exists as its own dimension with its own set of rules, and the characters exist happily within it.

Why is it that we are able to connect with a story-world that we know to be fictional? Finch states that these stories unfold in a "fantastic dimension which we recognise as a metaphor for reality rather than as a naturalistic portrayal" (1972: 107). Therefore, the characters and the story-world represent real life in some way. Animated films simplify recognisable aspects of our real lives, and distil these issues, emotions, and experiences down into one story that we can relate to and enjoy. In doing this, the most human concepts and emotions are brought to the foreground for optimum empathetic effect. While a "gentle caricature" is employed for human characters, the story-world becomes a caricature of realism. "Audiences have to be impressed, absorbed, involved,

taken out of themselves, made to forget their own worlds and lose themselves in ours for cartoons to succeed" (Thomas & Johnson, 1995: 35). In the same way that we can accept that characters belong to their own dimension, the rules of the story-world - though different than our own - can be understood.

In such an aesthetic medium, visual elements are key and must work alongside narrative in order for the audience to connect with the characters. Anthropomorphic characters are seen as cute, funny, and often more "real" than their human counterparts (Crafton, 1982: 290). Stephen Jay Gould has investigated how Mickey Mouse's appearance has evolved. As mentioned before, he found that Mickey Mouse became increasingly juvenile in appearance, with his big eyes, his large, sloping forehead, and his thickened snout (Gould, 1980: 100). Gould attributes our liking for young looking characters to our own neoteny. We, as humans, maintain juvenile characteristics into adulthood, and are therefore, "fooled by an evolved response to our own babies... we transfer our reactions to the same set of features in other animals" (Gould, 1980: 102).

Gould therefore allows us to begin to understand why it is that we are able to accept non-human characters in animation in the same way that we understand and accept human characters. From as early as circa 1914, "the idea of sympathetic anthropomorphic animals serving as protagonists was well established as a desirable objective" (Crafton, 1982: 289). The combination of cute, rounded animals and the illusion of human traits and motives within these personalities made these characters sympathetic. Non-human protagonists became popular in animated film as audiences enjoyed their juvenile features, as well as identifying with their "human" behavioural traits. It is through the combination of these features and traits that anthropomorphosis is achieved. Suzanne Keen (2006: 214) states that "Human beings, like other primates, tend to experience empathy most readily and accurately for those who seem like us." Therefore, the more human the

responses, the more likely we are to identify which emotions the character is experiencing and respond with empathy. Keen also discusses situational empathy - a response to aspects of plot and circumstance in the story that we recognise and correlate with our personal experiences (2006: 215). Resonant and wide-reaching responses, then, are the kinds of emotions that most people will have experienced. For example, in animation there are often themes of loneliness, separation, and love. When characters encounter situations in which they experience these emotions, we are able to empathise by drawing upon our own experiences. This understanding creates identification, drawing us into the narrative. Therefore anthropomorphosis is achieved as we believe that the character shares our human behaviours, experiences and emotions.

Furthermore, basic human themes are put to good use in animated films with non-human protagonists and applied to the character's story-world. To use Bob Thomas' (1997: 151) example, in *Toy Story* the child Andy's bedroom becomes the toys' workplace. Despite our knowledge that toys are inanimate objects, their needs, fears, and goals are based upon those of humans, therefore allowing us to sympathise with their situation. *Toy Story 2* deals with issues of alienation and abandonment. Jessie is a particularly poignant character as she embodies precisely how children feel about and identify with their toys. Jessie's owner loved her, played with her, took her everywhere she went, until she grew up and abandoned Jessie in a donation box. The love that Jessie's owner felt towards her and Jessie's heart-break at being abandoned are so central to the narrative that the narrative halts and a song, 'When She Loved Me', plays gently and mournfully over her sentimental tale. Again, the filmmakers draw upon childhood experiences. We have all had a toy that we loved so much that we believed that they really lived, really felt, and were really there for us. By focusing on the deepest of human emotions, particularly those fears that we tend to experience in childhood, the filmmakers forge our identification with these non-human personalities. In the same way that we bestowed life onto our toys through our own imaginations as

children, we can go through the same process with these animated characters. We can relive our childhood feelings for our toys through the film, thereby making the characters "real".

Anthropomorphosis is achieved when we are absorbed in a character enough to suspend disbelief and engage with them as if they are real. It relies on our belief that the character thinks and experiences emotion in order for us to identify and empathise. Animation "works like radio": we project our own imagination and emotions onto the images (Thomas & Johnson, 1995: 19), bestowing them with more depth than the animator could ever create through visuals alone. Therefore Thomas and Johnson identify the physical change in facial expression as the moment at which the illusion of a thought process - of emotion - is created. Naremore states that cinema favours reactions (1988: 40), and so it is not the incident itself that is significant, but the character's reaction to that incident. It is how the character feels about what is happening that takes precedence. We identify with the character because we perceive him or her to have experienced a human emotion. Since these emotions are a product of our own imagination, we experience empathy. Similarly, Thomas and Johnson (1995: 487) argue that we react *to* evil characters and *with* good characters. Therefore, if a character is sympathetic, empathy is a product of reacting *with* them. We share their reactions and feel their emotions - or, rather, what we perceive to be their emotions - as our own. By investing our emotions in a character the film becomes part of our real-life experience and we believe that the character has experienced the same emotions that we have.

Like our tendency to transfer emotion towards childlike members of our own species onto those of animals, animation seeks to transfer human emotions and gestures onto its characters. For example, animation studio Cosgrove Hall's *Wind in the Willows* (1983)*,* a puppet animation, "suggest[s] a combination of animal behaviour and human nature... [characters] sometimes seem to be animals in human clothes and at other times appear more like humans wearing animal

masks" (Lord & Sibley, 2004: 41). This is a desirable objective as it establishes the two-directional influence that makes anthropomorphosis work. While the objective of anthropomorphosis is to make a non-human character seem human, they are still intrinsically non-human - whether they are an animal, a toy, or a robot. In each case, the character must still, at some point, display attributes of their own kind in order for them to be a complete, rounded representation. If this was not achieved, there is no reason for the character to be non-human at all. The fact that the toys in *Toy Story* flop dead on the ground at the sound of a human coming makes them nuanced. They are at once non-human and anthropomorphised. By reminding us that they are not human, they become all the more believable and real.

Overall, characters carry out a number of narrative functions that anthropomorphise them. As an audience, we connect more with characters that are sympathetic by way of their juvenile appearance and their display of human attributes through their reactions to situations. We are predisposed to feel empathy for the character when we enjoy their appearance. Therefore when we watch the situations that the character goes through, we identify and can draw upon our own experiences, thereby experiencing the emotions of the character. When we feel empathy, the character becomes anthropomorphised not only by their visual appearance on screen, but also by our responses and attributions of human behaviour onto the characters.

Chapter 4 establishes the ways in which robots are represented by being both anthropomorphised and mechanical.

Chapter 4: Anthropomorphosis and Robots

Robots have been represented throughout cinematic history in a vast number of ways. From Fritz Lang's *Metropolis* (1927) to our case study, *Wall-E*, robots have undergone dramatic changes, influenced by technologies of the contemporary age and advances in film. There are various different types of robots with numerous properties and functions, but the interest of this study lies in robots that exhibit both mental and physical agency.

Wall-E's appearance seems to have been influenced by a number of robots in film, and these will be discussed in this chapter. For example, Wall-E's stature and mobile arms are similar to those of the robots in *Silent Running*, and his binocular shaped eyes resemble those of Johnny Five from *Short Circuit* (1986). While bearing in mind the cross-pollination of ideas within such films, the primary interest of this chapter is to examine the characterisation and anthropomorphosis of robots through narrative and visual techniques. Three films that tackle the anthropomorphosis of robots in considerably different ways are *Silent Running* (1972), the computer-animated *Robots* (2005), and Steven Spielberg's *Artificial Intelligence: AI* (2001).

Each film approaches anthropomorphosis in a different way. In *Silent Running*, the robots Hughey, Dewey and Louie are of similar size and stature to each other. Their bodies are rectangular with one camera-lens "eye" and a grate for a mouth. They waddle on two short legs that transport them slowly but effectively. A single metal, jointed robotic arm is their only articulated limb and tool. Hughey and Dewey are anthropomorphised primarily through the protagonist Lowell's reactions to them. Since they do not have a human-like appearance, do not speak, and are programmed solely by Lowell, they are anthropomorphised in the same way that, for example, we imagine emotions to be felt and expressed by a toy. As they work, we see Lowell watch what they are doing on the monitor through their in-built cameras. Looking at things from their point of view

anthropomorphises them to some extent as we feel we are experiencing the world as they see it. However, Hughey and Dewey do not think, feel, or act outside of their programmed functions. Alone, they express no human traits whatsoever. While they are responsible for performing surgery on Lowell's leg when he is injured, and play cards with him, it is only because he has programmed them to perform these specific functions.

It is through Lowell's nurturing of the robots and his one-ended discussions with them that we project anthropomorphic importance onto Hughey and Dewey. This in fact borders on zoomorphism, as Hughey and Dewey are less like humans and more like Lowell's pets. Curiously, however, rather than establishing himself as a leader, Lowell talks to and acts with the robots as though they are his peers. He projects his own emotions onto the robots outright: "I know you're sad about Louie, but he was careless." Furthermore, the ways in which the robots are anthropomorphised becomes complicated when Hughey is damaged and Lowell attempts to fix him. Dewey stands in the back, hopping from foot to foot and making subtle movements suggestive of concerned glances. Lowell tells Dewey, "I understand," and we believe that Dewey is equally as concerned for his friend as Lowell.

Throughout *Silent Running*, as Lowell becomes increasingly detached and lonely, his reactions create anthropomorphosis, and the robots begin to become more anthropomorphised through their own actions. Despite their robotic appearance, we gradually become more used to the idea that the robots can think and feel, because if Lowell believes it, we can understand it through him.

Conversely, the characters in *Robots* are completely physically anthropomorphised. They have similar dimensions to humans and walk and talk in the same manner. They have desires,

dreams, friendships, and romantic relationships. We follow Rodney, the protagonist, through the aches and pains of growing up and his ambition to become an inventor. *Robots* takes a *bildungsroman* and puts a whimsical spin on it by incorporating the key events in a human's life. In essence, it is a human story transposed onto robot characters. These characters perform specific functions and have personalities and anthropomorphic faces, but they are not "human" to us in the same way as human characters in a live-action film. Their mechanical nature is expressed through situations such as having their joints oiled or becoming magnetised. A moral dilemma occurs, however, when the main anthropomorphic characters become outdated and are banished from Robot City to be scrapped. Rodney and his friends become social outcasts, and begin to fight for their freedom and acceptance. It is not until this point that we become emotionally invested in their struggle that they are anthropomorphised and we feel that they are human and deserve to live. The outdated robots are imperfect: their bodies age and deteriorate in the same way as humans. Rodney and friends become anthropomorphised when contrasted with the villain, who is the antithesis of organic matter, and perfect in the same way as the robots in *Artificial Intelligence*. Anthropomorphosis in *Robots* is achieved in the tried and tested way. While this formulaic method meets its target, it is the visual anthropomorphosis of the robots that is most prominent. However, *Robots* also ventures into zoomorphism in an interesting way.

Rodney invents a small robotic device that flies and is able to clean and stack dishes. Having been created by Rodney, but not as his child, this robot is not anthropomorphised but zoomorphised. Rather than bestowing human importance onto this character, it becomes like a pet to him. Rodney has endowed life - animation. He is like a human who has created a robot that performs a specific function. While the little dishwasher seems to experience emotion, it is in a simpler, non-human way. It is timid and flighty, becoming startled in overwhelming situations and during confrontation. Its behaviour would be best likened to a mouse or a small bird. Rodney

becomes owner with pet, rather than human with child and it acts as a something of a safety-net and companion when he is down-and-out without a friend in Robot City. Wall-E's pet cockroach performs a similar function, as will be discussed in Chapter 5.

Humans create the robots in *Artificial Intelligence*, and in order to make the distinction between human and robot, the robots are de-anthropomorphised. Physically, they are played by humans. The only physical aspect that separates them from the real human characters on-screen is that they are slicker, lacking physical imperfections such as blemishes on their skin or loose hairs. However, by witnessing their responses, we quickly discover that they are emotionally void and lack the ability to think deeply or react beyond their programmed attributes. In short, these robots do not feel. They have no emotional capabilities. This becomes the crux of the film as we are introduced to David: the robot boy who is programmed to bond with and love mother. David looks like a real child - "orga" - without the slickness of his robotic - or "mecha" - counterparts. The dilemma that follows is a question of moral ethics: What is the human mother's responsibility to her loving son, a robot? Where can we draw the line between what is "real" and what is not? For David, the line between real and make-believe is not blurred but non-existent. This, in turn, brings about the question: At what point does David stop being anthropomorphised and become a real boy?

The portrayal of robots in *Artificial Intelligence* is also interesting. When David is captured with a group of misfits and rejected robots and taken to a "Flesh Fair", the robots do not plead but argue their right to live. As they are taken to the stands to be sawn in half, drowned in acid or shot through a canon, they struggle and attempt to reason with their captors. At this point, the de-anthropomorphosis can give us pause. We feel pity, perhaps not for their destruction, but for their lack of ability to understand what it is to lose a life. We are horrified at the Flesh Fair ringmaster's

distaste for David and relieved when the crowd rebels against him and David is allowed to go free. Already, then, our reactions to mecha who look and behave like robots are different than our reactions to David. He is simultaneously anthropomorphised and de-anthropomorphised by his young and innocent appearance and his unblinking eyes; yet we are won over by his emotional anthropomorphosis. *Artificial Intelligence* taps into deep human emotions: David's love for his mother, his subsequent abandonment by her, and his endless quest to become a real boy so that she will love him back. He is considered "real" by mecha and orga alike (at least for those who see but do not interact with David), but he wants only to become a "real boy". Here, juvenile features are used in order to confer David's innocence and provoke empathy on a deeply personal level. Anthropomorphosis is achieved by amplifying these emotions and making them an intrinsic part of David's character. Meanwhile the robots in the film fail to feel and humans fail to accept David. De-anthropomorphosis is achieved because this makes David too perfect, too complete, an uncanny likeness of a real human being. David is - as his mother calls him - "practically human." The "uncanny valley of eeriness" is this time addressed within the film, rather than without, giving us a complete picture of anthropomorphosis and its functions.

Silent Running, Robots and *Artificial Intelligence* tackle the issue of anthropomorphosis in different ways. *Silent Running* relies upon our identification with Lowell in order for the robots to become anthropomorphised through his relationship with Hughey and Dewey. Throughout the film, the robots become more anthropomorphised by subtle actions to which Lowell brings our attention. *Robots* relies on physical anthropomorphosis and, in all other aspects of characterisation, the robots are basically human. *Artificial Intelligence* operates the opposite way to *Robots*, by making the "mecha" characters physically perfect but emotionally flawed. David blurs the boundary between human and robot as he has the ability to feel emotion, but does not develop emotional intelligence and is driven by one emotion: love. The distinction between human and robot is complicated in

Artificial Intelligence, and often the robots are anthropomorphised to such an extent that they come close to the uncanny valley, making them dis-anthropomorphic.

By investigating the ways in which robots are anthropomorphised in these three films, we can glean a better understanding of the ways in which Wall-E behaves like a human. Chapter 5 deals with the codified gestures used by the non-human characters in *Wall-E* as an expression of human emotions, as well as the anthropomorphosis of the robots Wall-E and Eve.

Chapter 5: Wall-E as the Silent Clown: A Case Study

As discussed previously, anthropomorphised characters must behave like a human while maintaining their inherent traits in order to be believable. For robot characters, this means that they must appear mechanical in order to seem both human and robotic. When this balance is struck, anthropomorphosis is achieved. In the case of robots, movement is central to anthropomorphosis. Mechanical or robotic movements tend to be rigid and lack the sense of anticipation inherent in human and animal movements. Human movements tend to be fluid and changeable in response to what is happening around them. In *Wall-E*, the robot's movements are more nuanced with a mixture of mechanical, human-like, and animal-like movements. Wall-E's movements and gestures are central to the motif of communication, and affect the actions of those around him, often making both Wall-E and other robot and human characters more anthropomorphic.

Wall-E has been compared to both Charlie Chaplin and Buster Keaton by various critics and sound designer Ben Burtt (Quoted in Onstad, New York Times, 2008: 1). So, what is it about this miniature, waste-compressing robot that makes him comparable to the silent clowns? The taxonomy of gesture that was defined in the silent film comedies can be read and understood by audiences to this day. In a largely silent environment like *Wall-E*, movement is brought to the fore and its function is to externalise the internal aspects of character. In other words, movement is central to characterisation. Naremore states that "All performing situations employ a physics of movement and gesture that makes signs readable; in this sense Nietzche's observation that actors translate their person into a simplified person still holds true." (1988: 34). Therefore, Wall-E's movements are in direct correlation with the definition of Wall-E as a character.

Naremore refers to the use of sign language or "pantomime" as "codified gesture" in which actors are "writing with their hands". This technique was used to placate the lack of sound in

cinema whilst expressing complex emotions. In *Wall-E* it is used as a quick, simple approach to communication. Communication plays a major role in the film as a theme and motif that connects the humans and the anthropomorphised robots - literally and metaphorically. Wall-E and Eve, in particular, use simplified gestures to denote emotions and desires. In particular, they may communicate "come here" with the coax of an index finger, giggle and squirm when tickled by the cockroach running up their arm, or huff by dropping their head and shoulders. All of these movements are modelled on human behaviours and simplified to create unambiguous statements.

"In silent movies, actors needed to make their few words rise out of their gestures... meaning lay in their eyes and at their fingertips" (Naremore, 1988: 48). In *Wall-E*, this is revisited. Wall-E and Eve are able to utter a few words and understand their meanings ("directive" being the key example here). However, when communicating in speech - particularly for the first time - their voices and moments are stunted, hesitant, and awkward. The ice is broken when there is a storm and Wall-E grabs Eve's hand, leading her to safety. After this, they have forged a familiarity with one another and communicate easily. They act amicably towards one another and Wall-E begins to teach Eve about humans by sharing his admiration of human objects with her. Therefore, as states John Delman, in Naremore (1988: 64): "bodily action, simplified by selection, moderately exaggerated, provides a language of expression more universally intelligible than words."

The motif of communication is exemplified in *Wall-E* through hand-holding. As Wall-E watches *Hello, Dolly!* (1969), he is struck by the expressions of love between the two protagonists in the final song, 'It Only Takes a Moment'. The music places Wall-E's reactions in a romantic context. His eyes drop at the outsides, his pupils zoom in, and he is clearly enthralled by what he sees. A close-up of the couple's hands is then mimicked by Wall-E as he gazes at the moving image, his head cocked to one side. His hands move slowly towards one another as the rest of his body

remains profoundly still, and his hands interlock. Slowly his gaze drops from the screen to his hands, and his eyes fall. By altering his expression from being captivated by the scene in front of him, to looking at his hands, we perceive that Wall-E has realised something. He is alone, and he is yet to find someone to hold his hand. At this, Wall-E appears melancholy. As an empathetic audience, we not only come to the same conclusion as Wall-E; we feel lonely *for* him, and *with* him. The simple gesture of hand-holding is clear and profound, carrying myriad positive connotations, as well as making us realise that when we lack love and companionship, loneliness prevails. Hand-holding in *Wall-E* therefore embodies the argument that animated films play on the deepest of human emotions. Here, in this short sequence, not only do we experience love, empathy and loneliness, but we also anthropomorphise Wall-E. The combination of Wall-E's codified movements and the close-ups on the hands contribute to anthropomorphosis. Wall-E's emotional state is further anthropomorphised and intensified by the music. The soft, romantic melody is played on strings in the romantic idiom, and the lyrics about falling in love are harmonised by a male and female duet. Music and visuals blend to create empathy and audience identification. It is clear that Wall-E desires love, a companion, and this is a deep human emotion that most people tend to have experienced at some point in their life - consciously or subconsciously. Ultimately, it is not Wall-E's physical anthropomorphosis but the combination of visual and aural elements that inspire our empathy and our imagination, therefore bringing Wall-E to life.

We might also see this side of Wall-E as a reflection of Chaplin's tramp - "the pathetic outcast, the wanderer, without a friend.... filled with a desire to love and be loved" (Cotes & Niklaus, 1957: 98). Wall-E is similar to the tramp in this way. In *City Lights,* Chaplin's character is described as "the idealist tramp with his unquenchable love, compassion, chivalry and goodness; the Girl... herself submissive, feminine and unattainable" (Cotes & Niklaus, 1957: 114). Wall-E and Eve embody this description. Wall-E's admiration of Eve is reinforced by 'La Vie En Rose' - the

song that accompanies the montage of him going out of his way to protect Eve. He stays out in the rain with her despite his own suffering, takes her on a makeshift moonlight boat-ride, and finally takes off into space to board the Axiom when Eve is collected from Earth. Wall-E's compassion provokes empathy as his care and attention of Eve is not reciprocated, yet he tolerates the hardship in order to spend time with her.

Eve, upon her arrival on Earth, is aggressive and hard-working. In this way she is similar to the submissive, unattainable Girl. Though Wall-E is fascinated by her, she has a hair trigger, blowing up anything that startles her. Over time, however, she becomes softer and more anthropomorphised under Wall-E's tutelage. This is especially true of her directive. Her primary instruction is to seek and present organic life. At this point, Eve is not anthropomorphised because she is merely carrying out her mechanical operative. This holds true until she discovers that Wall-E cared for her with love and affection while she was immobile. At this point, Eve becomes anthropomorphised as she has over-ridden her programmed directive and acted with passion. Her movements change to reflect this, as she becomes panicked, flying without her usual grace and bumping into things. Eve's haste to find Wall-E involves the vital change in expression that was discussed in Chapter 3, therefore endowing Eve with human emotion. At this moment, her directive changes from that which was pre-programmed into an emotional decision of her own: to reciprocate Wall-E's love by holding his hand. This is embodied in the song 'It Only Takes a Moment'. Wall-E uses the song in attempts to seduce Eve, and it is this song that plays from his spare circuit board when Eve mends him at the end. When they finally embrace, we hear a summation of what Wall-E and Eve have been expressing through movement throughout: "and that is all that love's about... to be loved, a whole life long..."

While these techniques of narrative and gesture are used in order to anthropomorphise Wall-E, he does not always act in a way that we would traditionally associate with robots. Robotic movements are often thought to be stale, mechanical and - in a human sense - lifeless. Thomas and Johnson (1995: 445) remark that "When an actor has to play a robot, the first thing he does is to fix his eyes into a stare, a lifeless gaze with no movement." In *Wall-E*, however, Pixar have taken a mechanical, non-android robot and made him come alive in ways that people keep separate from robots. When he reaches out with an arm to tap on something, the movement is full of anticipation, like a human expecting a response. Wall-E's reactions are also similar to those of an animal. For example, Wall-E falls for Eve and follows her around. Whenever something startles her, she shoots it. Wall-E's reactions to this create a stark contrast between him and Eve. Wall-E's movements are animal-like: scared, flighty, and clumsy. When the ship that brings Eve takes off again, it leaves Wall-E tucked into his "shell", like a hedgehog rolled into a ball, convulsing amidst a pile of rubble. This is also the case when he gets to know Eve. Wall-E's clumsiness, however, becomes less animal-like and more anthropomorphic with his nervous admiration of Eve. By endowing Wall-E with these nervous, anticipatory movements, his movements become less mechanical and more instinctive. Since instinct is a natural, knee-jerk reaction, it makes Wall-E less like a robot and more like a nervous creature. This creates empathy as we can identify with being helpless and scared, thus making Wall-E's behaviour anthropomorphic rather than robotic.

Wall-E and Eve also define their own unique gestures that hold particular meanings for the two of them. For example, one of Wall-E's eyes becomes damaged and he finds a replacement. When it is fitted, he calibrates the new eye by moving each eye up, one and then the other, each eye down, one and then the other, and then up and down together. His binocular eyes paired with this sequence of expressions characterises Wall-E in the same way that the accentuated "eee" sounds characterise Wallace. More importantly, though, it becomes a signal to Eve. When Wall-E is

damaged and almost thrown out by the trash compactors aboard the Axiom, Wall-E makes this series of expressions to Eve. This signals to Eve that Wall-E has a spare circuit board at home and that she must return to Earth in order to replace it. Eve immediately understands that this will save his life. Anthropomorphosis is achieved through these non-verbal exchanges because although Wall-E invented this gesture, it is instantly recognised by Eve and by the audience.

The sequence is then repeated at the climax of the film, after Eve has repaired Wall-E. As she waits for his response, he remains motionless. His eyes are dark, without their sparkle. He appears like the dead Wall-Es, or the purely mechanical Wall-Es from the holographic advertisements. When he begins to move, his eyes remain still and he begins to move automatically, like a programmed robot. All of Wall-E's characteristics have been removed. He does not approach each item with curiosity like he used to, and when Eve shows him his favourite objects he responds by compacting them. He crushes his pet cockroach, a movement that previously startled, worried, and therefore anthropomorphised him. The recording of 'It Only Takes a Moment' no longer plays on his speaker, so Eve holds his hand and hums the tune to him, but he remains static. Eve tries to drift away from Wall-E, but his grip tightens, preventing her from leaving. His eyes zoom in and out, their sparkle returns, and he performs the series of expressions. He suddenly recognises Eve and realises that she is holding his hand. 'It Only Takes a Moment' plays and Wall-E and Eve are properly united for the first time. They have each fulfilled their directive. While Wall-E is responsible for anthropomorphising Eve and teaching her to appreciate humanity, Eve also keeps Wall-E alive - literally and symbolically. Eve not only repairs Wall-E, but she reciprocates his love and that companionship is what keeps Wall-E's spirit alive. The song 'It Only Takes a Moment' both represents and epitomises this, as it is their theme and it exemplifies the emotion that Wall-E feels. By teaching Eve to feel it too, she is able to reciprocate that love and to protect him.

In turn, Wall-E also influences the humans to become more self-sufficient. Although we recognise the humans as people, they have regressed to childhood through their gluttony, laziness, and helplessness. They are anthropomorphised by representing negative human attributes, spending their days on hover-chairs travelling on a production line, and consuming everything that is offered to them. Their only communication with each other is superficial and conducted through an electronic video call system, even when their friend is right beside them. When Wall-E helps John into his hover-chair, and disengages Mary from her hover-chair communication system, he gives them something in common. The pair meet and watch together as Wall-E and Eve dance outside in space. When one of their hands falls on the others, they forge a bond about which humans had long since forgotten. Physical communication, then, is central to the plot as it engages Wall-E with Eve, symbolises their relationship, and brings humans together again.

Wall-E's surroundings are equally central to characterisation. Wall-E's world is like *The Gold Rush* (1925), the "imponderable impression of solitude, of eternity, of man's littleness in the vast scheme of the universe" (Cotes & Niklaus, 1957: 104). Wall-E's littleness is compounded by the miniature nature of his appearance, not only in comparison to humans, but most notably in comparison to his much larger counterparts aboard the Axiom. Wall-E is therefore diminutive among the vast skyscrapers of junk and detritus; amidst the impossibility of the gargantuan task that lies ahead of him. His imponderable solitude is not only eternal because he is the only robot that is still operational. Wall-E's loneliness quickly becomes central to his anthropomorphosis. From the moment that we hear Wall-E hum along to 'Put On Your Sunday Clothes', he is anthropomorphised. Loneliness makes Wall-E human because we immediately see and connect with his curiosity. We are not introduced to Wall-E as a robot, but as a sprightly worker with an inherent connection with the "stuff" around him: something that the humans on the Axiom have

long since lost. Stuff is just stuff, but Wall-E's reverent interest in it illustrates the fact that Wall-E lacks live companions, and he busies himself with that which surrounds him.

Before he meets Eve, the only companion that Wall-E has on Earth is his "pet" cockroach, which is zoomorphised. It behaves like a dog, getting under Wall-E's feet, tickling him as it runs up his arm, and diving into the Twinkie that Wall-E serves for its dinner. Since there is no flora, we can assume that Wall-E's provisions are all that is keeping the cockroach alive; therefore it relies on him. Upon Eve's departure, Wall-E orders the cockroach to "stay" with a firm point at the ground, and looping back on himself when it follows him in order to return it to the spot where he wants it to remain. Its loyalty is also dog-like. The cockroach does not provide the emotional connection that Wall-E seeks, but it is a companion and its zoomorphosis contrasts Wall-E, making Wall-E more anthropomorphic.

Unlike the cockroach, Wall-E does not need food to survive. His interest in human "things", however, anthropomorphises him. Although Wall-E appears to be an autonomous being, he is still dependent on human culture (Sobchak, 2009). Since all of the other Wall-E robots have died, we must assume that something has kept our protagonist Wall-E alive. As the only collector, perhaps it is the human gems amongst the detritus that gave Wall-E the mental sustenance and will to carry on. Perhaps, without Eve, his loneliness would have driven him to the same fate as the other Wall-Es. By impersonating human life, he was able to last longer. He works his shift, and then departs for his shelter, where he is comfortable and safe from the dust storms that sweep across the land. He also rests, storing himself on a shelf and rocking himself to sleep to the sound of 'It Only Takes a Moment'. With the exceptions of food and water, Wall-E lives like a human and is able to sustain his own existence. Although Wall-E brings a new found quality of life to the people that he meets aboard the Axiom, the reason for Wall-E's human nature can be found in the artefacts that he

collects. Humanity in *Wall-E*, then, is cyclical. Wall-E has learned from the humans and returns these life lessons to them, bringing them back to Earth.

Wall-E and Eve use codified gestures in order to communicate largely human emotions. Wall-E is anthropomorphised by appearing as a robot but living like a human - with a routine, work, shelter, and an intrinsic need for companionship and love. For most of the duration of the film, Wall-E is the most human character. By communicating with the other robots and the humans aboard the Axiom, he teaches them a life lesson in humanity, as well as fostering the same human attribute that is brought to light for the audience: empathy. Wall-E's gestures anthropomorphise him, while the unique sequence of gestures that he shares with Eve creates a connection between mechanical characters of different times. By crossing these boundaries, Wall-E becomes increasingly anthropomorphic. He affects the human audience as well as the humans and robots in the film. However, he is still inherently mechanical and thus nuanced. We treat Wall-E's emotions as human, but he is still a robot, created by man, who performs a particular function for man's benefit.

Conclusion

Anthropomorphosis relies upon myriad aspects of the film-making process working together in order to allow the audience to bestow emotions of human importance onto the characters. The study of anthropomorphosis according to the construction of character has allowed us to examine the narrative functions performed by the anthropomorphised characters in the film.

Due attention has been drawn to the "uncanny valley" hypothesis, because when an animated image falls into the uncanny valley, anthropomorphosis can no longer be successfully achieved. This pitfall spells the end for audience identification and empathy. Anthropomorphosis becomes a

useful tool as human attributes can be grafted on to interesting and nuanced non-human characters, with less risk of falling into the "uncanny valley".

Over the course of this study it has been possible to establish that anthropomorphosis is achieved aesthetically through juvenile and expressive features such as big foreheads and eyes, and by making characters small, rounded, and cute. Narrative is important for anthropomorphosis as characterisation is key to invoking audience identification and empathy. When a character reacts to a situation, a thought process is shown in their changing expressions, thereby creating the sense that the character has felt emotion. Deep human emotions with resonant, wide-reaching responses are played upon because when the audience believes that the non-human character has felt an emotion onto which we bestow human importance, the character becomes anthropomorphised.

In Chapter 4 we investigated the various ways in which robots have been anthropomorphised in film, and how we can understand their responses by relating them to human emotions and reactions. Robots are anthropomorphised visually, aurally, and through narrative. The first way that anthropomorphosis can be achieved is by having a human character within the film interpret the behaviour of the robots as human, even if it would not otherwise appear that way through visuals alone. Robots can also imitate humans directly in order to become anthropomorphised. By transferring a human story onto robots, more narrative functions and interesting visuals can be incorporated into an often-told tale to make it more interesting. Robots can also be anthropomorphised in a way that deals with the "uncanny valley". Close to being human, the robots are presented as a too-perfect representation, making them seem unusual and soulless. It is by striking a balance between their mechanical attributes and human tendencies that the anthropomorphosis of a robot can be achieved.

To say that any non-human character is fully anthropomorphised would be false. A character must maintain movements, emotions and mannerisms of its "type" - animal, toy, robot - in order to remain nuanced, or else it would not maintain its integrity. Striking a balance between mechanical movements and human movements was key in anthropomorphising Wall-E. His movements are human in that they are full of anticipation, and are central to his communication with other characters. Visually, Wall-E must also always maintain his signature robotic vocal pitch and his need for solar energy in order to be a robot. He is a silent clown in that his gestures incorporate elements of a human caricature, as well as characterising him through mechanical movements like the up-and-down pivot of his binocular eyes.

However, by endowing Wall-E with an intense curiosity, romantic disposition and nostalgic habits, he can become "human enough" for us to relate to him on an emotional level. Tension exists between Wall-E's programmed robotic behaviours and the human decisions that he makes. Whilst recognising that he is a mechanical entity, this also makes him more human. Through this tension, the theme of communication is strengthened. Hand-holding is a human gesture that represents love and companionship in the film. In addition to this, however, Wall-E goes on to create his own taxonomy of gesture, like a new language that crosses the boundaries of human and robot. Wall-E is able to communicate with humans that are the descendants of his creators by seven hundred years, therefore his taxonomy of gesture is timeless.

Wall-E becomes real because he is the final vestige of humanity left on Earth after the humans have departed. The setting of an empty Earth creates a stark contrast that amplifies the human emotion that most anthropomorphises Wall-E: loneliness. He avoids becoming a too-perfect representation of a human through his miniature and highly mechanised appearance. He is aged and imperfect, but still cute and anthropomorphic with his big eyes and hands. Without Wall-E, there

would be no story, no return to Earth, and no more humans on Earth. This is a job and a memory too fragile to have been represented by a human. Wall-E has to be unusual and irreplaceable in order for the message that he embodies to be communicated. That is why we believe in Wall-E and, as well as anthropomorphising him, it allows us to trust that humanity cannot be thrown away with the rest of the trash. From the moment that Wall-E helps John back onto his hover-chair; human-kind is reminded that Earth is where humans belong and that we must protect it.

Wall-E is anthropomorphised by his compassion, love and curiosity in a way that has never been achieved before with other purely functional and fully mechanised robots in animated film. By moving away from animals, Pixar comments on the fact that whatever humans create can later define us. Wall-E's pet cockroach also anthropomorphises Wall-E by creating a contrast that makes his animal-like movements light and comical rather than zoomorphic. Wall-E reflects the positive aspects of humanity, and so we regard him as human. Wall-E's reliance on human artefacts, culture, and shelter presents humanity as cyclical. Wall-E has been left behind by humans, learned to imitate their way of life in order to survive, and is able to transfer that back to the humans in the film in order for them to return to Earth.

An area that it has not been possible to examine in detail at this time is the aural aspects of anthropomorphosis. In a film like Wall-E where dialogue is sparse, sounds are ambient and music is mostly non-diegetic, sound becomes far more significant. Wall-E's little chirps and whistles do as much, if not more, than his visual characteristics in defining his character. Non-physical communication is just as salient as physical communication in *Wall-E*, and an investigation into this would enhance and augment this argument greatly. Music contributes a great deal to anthropomorphosis as we pick up a great number of the aural cues subconsciously. Taking these

cues into account and studying them closely would provide further rich insight that would further

our understanding of how Wall-E and his contemporaries are anthropomorphised.

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Cosgrove Hall Films, & Thames Television. UK.

Hand, David (1937) *Snow White and the Seven Dwarfs*
Walt Disney Pictures. USA.

Kelly, Gene (1969) *Hello, Dolly!*
Chenault Productions. USA.

Lang, Fritz (1927) *Metropolis*
Universum Film (UFA). Germany.

Lassater, John (1995)*Toy Story*
Pixar Animation Studios & Walt Disney Pictures. USA.

Lasseter, John (1999) *Toy Story 2*
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McLaren, Norman (2007) *Norman McLaren: The Master's Collection*
National Film Board of Canada (NFB). Canada.

Spielberg, Steven (2001) *Artificial Intelligence: AI*
Warner Bros. Pictures. USA.

Stanton, Andrew (2008) *WALL-E*
Pixar Animation Studios & Walt Disney Pictures. USA.

Trumbull, Douglas (1972) *Silent Running*
Universal Pictures. USA.

Wedge, Chris (2005) *Robots*
Twentieth Century Fox Pictures, & Blue Sky Studios. USA.

Discography

Gugliemi, Louis., Piaf, Edith., and David, Mack. La Vie en Rose
Performed by Louis Armstrong. Walt Disney Records.

Herman, Jerry. It Only Takes a Moment
Performed by Michael Crawford. Philips.

Herman, Jerry. Put On Your Sunday Clothes
Performed by Michael Crawford & Barbra Streisand. Philips.

Newman, Randy. When She Loved Me.
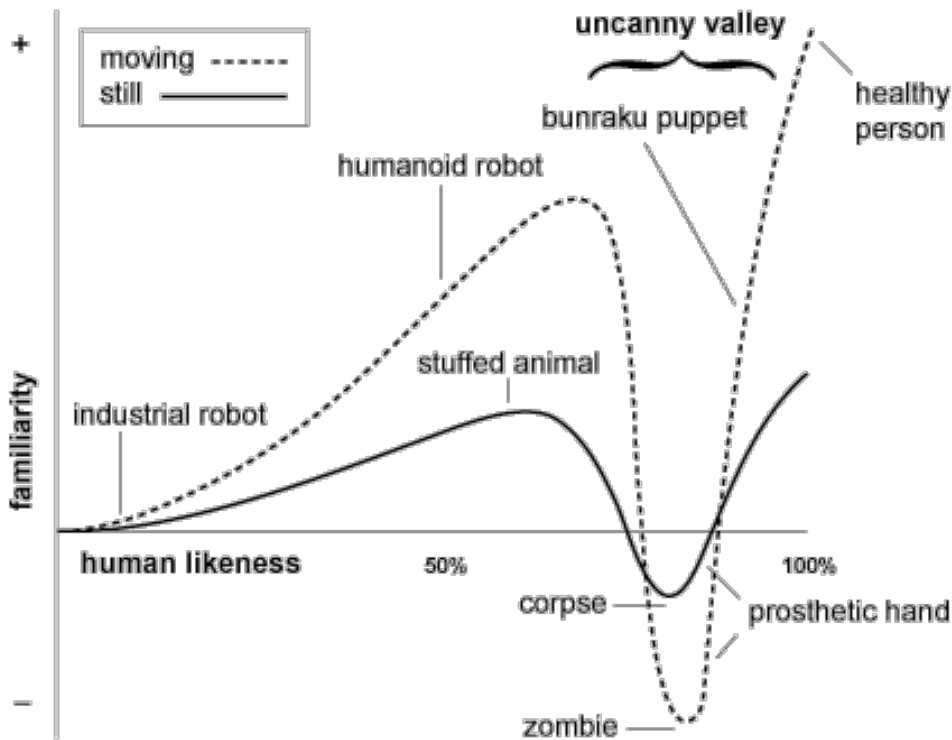Performed by Sarah McLachlan. Walt Disney Records.

Appendix

Appendix i:

Fig. 1. [Note: This is a simplified version of the figure appearing in the Energy article.]

http://www.androidscience.com/theuncannyvalley/proceedings2005/uncannyvalley.html