

Human Enhancement acceptance on the rise: how the evolution of Physical Enhancement in cinematography is helping Posthumanists driving their message home

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The appearance of Physical Enhancement (PE) in films and in TV series is certainly not simply a feature of recent years. Popular TV shows such as *Star Trek* and *The Six Million Dollar Man* touched on the subject as early as in the 1970s, and films such as *Robocop* represent the concept quite directly in the more recent context of the 1980s. However, in the past few years, Hollywood, and the film industry more generally, has given increased visibility to the subject due to technological developments and, perhaps, due to a growing trend towards acceptance of PE in Hollywood and within the general public.

In this paper, I will analyze the ways in which PE made its first cinematic appearance and then make comparisons with more recent filmic re-elaborations on the theme. I will offer direct insights of some re-adaptations of the same film *Robocop*¹ and saga *Star Trek*,² and take into account stories, mostly comic-based, that only recently arrived on the big screen, but that nonetheless followed a pre-existing narrative giving relevance to PE *Spider-Man*, *Captain America*, *X-Men*.³ Drawing comparisons among different takes on the same subject will allow for parallel speculations on the intended overall messages of the plots on issues related to PE.

This analysis will allow me to state that, following a temporary rejection of PE in response to the horrors of the Nazi era, Western society has gradually turned to a neutral

stand towards the concept of altering our bodies in order to “improve” ourselves. PE is affirming itself as fully acceptable in Western society, as well as in its cinematography, because we conceptualize “wanting to become better” in an increasingly positive fashion. If, on the one hand, the term “eugenics” (the belief that through genetic engineering we can improve the quality of the human population) still represents a taboo in many instances, on the other hand, ways around the negative connotations of this label are gaining in popularity, with some Posthumanism proponents as their more fervent supporters. I will conclude my analysis by examining completely new cinematic subjects, *Heroes and The Tomorrow People*,⁴ which provide very good examples of philosophically-constructed visual representations that can be considered much in line with a version of Posthumanist ideology.

Posthumanism and Cinematography

It should be stated that I intentionally talk about a particular version of Posthumanism that does not encompass all existing definitions of the term. Thus, before moving into a description of the evolution of PE in cinematography, I must clarify the framework this paper assumes.

I draw upon the version of the Posthumanist ideology most commonly used in bio-

ethical circles; in contrast with the more political version of Posthumanism generally found within political theory such as in Donna Haraway,⁵ brought forward in recent years and defended most prominently by Nick Bostrom.⁶ According to Bostrom and similar thinkers, humans should aim at improving themselves (thus becoming Posthumans) through biotechnological means, not only because this pursuit is desirable per se, but also because it would serve the function of increasing the chances of survival of our species.

The willingness to rely on science and technology to escape, improve, or surpass our human condition is also called “Transhumanism.” This additional deeply pro-enhancement movement represents making a cleaner departure from original humans, and can be seen as a more appropriate enactment of Bostrom’s ideology. Nevertheless, I will not refer further to Transhumanism or other similar terms⁷ in this work; rather, I choose to use only “Posthumanism” for two main reasons.

First, Bostrom himself uses the terms interchangeably: “Transhumanists hope that by responsible use of science, technology, and other rational means we shall eventually manage to become posthuman, beings with vastly greater capacities than present human beings have” Bostrom.⁸ Second, using just “Posthumanism” reduces the risk of confusion.

As I proceed with my analysis, I must acknowledge that, while other cinematic industries can provide interesting samples for discussion, my work here will focus on engagements with PE in the American productions.

Dawn of the Physical Enhancements

In 1967, in the *Star Trek* TV series episode “Space Seed,”⁹ a charismatic and arrogant villain explains:

Captain, although your abilities intrigue me, you are quite honestly inferior. Mentally,

physically. In fact, I am surprised how little improvement there has been in human evolution. Oh, there has been technical advancement, but, how little man himself has changed. Yes, it appears we will do well in your century, Captain.

The quote excerpted above comes from one of the most important and popular episodes of the successful and internationally acclaimed *Star Trek* saga. Coming from Khan Noonien Singh (generally referred to simply as “Khan”), the archenemy of the narrative’s hero Captain Kirk, it seems reasonable to affirm that in the TV series, this villain’s “genetic superiority” carries a negative connotation.¹⁰ The process of distancing Khan from “us” humans is further reinforced in visual and linguistic terms by naming and portraying him in line with characteristics common in the Indian Subcontinent.¹¹ This portrayal should not come as a surprise since, at that time, many racial and ethnic stereotypes were well entrenched in the cinematic industries, both Western and non-Western.

The story in the saga tells us that Posthumans such as Khan, were created to help humanity overcome its limits during the Eugenics Wars. The evident desire by Khan to rule over the “inferior” humans puts the viewers in a position of natural rejection of his kind, stemming from our survival instinct. This tension between the “enhanced” and the “unenhanced” will be analyzed more in depth towards the end of this paper, but it should here be noticed how in *Star Trek: Into Darkness*, Khan stresses his link with humanity by placing himself in its continuum, rather than only marking himself as improvement. Khan’s existence derives from human will; when asked to describe himself and his story Khan explains that he is “genetically engineered to be superior so as to lead others to peace in a world at war.” Of course, he does not lose his inherent arrogance: “I am better, (at) everything,” but he seems less of a completely negative character than he had appeared in his previous renditions. Nevertheless, he underlines once again how his superiority is also to be found in the physical

(enhanced) strength that contributed to his character: “He needed a warrior’s mind, my mind, to design weapons and warships [...] He wanted to exploit my savagery! Intellect alone is useless in a fight, Mr. Spock. You, you can’t even break a rule. How would you be expected to break a bone?”

Engineering and improved human capacities were further developed in TV and cinema. For example, *The Six Million Dollar Man*¹² was a successful TV series that also left room for the not-so-successful, gender-counterbalancing spinoff, *The Bionic Woman*.¹³ The plot revolves around Steve Austin, a test-pilot whose ship crashed, nearly killing him, which put the US government in a position to affirm that “we have the technology to rebuild this man.” Through a number of physical enhancements—an arm with the “strength of a bulldozer”; two legs that allow him to run faster than 100 km per hour; and an infrared bionic eye capable of seeing a humanoid moving faster than a normal, unenhanced eye can see—Austin becomes the newest paladin fighting injustice. Screened in the 1970s, it is not surprising that the rhetoric used to justify the research and investment behind such enhancements focuses on two major concerns of those years: nuclear war and space exploration.

Such historical contextualization of some of the quasi-scientific parts of a plot is common to sci-fi cinema and provides a legitimizing and familiarizing function. When viewers are put in a more comfortable milieu (wherein they can grasp the terminology rather learn new terms such as “Jedi” in *Star Wars*, for instance), the effects can be beneficial. The level of discussion, or presentation, can go deeper, and at times, allow the average viewer to engage with topics otherwise reserved for academic discourse. The next film I discuss is a perfect example of such use of familiar contexts.

Physical and other Enhancements

The idea of authorities compensating for (or exploiting) a tragic event, such as an accident

providing fodder for experimentation with new technologies, was realized in a number of science fiction projects. Out of those, *Robocop* is probably the one that best represents a substantial step in perceiving the value of improving the body in certain ways so as to excel in a given job. In *Robocop*, some corrupt agents in the Detroit Police Department try to kill impeccable police officer Alex Murphy. They only partially succeed, for he is rescued by a technological (and political) experiment that allows him to be kept alive via substantial robotic implants (hence the name of the superhero). Thanks to these physical and technological enhancements, *Robocop* thus becomes the ultimate police agent, but clearly this achievement is accompanied by a comparable loss of aspects of his “human side.” The original 1987 version of the film was recently honored by a remake that, in line with the current trend of studies and research in neurology and neuroethics, has given more relevance to questions such as free will and the relation between emotions and rationality and brain implants. In a sense, the original film was perhaps more focused on *Robocop*’s mechanical enhancements, but it nonetheless provided the audience with a new visual representation of the “best of the two worlds,” as *Robocop* is described during his presentation to the public. The level of engagement with the PEs in themselves was lowered in the newer version of the film, giving instead more relevance to the interface between the brain and emotional and rational capacities. Our human weakness is in fact portrayed as our strength (as represented by Murphy’s inability to compete with other robots before his further “emotional crippling.”)

While I cannot delve further into this cinematic portrayal, I wish to once again emphasize its timing. The film’s engagement with the interconnection between neurological studies and their implementation through biotechnological, pharmaceutical, and mechanical means notably resembles current debates on the relationship between the Posthumanist doctrine and emotions.¹⁴ Although the overall message of the 2014 version of *Robocop* is rather critical of the potential

misuse of technology, there are questions throughout the film that can lead viewers to wonder about their own positions on the topic. For example, the pro-technology TV presenter asks viewers: “If we have the technology, why are you holding us back?” These kinds of questions are extremely pertinent and familiar to those acquainted with debates on Human Enhancement,¹⁵ but they cannot be discussed further here.

Physical Enhancement: from Comic Books to Films

One of the main currents that have fed the cinematic industry with plots addressing, representing, embracing, or contesting the idea of PE is the world of comic books. It is thus no surprise that one of the first and most influential books on HE draws its title from two comic book characters.¹⁶ Here, I will pay particular attention to *The Amazing Spider-Man* and *The X-Men* sagas.

Perhaps within Hollywood’s latest productions, the recent *The Amazing Spider-Man* (not yet finished) trilogy has a contesting approach, as it seems to criticize some of the most recurring messages brought forward by the Posthumanist ideology. The first scene worth considering occurs in the first film of the trilogy. Scientist Dr Connors describes the effects of his self-imposed genetic enhancement, achieved through the injection of newly created serum developed from experiments conducted on genetically modified spiders. This injection transforms him into Peter Parker’s (Spiderman’s) nemesis. It must be noticed that in this new trilogy, the special powers ascribed to the spider biting Peter Parker have moved from the nuclear radiation of the comic book (linked to understandable fears of the time of its initial writing) to genetic experiments, making the scenario closer to current reality.

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Subject: Dr Curtis Connors, own temperature 89.7, steady for 48 hours. Blood panels reveal lymphocyte and monocyte readings consistent with subject’s past. Clutching rate vastly improved, marked enhancement in muscle response, strength, elasticity [...] Eyesight similarly improved, subject no longer requires corrective lenses. This is no longer about curing ills, this is about finding perfection.

The scientific tenor of Dr Connors’s monologue resembles an academic soliloquy, and thus reinforces the connection with current bioethical debates on Posthumanism. The most significant part of this quote is Dr Connor’s swift move from a therapeutic

approach (curing ills), to enhancing human beings so as to “find perfection”. Aside from the objective difficulties of this quest,¹⁷ the mere conceptualization of such a goal as morally legitimate and worthy of prioritization has found many critics, who underline the limits of this vision, evidently not so distant from tragic eugenic

programs of the past.¹⁸ Perhaps Michael Sandel is the most prominent of these critics, as his book *The Case against Perfection*¹⁹ explicitly refers to the term in the title as well as with its content.

The other message contained in the newest *Spider-Man* saga concerns another one of the most appealing ideas of Posthumanism: that of longevity. Longevity has taken center stage as a goal in discussions among Posthumanists.²⁰ Such positions are open to critiques,²¹ but here it is worth noting that in *The Amazing Spider-Man 2*, a central speech given by Gwen (Peter Parker’s girlfriend, who will die by the end of the film) has her saying explicitly: “What makes life valuable is that it doesn’t last forever”. This appears to be a rather critical statement against seeking life-extension and, even more so, against pursuing immortality.

Immortality is also a theme touched upon in *X-Men*, particularly by the character, Wolveri-

ne. Part of the expanded universe of the mutants of the saga, the Wolverine (or Logan) is one of the most popular characters and has had two of the seven films in the saga thus far dedicated to his story. Both of them touch upon themes associated with Posthumanism. In addition to longevity and immortality *The Wolverine*²² is the theme of PE in a stricter sense *X-Men Origins: Wolverine*.²³

Trying to overcome the shock of having had to kill Jane in a previous episode of the saga *X-Men: The Last Stand*²⁴ in *The Wolverine*, the protagonist suffers from recurrent nightmares concerning his past while living at the margins of society. A man that Wolverine had helped during WWII appears to be willing to help him put an end to his suffering:

Immortality may be a curse. It will not be easy for you living without time. You will only suffer more. A man can run out of things to live for, lose his purpose. [...] I can end your eternity. Make you mortal.

Once Logan refuses to spontaneously give up his immortality, we understand that his “friend” had only been moved by personal motives. He says to the Wolverine as he tries to extract his powers and kill him: “Your mistake was to believe that a life without end can have no meaning...it is the only life that can.” Eventually this “friend” does not succeed and the X-Men saga can continue, albeit not always in strict chronological order, but nonetheless with a rather coherent plot.

For example, in *X-Men Origins: Wolverine*, the viewer learns the story of James Logan prior to becoming the Wolverine. Logan and his half-brother, Victor Creed, are mutants with similar genetic features (while Logan grows claws out of his fists, his brother can grow his nails), who also share an incredible capacity to recuperate from wounds and resist time’s degeneration, making them practically immortal. Over time, after many battles

throughout the centuries, they develop different moral codes. While Logan remains attached to his “human nature” and a willingness to use his unique powers to do good, Victor begins to enjoy disability to exceed the “average morality,” and embrace to the fullest his (their) animalistic side.

This contrast eventually erupts into a sharp confrontation between them, which occurs during a mission they join with a US special unit assembled after the Vietnam War. The commander of the team, Major William Stryker, actually belongs to a secret agency within the US government researching ways to neutralize mutants. Stryker soon realizes that Logan is the perfect candidate to be physically enhanced into a super-soldier aimed at killing the other mutants.

However, Logan leaves his brother and the unit, so Stryker has to find new ways to accomplish of his goal, the annihilation of mutants at the hands of one of their own kind. Stryker carefully prepares a plan that eventually pushes Logan to spontaneously consent to undergo the experimental treatment that turns him into the Wolverine by adding adamantium (a fictional, nearly indestructible and yet light metal compound common to quite a few comic books) to his body. Alas, Stryker satisfies his God complex and brings his supersoldier to within arm’s reach: “We are gonna make you indestructible, but first we are gonna have to destroy you.” Unfortunately for Stryker, the Wolverine manages to free himself before his memory is erased, and escapes his doom as the mutants’ executioner. Instead, he eventually joins the X-Men, a group of mutants that, in contrast to some extremist groups that openly fight humans (such as the Brotherhood), is dedicated to fostering dialogue between humans and mutants.

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comic book characters. *Captain America: The First Avenger* probably remains one of the best examples on the topic and deserves some consideration. After desperately trying to be recruited by the US Army to fight against Nazism, and rejected for his extremely weak body, Steve Rogers has an opportunity to help his country in the war against the Axis powers. Dr Erskine (a balancing positive German character, who wants to help the world become better through improved morality, and not only through mere physical strength) selects him to become the first American super-soldier, wherefrom comes his new name, "Captain America."

Following injection of a serum, Rogers's body changes substantially. He becomes much taller and more athletic, so much so that he is stronger and faster than any other human being. His mission is to fight a subversive Nazi commander, Johann Schmidt (later addressed as Red Skull), a man obsessed with ancient relics and esoteric powers. Eventually, Captain America manages to defeat his enemy, but in order to do so, he ends up in hibernation for around 70 years somewhere in the North Pole, a result of him sacrificing himself to the greater cause of saving humanity.

Captain America's choice reinforces Dr Erskine's initial conviction: his morality is worthy of his PE. Despite the fact that his powers put him in an advantageous position, Captain America remains selfless and chooses to do the right thing. Of course, one could speculate over the impact of such physical enhancements had Captain America chosen otherwise, but a more detailed discussion of this question can be found elsewhere.²⁶ As I conclude this paper, I will briefly review perspectives on PE in two major TV series.

Conclusion: New Subjects, Old Dilemmas

The idea of having a genetic mutation or evolution is not uncommon in science fictional near-futuristic cinematic scenarios. Out of recent attempts made in TV series, I think two programs deserve attention. Although

their success and popularity were not the same, they can both provide interesting perspectives on the latest approach of TV to genetic mutation, unusual powers, and to some degree, to PE. The idea of mutants naturally carries with it a number of questions that are posed in all the cinematic projects concerned with PE and, although representing it in different ways, all eventually attend to two main enduring problems: is a mutant still human? If not, are the two groups of humans and mutants destined to fight each other instead of coexist in peace?

In the TV series, *Heroes*, a fantasy world full of (super) heroes and villains, who are enhanced by a genetic mutation that grants them incredible powers (such as flying, invisibility, and indestructibility), is skillfully synthesized with inputs from the real world, thus connecting the story closely to viewers, and thereby more intriguing. The plot revolves around a variegated group of people with special powers, who end up fighting against the villain of the story (Sylar), a villain striving to kill all others mutants, so that he can collect their powers to enhance his own. In "Genesis," the initial episode of the series, the bond between the fictional and the real world is brought forward and reinforced by Dr Suresh, one of the few protagonists without supernatural powers. During his class lecture, he says:

The human genome project has discovered that tiny variations in man's genetic code are taking place at increasingly rapid rates. Teleportation, levitation, tissue regeneration. Is this outside the realm of possibility? Or is man entering a new gateway to evolution? Is he finally standing at the threshold to true human potential?

And again, when asked if he believes there exist special (Posthuman we might say) individuals, he replies:

Some individuals, it is true, are more special. This is natural selection. It begins as a single individual born or hatched like every other member of their species. Anonymous.

Seemingly ordinary. Except they're not. They carry inside them the genetic code that will take their species to the next evolutionary rung. It's destiny.

Put in this way a Posthumanist future seems inescapable. In addition, where would we stand in such a scale of species?

In contrast to the success at the box office of the X-Men saga, in 2013 there was a failed remake (it only lasted one season) of the twice-successful British TV series from the 1970s and the 1990s, *The Tomorrow People*. Here, the *homo superior* people, genetically evolved from *homo sapiens*, have developed abilities such as telekinesis and telepathy. They face a special unit called "Ultra" that wants to hunt them down, since they represent a menace to humanity. In a rather simple plot, probably the only interesting addition is the inner emotional tension experienced by the main character (Stephen Jameson) in response to his dual allegiance to both *homo sapiens* and *homo superior*. This conflict resembles an interesting discussion in the bioethical literature brought forward by Nick Bostrom²⁷ and Michael Hauskeller²⁸ concerning a utopian, Posthumanist world and its inhabitants.

In "A Letter from Utopia," Bostrom depicts such a futuristic scenario as fully desirable. Posthumans can enjoy levels of culture, pleasure, and understanding that we (as simple human beings) cannot even grasp due to our structural limits. We should embrace the possibility to become more, because, as Hauskeller emphasizes in his reply to Bostrom's "Letter," some of the most prominent supporters of HE, affirm that "to choose to be better is to be human."²⁹ Yet he also raises a dilemma: Why would I wish for a future in which I would be considered inferior? And most importantly: How could I consider humanity so retrogressive, since only through that very human drive so deeply present in ourselves and concisely expressed by Julian Savulescu, can we reach the paradisiac Posthumanist state described?

TV series and films have portrayed hypothetical scenarios in which positive Posthuman/mutant characters are those who are willing

to maintain and strengthen their connections with humans; with those seen by some of them as inferior. This might be so because audiences are not yet ready to fully embrace Posthumanist ideology, or perhaps, because we can aim for better in a less individual-centered, more socio-egalitarian manner.

NOTE

¹ *Robocop*(1987):http://www.imdb.com/title/tt0093870/?ref_=nv_sr_2;

Robocop (2014): http://www.imdb.com/title/tt1234721/?ref_=nv_sr_1

² *Star Trek*, Episode "Space Seed": <http://www.imdb.com/title/tt0708447/>

Star Trek Into Darkness: <http://www.imdb.com/title/tt1408101/>

³ *The Amazing Spider-Man*: http://www.imdb.com/title/tt0948470/?ref_=nv_sr_2;

Captain America: The First Avenger: http://www.imdb.com/title/tt0458339/?ref_=nv_sr_3;

X-Men Origins: Wolverine: http://www.imdb.com/title/tt0458525/?ref_=nv_sr_1

X-Men: The Last Stand: http://www.imdb.com/title/tt0376994/?ref_=nv_sr_6

⁴ *Heroes*, Episode 'Genesis': http://www.imdb.com/title/tt0759572/?ref_=fn_al_tt_1;

The Tomorrow People: http://www.imdb.com/title/tt2660734/?ref_=nv_sr_1

⁵ D. HARAWAY, "A Manifesto for Cyborgs: Science, Technology, and Socialist-Feminism in the 1980s," in G. KIRKUP, L. JANES, K. WOODWARD, and F. HOVEN- DEN, *The Gendered Cyborg: A Reader*, eds., Routledge, New York, 2000, 50-57.

⁶ N. BOSTROM, "Recent Developments in the Ethics, Science, and Politics of Life Extension," in N. BOSTROM, *Ageing Horizons* 3: 2005, 28-33; N. BOSTROM, "Why I Want to Be a Posthuman When I Grow Up," in *Medical Enhancement and Posthumanity*, B. GORDIJN and R. CHADWICK eds., Springer, 2009, 107-137; N. BOSTROM, "A Letter from Utopia, version 1.9," 2010. Available at: <http://www.nickbostrom.com/utopia.pdf>.

⁷ For a more detailed account of the various sub-definitions of Posthumanism, see: F. FERRANDO, "Posthumanism, Transhumanism, Antihumanism, Meta-humanism, and New Materialisms: Differences and Relations," *Existenz* 8(2) 2013, 26-32.

- ⁸ N. BOSTROM, "Transhumanist Values," in F. ADAMS, *Ethical Issues for the 21st Century*, ed., Philosophical Documentation Center Press, 2003, 4-14. Available at: <http://www.nickbostrom.com/ethics/values.pdf>.
- ⁹ *Star Trek*, Episode "Space Seed": <http://www.imdb.com/title/tt0708447/>
- ¹⁰ Note the self-definition Khan gives of himself as one of an improved breed of human resulting from the Eugenics Wars (at a time when eugenics was still strongly associated with Nazism and thus automatically rejected by most people).
- ¹¹ The aesthetic and physiognomic "evolution" undergone by Khan's character is worth some Postcolonial considerations, which must here be brief. (For a more detailed analysis on how Postcolonialism and science fiction intertwine see: J. LANGER, *Postcolonialism and Science Fiction*, Palgrave MacMillan, 2011. Despite his enormous impact, Khan only appeared in one TV episode and two films of *Star Trek*, and interestingly, he gradually became more and more Anglo-Saxon in appearance. While in the 1967 episode he had (supposed) Indian features (dark skin and hair), in the 1982 film, Khan (played by the same actor, Ricardo Montalban) had already transformed into a more "acceptable" Western-like, punkish figure (this time his skin is not artificially darkened and his hair is white with blonde streaks). Finally, the choice of a new actor for the 2013 film (Benedict Cumberbatch) fitting a perfect British prototype leaves us with two main interpretations. On the one hand, one could see this evolution as a way of criticising this Posthumanist instantiation in a gradually more fervent way, by having Khan increasingly resemble the general Western audience. On the other hand, this move could indicate exactly the opposite: by reducing the gap between the viewer and the villain, greater room is left for the Posthumanist message -that we should embrace technology to become "better"- to be seen as acceptable, even desirable.
- ¹² *The Six Million Dollar Man*: <http://www.imdb.com/title/tt0071054/>
- ¹³ *The Bionic Woman*: http://www.imdb.com/title/tt0073965/?ref=tt_rec_tti
- ¹⁴ B. D. EARP, O. A. WUDARCZYK, A. SANDBERG, and J. SAVULESCU, "If I could just stop loving you: Anti-love biotechnology and the ethics of a chemical breakup," in *American Journal of Bioethics* 13(11) 2013, 3-17; B. D. EARP, A. SANDBERG, and J. SAVULESCU, "Natural selection, childrearing, and the ethics of marriage (and divorce): building a case for the neuroenhancement of human relationships," in *Philosophy & Technology* 25(4) 2012, 561-587; M. D. GARASIC, "Anti-love biotechnology: was it not better to have loved and lost than never to have loved at all?" in *American Journal of Bioethics* 13(11) 2013, 22-23.
- ¹⁵ J. HARRIS, *Enhancing Evolution: The Ethical Case for Making Better People*, Princeton University Press, 2007; J. SAVULESCU, "New Breeds of Humans: The Moral Obligation to Enhance," in *Ethics, Law and Moral Philosophy of Reproductive Biomedicine* 1(1) 2005, 36-39; M. D. GARASIC, "Human enhancement" in the EU, *Australian and New Zealand Journal of European Studies* 4(1) 2012, 31-41.
- ¹⁶ J. HARRIS, *Wonderwoman and Superman: Ethics of Human Biotechnology*, Oxford University Press, 1992.
- ¹⁷ M. HAUSKELLER, *Better Humans? Understanding the Enhancement Project*, Acumen Publishing, 2013.
- ¹⁸ J. HABERMAS, *The Future of Human Nature: On the Way to a Liberal Eugenics?* Polity Press, 2003; R. SPARROW, "A Not-So-New Eugenics: Harris and Savulescu on Human Enhancement," in *Hastings Center Report* 41(1), 2011, 32-42.
- ¹⁹ M. SANDEL, *The Case against Perfection*, Harvard University Press, 2007.
- ²⁰ A. DE GREY, *Ending Aging: The Rejuvenation Breakthroughs that Could Reverse Human Aging in Our Lifetime*, St. Martin's Press, 2007; N. BOSTROM, "Recent Developments in the Ethics, Science, and Politics of Life Extension," in *Ageing Horizons* 3, 2005, 28-33.
- ²¹ M. DI PAOLA, and M. D. GARASIC, "The Dark Side of Sustainability: On Avoiding, Engineering, and Shortening Human Lives in the Anthropocene," in *Rivista di Studi sulla Sostenibilità* 3(2) 2013, 59-81.
- ²² *The Wolverine*: http://www.imdb.com/title/tt1430132/?ref=nv_sr_1
- ²³ *X-Men Origins: Wolverine*: http://www.imdb.com/title/tt0458525/?ref=nv_sr_1
- ²⁴ *X-Men: The Last Stand*: http://www.imdb.com/title/tt0376994/?ref=nv_sr_6
- ²⁵ M. J. MEHLMAN, P. LIN, and K. ABNEY, "Enhanced warfighters: A policy framework," in M. L. GROSS and D. CARRICK, *Military medical ethics for the 21st century*, eds. Ashgate, 2013, 113-126.
- ²⁶ M. D. GARASIC, "Captain America: First Avenger or First Posthuman?," *Ethics and Films Journal* 3(2) 2013b. Available online at: <http://journal.eticaycine.org/Captain-America-First-Avenger-or>
- ²⁷ N. BOSTROM, "Why I Want to Be a Posthuman When I Grow Up," in B. GORDIJN and R. CHADWICK, *Medical Enhancement and Posthumanity*, eds. Springer,

2009.107-137; N. BOSTROM, "A Letter from Utopia, version 1.9." 2010. Available at: <http://www.nickbostrom.com/utopia.pdf>.

²⁸ M. HAUSKELLER, "Reinventing Cockaigne: Utopian Themes in Transhumanist Thought," in *Hastings Center Report* 42(2) 2012, 39-47.

²⁹ J. SAVULESCU, B. FODDY, and M. CLAYTON, "Why We Should Allow Performance Enhancing Drugs in Sport," in *British Journal of Sports Medicine* 38, 2004, 666-670.