

## A Literary Behavior Analysis of *Ghost in the Shell*: From Science to Art of Behaviorism\*

Análise Comportamental Literária de *Ghost in the Shell*: Da Ciência Para uma Arte do Behaviorismo

Análisis Conductual Literária de *Ghost in the Shell*: Da Ciência a la Arte do Conductionismo

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**Abstract:** Although behavioristic works have had substantial effects on many fields, the art and entertainment world had responded largely negatively or insensitive to behaviorism in the past. More recently, however, as the field of Applied Behavior Analysis grew, a new wave of behavioristic art has emerged. With this new trend, the argument can be made that it is now time to develop a fully-fledged art of behaviorism, both in terms of art making and art theory. In this paper, I present a literary analysis of the film, *Ghost in the Shell* (Oshii, 1995), as a form of behavioristic literary criticism based on the works of three contemporary behaviorists, B. F. Skinner, Gilbert Ryle, and Ludwig Wittgenstein. From a behaviorist point of view, the film presents a juxtaposition between Motoko's belief and the environmental influences on her personal identity.

**Keywords:** art theory; behaviorism; behavior analysis; *Ghost in the Shell*

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**Resumo:** Ainda que as obras behavioristas tenham tido efeitos substanciais em muitos campos, o mundo das artes e do entretenimento reagiram, em sua maioria, de forma negativa ou insensível ao behaviorismo no passado. Recentemente, a medida que o campo da Análise Aplicada do Comportamento crescia, surge também uma nova onda de arte comportamental. Por esta nova tendência, pode-se argumentar em favor do desenvolvimento de uma arte comportamental amadurecida, também em termos do fazer artístico quanto da teoria das artes. Neste trabalho, apresento uma análise literária do filme “Ghost in the Shell” (Oshii, 1995), como forma de crítica literária comportamental com base em obras de behavioristas contemporâneos, B. F. Skinner, Gilbert Ryle e Wittgenstein. De um ponto de vista comportamental o filme apresenta uma justaposição entre a crença de Motoko e as influências ambientais em sua identidade pessoal.

**Palavras-chave:** teoria da arte; behaviorismo; análise do comportamento; Ghost in the Shell.

**Resumen:** Aunque las obras behavioristas han tenido efectos substanciales en muchos campos, el mundo del arte y el entretenimiento ha respondido mayoritariamente de forma negativa o insensible al behaviorismo en el pasado. Más recientemente, sin embargo, a medida que crecía el campo del Análisis Aplicado de la Conducta, una nueva onda de arte conductual ha surgido. Con esta nueva tendencia, se puede argumentar que ahora llegó el momento de desarrollar un arte conductual madura, tanto en términos de hacer arte cuanto de teoría del arte. En este trabajo, presento un análisis literario de la película “Ghost in the Shell” (Oshii, 1995), como forma de crítica literaria conductual con base en las obras de tres behavioristas contemporáneos, B.F.Skinner, Gilbert Ryle y Ludwig Wittgenstein. Desde un punto de vista conductual, la película presenta una yuxtaposición entre la creencia de Motoko y las influencias ambientales en su identidad personal.

**Palabras clave:** teoría del arte; behaviorismo; análisis de la conducta, Ghost in the Shell.

By the time behaviorism had fully matured in the 1950s with the works of B. F. Skinner, Gilbert Ryle, and Ludwig Wittgenstein (Day 1969; Schnaitter, 1985)<sup>1</sup>, the public had already formed the image of behaviorism based on early, if not misunderstood presentations of its field. Such images can be seen in the works of art such as *Brave New World* (Huxley, 1932), *Nineteen Eighty-Four* (Orwell, 1949) and *A Clockwork Orange* (Burgess, 1962/1986). These artworks only mention the (mis)use of Pavlovian conditioning and did not show any sign of understanding of behaviorism or Skinner and other operant conditioners' scientific works (Newman, 1991; 1992). Some efforts have been made to counter this public image. For example, Skinner himself engaged in art making by publishing *Walden Two* (1948), and literary behavior analysis of Shakespeare's *Sonnet* (1939), among other activities. Though Skinner's works have had substantial effects on many fields, the art and entertainment world was largely negative or insensitive to them (Newman, 1993). Despite the continuous growth of the field (Araiba, 2020), behaviorism has not yet been incorporated into mainstream art and entertainment, and consequently, into ordinary people's language (in comparison to, say, psychoanalysis and humanistic psychology).

More recently, however, as the field of applied behavior analysis (ABA) grew, a new wave of behavioristic art has emerged. This new trend has two significant features: 1. It treats behaviorism positively and 2. It is primarily concerned with operant conditioning. For behaviorism-inspired art making, the most notable example is *Let me hear your voice: A family's triumph over autism* (Maurice, 1994), which gives a narrative account of a family with a child on the autism spectrum who experienced ABA therapy. Similarly, ABA practitioners also began engaging in artmaking on YouTube and other media. I have also at-

tempted behavioristic creative writings (Araiba, 2016; 2017). For behaviorism art theory, Hineline (2018) and Mechner (2018) are recent examples. In the present paper I present my literary analysis of the film *Ghost in the Shell* (Oshii, 1995) as a form of behavioristic literary criticism, which was first presented on my YouTube channel in 2020. With this, the argument can be made that it is now time to develop a fully-fledged art of behaviorism, both in terms of art making and art theory.

## Ghost in the Shell

*Ghost in the Shell* is a 1995 Japanese science fiction anime film directed by Mamoru Oshiki, based on the manga of the same title by Masamune Shirow (Shirow, 1991/1996). The story is set in Japan in the future where people enhance their abilities by modifying themselves to be a cyborg. The story follows the adventure of Motoko Kusanagi, a leader of the special police force, referred to as Section 9. In the film, Motoko and her team chase a hacker, known as The Puppet Master, who breaks into the cybernetic human brains and forces people to engage in criminal activities. As the investigation continues, Motoko as a full cyborg, stumbles upon a question of personal identity. She begins to question if she has any reliable source of personal identity when all her body parts have been replaced and are reprogrammable.

## Motoko's Identity Crisis

Motoko and her fellow coworkers with cybernetic bodies believe the one element that they can identify as themselves is the ghost, a soul-like concept. They believe that each person possesses a non-physical ghost, unique and irreplaceable to themselves, which existence they recognize based on personal memories, bodily sensations, and gut feelings. They believe that it is something one cannot lose even when one becomes a full cyborg. This type of belief, about a soul and a spirit, is prevalent both in Eastern and Western cultures. For example, Descartes famously postulated the existence of the non-physical mind in the physical human body and

1 I include Ryle and Wittgenstein as behaviorists alongside Skinner. Behaviorism occurred in psychology (Skinner and his predecessors) and in analytic philosophy (Ryle, Wittgenstein and others) somewhat independently but "...all were both psychological and behavioristic. All stood opposed to some version of mentalism. Arguments and positions taken in these works were often remarkably similar." (Schnaitter, 1985, p. 149).

made it responsible for human higher-order capabilities such as language and free will (Descartes, 1641/2013).

The Puppet Master reprogrammed a sanitation worker's ghost by inserting false memory and false identity. By doing so, The Puppet Master was able to control the sanitation worker to engage in criminal activities. This is a problem for Motoko because 1. the ghost turned out to be physical and 2. the ghost is no longer a secure and trusting source of personal identity. This experience implants doubt into Motoko's mind about her own personal identity, her memories, and her beliefs. As you can imagine, Motoko experiences an existential crisis.

## Motoko's Transcendental Theory

When Motoko discovers that The Puppet Master is able to rewrite another person's ghost, she loses the only reliable source of her identity, and thus the significance of her existence. Against the dread of accepting this materialistic reality, Motoko develops a theory that her ghost is something beyond her body. She believes her body is like a jail restricting her true ghost and her ghost belongs to the transcendent. And her theory is strengthened by the presence of The Puppet Master, who presents himself as a conscious being that emerged from the "sea of information" without having a body. Motoko sees The Puppet Master as an entity that confirms her theory and something that she aspires to become.

## Ghost in the Machine

Is Motoko right about her theory? Behaviorists have responded to such a question negatively. In fact, the title *Ghost in the Shell* comes from one such response. The title of this film comes from the phrase, "ghost in the machine," which is a book by Arthur Koestler (1967), who took the phrase originally from a philosophical (logical) behaviorist Gilbert Ryle's (1949) book, *the Concept of Mind*.

In Ryle's book, he coined the term, "ghost in the machine," to deny the existence of the mind as a non-physical entity separate from the body as postulated by Descartes (1641/2013). Descartes originally

developed a dualistic mind-body theory based on his observation that human anatomy looked very similar to that of other animals (there was no concept of neurons at this point in time). He theorized, that because the anatomies are the same, behavioral differences between humans and other animals must reside in something non-physical. Descartes indicated that humans have a spiritual mind that allows them to engage in higher order mental processes, such as language and consciousness, whereas animals cannot. Although Descartes' simple form of the mind-body dualism might not be relevant in contemporary thought, the essence of his dualism is still part of our discussion about the problem of consciousness (Schlinger, 2008), artificial intelligence (Schlinger, 1992) and cognition (in the field of behavior analysis, this issue comes up in the studies of stimulus equivalence phenomenon, Sidman, 1997).

Ryle, however, pointed out that such dualism is a mistake of categorization. He argued that there is no basis for categorizing some behavior as a manifestation of higher order mental processes and others as simple bodily processes, because all we observe is behavior. For example, we assume that there is a language center in our brain that is in charge of all linguistic behavior, when, in reality, we only observe isolated instances of behavior that might or might not be related to each other in its cause (there might be various parts of the brain responsible for various aspects of "linguistic" behavior). Ryle says that this process is just like how people infer the existence of a ghost based on sounds (squeaking noise), images (moving shades), and movements (a shaking floor), when all these events might not be related to each other and have separate causes. It is a mistake to think that an invisible ghost is responsible for these events.

In the case of Motoko, she mistakenly infers the existence of the ghost that is in charge of her thoughts, consciousness, memories, and feelings when all she can observe is her bodily behavior and sensations. Instead of attributing such events to her cybernetic body, she believes that there must be something non-physical that is responsible for all of her behavior. Much the same, as when Motoko believes the existence of The Puppet Master is a non-physical entity solely based on his speech and actions. According to Ryle, this is a mistake.

## The Philosophical Disease

Ludwig Wittgenstein, a philosophical behaviorist, (1953) pointed out that philosophers' tendency is to focus too much on metaphysics (non-physical entity) over real-life events and called this imbalance a disease of philosophy. Wittgenstein proposed that philosophers be more like a therapist to untangle this disease and direct people's attention back to the physical world. Analogically, Motoko's mistake about the ghost becomes problematic when she rejects her physical body and her society and aspires to go transcendental. This is problematic because the only way to become transcendental is to give up life on Earth. She is contracted with a philosophical disease.

This too is echoed in psychological behaviorists' attitudes toward mental illness and diagnosis (e.g., Goddard, 2014; Pérez-Álvarez, 2004). Psychological behaviorists view psychological diagnosis as a misleading label that makes people believe that there is a cause residing in a patient's body, just like a virus in the human body being the cause of some symptoms. This categorization theory of mental illness misdirects people to think of psychological illnesses as a purely biological problem and misses the environmental and social effects on the patient's emotional and behavioral issues, making it difficult to actually improve the patients' life. In the case of Motoko, she ignores the environmental factors that brought her to believe in the existence of the ghost in the first place. Instead of resolving or improving her environmental and social issues, Motoko focuses on the non-physical concept, which is impossible to attain. She accepts the unification with The Puppet Master and cuts off her society.

## Behavior Analysis of Personal Identity

How did Motoko develop this philosophical disease? Motoko was contracted with the philosophical disease when she witnessed the sanitation worker being hacked by The Puppet Master. The Puppet Master rewrote the sanitation worker's ghost such that the sanitation worker believed he had a wife and daughter when, in reality, he had none. This

prompted Motoko to question her own identity, but she failed to realize one crucial detail in this investigation. She left out that the police were able to identify the sanitation worker's true identity. The police did not look into this man's hacked brain and retrieve the original memory. They searched the man's environment. They looked at the apartment he lived in, the photos he had, and people he interacted with. That is, his personal identity was validated by the products of his interactions with the environment. Behaviorists argue that one's identity is not in the brain but in the environment (see Palmer, 1991, for behavioristic take on memory). Motoko misses the environmental influence on the development of personal identity, which consequently allows her to develop the transcendental theory of the ghost.

Motoko's living situation also suggests how she was prone to the philosophical disease. She lives by herself; no family or friends, and no close relationships. She is completely alone. Her living condition resembles that of the sanitation worker. This is a perfect condition for the philosophical disease to develop because she is not in touch with society (as Descartes, 1641/2013, said, that it is only possible to do philosophy in a quiet and warm place, alone). And as Motoko's disease worsens, she hints at quitting Section 9, her only point of contact with society.

In *Ghost in the Shell*, this is contrasted with Togusa, one of Motoko's coworkers. Togusa has a mostly biological body, he has a family, and transferred to Section 9 from a local police department. He is one of the investigators who found the sanitation worker's original identity. Togusa is resistant to the philosophical disease (e.g., he does not believe in the ghost), because he is fully embedded in society. Even if The Puppet Master would hack Togusa's brain, his environment intervenes immediately.

Furthermore, although Motoko is a loner, that does not mean there is no environmental effect on her personal identity. Skinner (1945; see also Day, 1969) makes a case that the very act of thinking and asking questions, as well as developing the concept of identity (so-called private events), is behavior that someone else in society helped facilitate her to do. Thus, even though Motoko is alone at this moment, this does not mean she was always alone, or



that being alone is the basic condition of her existence. Someone has taught her how to speak when she was a child (or someone programmed her cybernetic brain to speak in a certain manner), someone made her cybernetic body, and someone has been maintaining her body ever since she got it. It is a mistake to disregard all of these environmental contributions and believe that her personal identity solely resides in her ghost. Her identity is in her environment - past and present. In the film, Motoko does not realize this fact and pursues the possibility of becoming transcendental.

## Conclusion

*Ghost in the Shell* as a behaviorist views it, is a film about the myth of personal identity. Motoko makes the mistake of thinking that her ghost exists independent of her physical body, she believes her ghost defines who she is, which prompts the development of a philosophical disease. The film clearly provides the counter argument to Motoko's transcendental theory of personal identity with the case of the sanitation worker, as well as its very title. Thus, from a behaviorist point of view, the film presents a juxtaposition between Motoko's belief and the environmental influences on her personal identity. Such conflict makes *Ghost in the Shell* a science fiction classic and one that helps us look at our own relationship between behavior and personal identity.

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