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## **Posthumanism and Human-Animal Rights in *The Windup Girl*: Biotechnology, Power, and Control**

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This paper examines the intricate interplay between biotechnology, power, and control in Paolo Bacigalupi's *The Windup Girl*, exploring how the novel reflects pressing ethical and social concerns about posthumanism and human-animal rights. The dystopian narrative reveals a future dominated by corporate hegemony, where biotechnology reshapes human and non-human bodies for profit, highlighting the commodification of life and its implications for autonomy, identity, and ecological balance. Through the character of Emiko, a genetically engineered being, the novel interrogates the moral consequences of creating sentient beings as tools of labor, raising questions about agency and value in a world driven by technological advancements. Drawing on posthumanist theories by thinkers like Donna Haraway, N. Katherine Hayles, and Francis Fukuyama, this study situates Bacigalupi's critique within broader debates on biopolitics, transhumanism, and the dissolution of boundaries between human, machine, and nature. The paper employs a textual analysis approach, emphasizing the intersections of biotechnology, environmental collapse, and social inequality. It argues that *The Windup Girl* serves as a cautionary tale, urging a revaluation of ethical considerations in biotechnological progress and advocating for a more inclusive, non-anthropocentric vision of the future. Ultimately, the novel

challenges readers to confront the potential for exploitation embedded in the pursuit of posthuman ideals and calls for a balance between innovation and justice.

**Keywords:** Posthumanism, Human-Animal, Bio-Power, Transhumanism, Posthuman rights.

## **Introduction**

Biotechnology has long been touted as a transformative force that can enhance human capabilities and reshape the very boundaries of what it means to be human. However, as the future society depicted in *The Windup Girl* by Paolo Bacigalupi illustrates, the application of these powerful technologies can also yield a dystopian vision of the future, one in which corporations and states wield unprecedented control over bodies, resources, and environments. This paper will analyze how the novel's portrayal of biotechnology reflects contemporary concerns about the potential for these technologies to be used to assert domination over the posthuman body and identity.

*The Windup Girl* presents a world in which corporations, through the development of advanced genetically engineered organisms, have gained the ability to shape and control both human and non-human bodies in service of their own interests. This raises critical questions about the role of technology in defining the boundaries of the human, the subject, and nature itself. By examining the novel's depiction of these issues, we can gain insights into the complex interplay between biotechnology, power, and the construction of the posthuman condition.

## **Literature Review**

Existing scholarship on the relationship between biotechnology and the posthuman condition offers a rich framework for analyzing the themes explored in *The Windup Girl*. N. Katherine Hayles' seminal work "How We Became Posthuman". It highlights how the emergence of cybernetic and informatic discourses have challenged traditional notions of the human, opening up new possibilities for the reconfiguration of identity and subjectivity. Similarly, Donna Haraway's concept of the "cyborg" has been instrumental in theorizing the blurring of boundaries between the human, the machine, and the natural world.

Dystopian narratives, such as Aldous Huxley's *Brave New World*, have also long grappled with the social and ethical implications of biotechnology and its potential for control over the human body and identity. As the authors of "The Construction of Post-human Society in Brave New World" argue, the "synthetic man" produced through genetic engineering in Huxley's novel represents a form of posthuman that challenges traditional conceptions of what it means to be human.

### **Methodology**

To investigate the novel's portrayal of biotechnology and its impact on power, control, and the posthuman body, textual analysis approach, drawing upon relevant theoretical perspectives from the fields of posthumanism, science and technology studies, and critical theory is applied. The research pays particular attention to the novel's depiction of the dynamics between corporations, governments, and individuals, as well as the way in which biotechnological interventions shape the construction of posthuman identities and embodiments.

### **Bio-Power and the Human-Animal body**

The pervasive effect of biotechnology, especially in the field of agriculture, is central to *The Windup Girl*. The story takes place in a future in which countries become dependent on genetically engineered creatures due to a lack of food. With their monopoly on seeds and food production, the "calorie companies" control most of this terrain. "The Kingdom still hasn't figured out how to crack the seedstock, and all the politicians and generals want it for their household kitchens. Lots of face, if they can get it. I had solid pre-orders. I was going to be rich. Unbelievably rich." (Bacigalupi, 2009, p.83). In addition to reflecting humanity's arrogance in trying to dominate nature, this manipulation of living beings paves the way for exploitation and social inequality. The novel highlights the ethical ramifications of biotechnology breakthroughs by criticizing the pursuit of profit at the expense of human well-being and ecological balance. The issue of power dynamics is deftly woven into the plot of the book. Figures like Anderson Lake serve as prime examples of the vicious quest for dominance in a society where resources are limited. He observes, Power is the ability to define reality. It emphasizes how businesses

use their technical hegemony to alter society norms and values. Corporate interests and official complicity combine to create an environment that normalizes the exploitation of sentient humans as well as natural resources. This power structure highlights the risks of letting businesses set the terms of people's lives, which can result in systematic oppression and moral degradation. It should be obvious by now that Emiko's workplace relationships are not marked by freedom. She is a slave rather than a wage worker for two reasons: first, her great need for obedience and loyalty; and second, her employers' obvious view of her as property. Even yet, she receives compensation, and her pimp permits her to go freely throughout the city, despite the fact that she could easily be killed if someone caught her for what she is.

Emiko, the Windup Girl, is a moving examination of the posthuman situation. She struggles with her identity and value in a society that sees her as nothing more than a product because she was designed for slavery. Emiko's lament, "It is my honor to serve... I honor my patron" (Bacigalupi, 2009, p.145) shows her struggle for autonomy and self-definition. Deep concerns about what it means to be human in a world where bodies can be created and altered are brought up by her existence. Bacigalupi challenges readers to think on the moral implications of creating beings created only for the advantage of others by criticizing the commodification of existence through Emiko's journey. She is an android who is not only designed and constructed to satisfy her employers' needs, but she is also rigorously disciplined through Geisha-style training. Emiko herself is a result of a manufactured, commercially regulated production process. She gets objectified and further alienated while doing her job.

The story is significantly impacted by the backdrop of environmental collapse, which emphasizes how urgent it is to confront climate change. The world in which the protagonists live is one in which the effects of humanity's disrespect for the natural world are quite apparent. Comparable to the modification of living things, environmental deterioration raises questions about how ecological sustainability and technological progress are related. The representation

by Bacigalupi serves as a warning about what can happen if mankind keeps going in the same direction of exploitation and neglect.

The ethical dilemmas surrounding the creation of life for specific purposes are central to Emiko's narrative. Her contemplation, "You are not a dog, she reminds herself. You are not a servant. Service has gotten you abandoned amongst demons in a city of divine beings. If you act like a servant, you will die like a dog." (Bacigalupi, 145), highlights the moral complexities inherent in biotechnological advancements. The book challenges readers to consider the ramifications of considering sentient individuals as commodities and to consider the moral principles that support a society that is prepared to forfeit personal freedom in order to maximize profits. Through Emiko, Bacigalupi calls for a re-evaluation of humanity's obligations to all living forms and highlights the need of ethical issues in biotechnology. The readers do not feel sorry for her since she is not regarded as a genuine, sentient human being. Despite her extreme suffering, she is powerless to stop the torture.

The moral ramifications of modifying the human body are at the center of a major controversy within transhumanism. Proponents contend that improving the body through technological augmentation or genetic engineering can result in increased autonomy, longevity, and improved health. But *The Windup Girl* questions whether these improvements result in empowerment or if they just give rise to new kinds of exploitation and control.

Emiko's body is a metaphor for the posthuman state, which is that of a creature that has achieved greater autonomy and freedom at the expense of biological restrictions imposed on natural humans. Though she is more handsome, faster, and stronger than a typical human, her ultimate purpose is to assist others. Her artificially altered body turns into a battleground where her fight for autonomy and identity represents the larger moral conundrums raised by transhumanism: who gets to decide how these improvements are made, and for what purpose? Emiko's experiences show how the posthuman body might be used as an instrument of tyranny when commercial interests, rather than moral considerations, drive its design.

As soft as skin can be, and perhaps more so, because even if her physical movements are all stutter-stop flash-bulb strange, her skin is more than perfect. Even with her augmented vision she barely spies the pores of her flesh. So small. So delicate. So optimal. But made for Nippon and a rich man's climate control, not for here. (Bacigalupi, 2009, p.40)

The term autopoiesis was invented and popularized by Humberto Maturana and Francisco Varela in their 1972. The term 'autopoiesis' literally means; auto(self) and poiesis (creation). A system that has autopoiesis will produce itself by the interactions and will transform continuously and regenerate. The system will also realize the network of processes that helped produce it. The produced components constitute the system as a concrete unity in space in which they can endure by specifying the topological domain.

The first generation of cybernetic theory gave importance to the behaviour more than the structural units of a system. It announced cognition, consciousness and perception that have been essential and integral part of human life is constructed. The cerebral supremacy that is claimed is under question when cybernetic theory declares it a construct. If the cerebral supremacy is a construct, it can be constructed in another system of choice. The theories state that cognition is a result of information flow from the environment to the contingent. The flow establishes a feedback mechanism on the system and not just on material or structural elements. The feedback mechanism then forms a loop flowing from the environment and the body and then from the body to the environment. This promises the integrity of the system.

The concept of self-directed augmentation, in which people are free to select the changes they want, is one that transhumanism supports. However, as Bacigalupi's book demonstrates, in a society where access to biotechnology is governed by political and economic pressures, this ideal is rarely fulfilled. The risks associated with commodifying human bodies are highlighted by Emiko's lack of choice in her conception and design. Her modified body becomes a tool for oppression rather than promoting autonomy, posing serious moral

concerns about the effects of unrestricted genetic engineering. The new biology slowly erases the idea of self- controlled human. The new biology erases the idea of sovereign, bounded and autonomous life form.

Systems biology, another strand of thought in the early Posthumanist vision demonstrates how cell metabolism organises multiple elements in the body and transfers information, energy and chemicals. Just like cybernetics, systems biology focuses on relational behaviour and functions. It gives less importance to isolated elements and structures. Systems biology also views the biological system as an open environment which is in constant interaction. Francis Fukuyama writes Human biotechnology

Human biotechnology differs substantially from agricultural biotechnology insofar as it raises a host of ethical questions related to human dignity and human rights that are not an issue for GMOs” (Fukuyama,2002, p.213).

The autopoietic living system must have identifiable boundaries. It should be separated from its environment and every system should operate to maintain its essence and organisation according to Post and Transhuman theorists. When this separation with the environment happens, the system is ‘closed’. When the system is closed, its processes among the components rely only on each other and it sustains these processes.

The possibility of biotechnologically enhancing bodies also alters the workforce’s potential, as demonstrated by Emiko’s example. Although people can choose to better themselves to increase their chances of performing a particular profession, Bacigalupi emphasizes that many people undergo improving operations without realizing it. Global market capitalism demands workers who can produce the most profit with the least amount of pay, upkeep, and training. Though *The Windup Girl* cautions that if technological breakthroughs are not guided by values of justice and equity, transhumanism predicts a future in which mankind is able to transcend its biological limits. Bacigalupi’s dystopian novel serves as a warning, provoking readers to consider how biotechnology can affect society and the human body in the future

and advocating for a more responsible approach to the quest of posthumanism.

## Conclusion

Paolo Bacigalupi creates a dystopian future in *The Windup Girl* that simultaneously alludes to and reflects current concerns about biotechnology, power, and identity. The book forces readers to consider the moral limits of scientific progress through its examination of genetic engineering, corporate domination, and the ramifications of a posthuman body. The picture presented by Bacigalupi challenges us to think about the possible outcomes of our decisions and what might happen to us in the future if we ignore the intricate interactions that exist between technology, the environment, and humankind. In the end, *The Windup Girl* is a potent reminder of the transience of life and the moral need to proceed with caution in a world where the distinction between human and machine is becoming increasingly hazy.

The idea that other human and nonhuman bodies are expendable is rejected by posthuman affirmative ethics, which aims to create a more expansive, affective subjectivity based on affective, material, and immaterial ties to numerous other people. Theories on cognition, consciousness, biology and machine intelligence contribute to the Posthumanist thought. The future that these ideas hypothesize advocate coevolution of multispecies and the necessity for alterity to subjectivity. Whilst advocating the benevolent, non-anthropocentric ideologies, the posthuman future still holds a dystopian tone. This exploitation of biological resources transforms animals into commodities that can be traded and consumed. Unlike fossil fuels, which are 'non-renewable', biopower allows the capital and ideological shift to renewable 'life' resources of nature. The industrial exploitation serves also as a spectacle. The reaping of organs is not just a mere production process, it is also a spectacle that shapes consumer perceptions. The act of reaping parts from animals is presented in a way that obscures the violence that is involved. It transforms the act into a spectacle of consumption which is palatable to the consumers. Shukin continues to argue that this perception reflects a broader cultural tendency to sanitize and aestheticize the truths of animal exploitation



for capital. Biopolitics rules in the Post/Trans- human world. It has the power to change cultural concepts and perceptions. Since, genetic manipulation is a source of economy, it influences individuals' behaviours and choices. Biopolitics highlights the relationship between power dynamics and the lived experiences of populations. As the characters in the fiction move towards a more renewable biological resource/capital in the embodiment of an animal, the capital is prioritized over cultural practices.

According to Kant, if mankind is to become the purpose and goal of history it will only be the as the result of an inhuman force (nature), and not on account of human intentions or designs. In other words, mankind's ultimate humanity only be actualized through a process of in-humanization. The ascetic ideals that often accompany discussions of the transhuman condition, suggests that these ideals can lead to a reification of human limitations. Rationality challenges these notions by advocating for a more dynamic understanding of human potential, emphasizing the importance of embracing change and evolution rather than clinging to outdated moral frameworks of traditional humanism. Rationality and objectivity are vital for transcending the limitations of the current human condition. By critically examining the nature of humanity and its potential for evolution, individuals can envision a future where human capabilities are enhanced through technology. This vision aligns with Nietzsche's philosophy, which encourages the overcoming of human constraints to achieve a higher state of existence

As human biological embodiment is often perceived as a burden or even a curse, the deliberate elimination of embodied humans is seen by some as a hopeful solution for humanity's future. The belief is that humans can transcend their limitations by engineering and taking control of the evolutionary process.

However, genetic modification and enhancement technologies raise complex ethical concerns, particularly around individual autonomy. Philosopher Jürgen Habermas argues that a genetically modified person might struggle to view themselves as fully autonomous or capable of making independent, responsible decisions. This leads to questions

about accountability—how much responsibility can be assigned to someone whose traits and behaviors were shaped by external interventions, such as parental or societal choices?

Another pressing issue is the potential for these technologies to exacerbate social inequalities. If only a privileged few can afford genetic enhancements, society risks creating a divide between the “enhanced” and the “unaltered.” This new hierarchy could undermine core principles of liberal democracy, such as equality and individual freedom, echoing Habermas’s concerns about biotechnologies eroding democratic foundations.

The issue of informed consent becomes especially tricky in this context. Individuals may not fully grasp the long-term consequences of genetic modifications or enhancements, particularly when such decisions are made by parents on behalf of their children. It is critical to ensure that people have the ability to make informed, autonomous decisions about their own bodies and identities—a challenge made even harder by the rapid pace of technological advancement.

As these technologies blur the lines between human and machine, questions arise about the essence of human identity. How do we define humanity in a world where beings may possess enhanced or artificial traits? What rights and moral considerations should be afforded to such enhanced individuals? These philosophical debates surrounding posthumanism and transhumanism urge us to reflect on what it means to be human and how these changes might reshape our shared values. Finally, there is the ethical dilemma of whether society should prioritize individual enhancement over addressing global challenges like poverty or environmental degradation. This tension calls for a reevaluation of humanity’s values and priorities in the face of transformative technological progress.

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