

## ***The Principle of Alternative Possibilities: An Ethical Research Framework for Human Sexual Interactions with Robots***

El Principio de Posibilidades Alternativas: un marco de investigación ético para las interacciones sexuales humanas con robots

**Adrià Harillo Pla**

University of São Paulo (UNESP), Brazil  
Universidade do Estado de São Paulo (UNESP), Brasil

### **Artículo de Investigación**

#### **Resumen**

En este artículo, presento tres escenarios relacionados con las interacciones sexuales humanas con robots. Me acerco a ellos considerando el desarrollo, la distribución y el compromiso con estas tecnologías. Estos tres escenarios muestran diferentes niveles de avances, posibles estereotipos y dilemas éticos, aclarando el amplio espectro de expectativas, principios y resultados sociales entrelazados con la robótica sexual. Subrayando la importancia de la toma de decisiones individuales en este ámbito, en este artículo defiendo el Principio de Posibilidades Alternativas

(PAP) como un marco relevante para comprender y evaluar las implicaciones morales de estas elecciones. Debido a este hecho, considero que el PAP es un marco de investigación válido para la robótica sexual, ya que respeta la diversidad de opciones, defiende la agencia moral de los agentes sociales y aborda las responsabilidades éticas inherentes a los procesos de toma de decisiones. Es importante aclarar, al mismo tiempo, que este artículo es conceptual y preexperimental.

**Palabras clave:** consideraciones éticas, Principio de Posibilidades Alternativas (PAP), robótica, tecnología sexual, responsabilidad social.

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**Correspondencia / Correspondence:** Adrià Harillo Pla. Rua Dr. Bento Teobaldo Ferraz, 271 - Barra Funda, São Paulo, Brasil, (Código Postal: 01140-070). Correo-e: adria.harillo@gmail.com

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## **Abstract**

In this article, I present three scenarios regarding human sexual interactions with robots. I approach them by considering the development, distribution, and engagement with these technologies. These three scenarios, show different levels of advancements, potential stereotypes, and ethical dilemmas, clarifying the wide spectrum of expectations, principles, and social outcomes intertwined with sexual robotics. Underscoring the significance of individual decision-making in this domain, in this article I advocate for the Principle of Alternative Possibilities (PAP) as a relevant framework for understanding and assessing the moral implications of these choices. Due to this fact, I consider PAP to be a valid research framework for sexual robotics, since it respects the diversity of choices, upholds the moral agency of social agents, and addresses the ethical responsibilities inherent in decision-making processes. It is important to clarify, at the same time, that this article is conceptual and pre-experimental.

**Keywords:** ethical considerations, Principle of Alternative Possibilities (PAP), robotics, sexual technology, social responsibility.

## Introduction

Is the development of sex robots possible, desirable and salutary? This is a philosophical question that is currently being analyzed. Although the term robot comes from a 1920 science fiction play titled *Rossum's Universal Robots* written by Karel Čapek (Kuiper, 2014), it was Isaac Asimov who, in the 1940s, introduced the term robotics (Bartneck et al., 2020, p. 6). The philosophical discussion on sexual robots, however, is usually linked to the topic of Human-Robot Interaction (HRI), since it focuses on the ways in which people engage with robots (Bartneck et al., 2020; Breazeal, 2004). The expression “social robot” dates back to 1935, when it was used as a negative term to describe an individual with a cold and distant personality. In 1978, the term took on its current meaning, as an object of study with the goal of making those interactions more appealing (Bartneck et al., 2020).

Among the diversity of scholars who have been interested in Human-Robot Interactions, there are also philosophers. Precisely, one of the forms of interaction that has received increasing philosophical attention, is that one of a sexual nature. The establishment of this scope of studies, by itself, is often considered to have begun with Levy (2007). After, the publication of other books have followed (Danaher and McArthur, 2018; Devlin, 2018). Philosophically, the majority of authors approached the topic by exploring ethical considerations related to right and wrong, and judging if these interactions are desirable and salutary (Nyholm, 2022; Peeters and Haselager, 2021). Other authors approached the topic by making of epistemological inquiry the core of their research, while some placed metaphysics at the center (Folkmann, 2010; Frank and Nyholm, 2017; Nyholm, 2020).

Current philosophical discussions on the matter can be generally divided among those who consider that these sexual robots could have some sort of agency, or sentience, and those who grant them no agency, or a limited one (Akova, 2023; Nyholm and Frank, 2018). While I acknowledge this difference, the majority of the academic production takes as a conceptual framework sexual robot without sentience nor agency. This factor is key, since it is determinant for putting in the center of the philosophical research the human, instead of the robot (Gerdes, 2016).

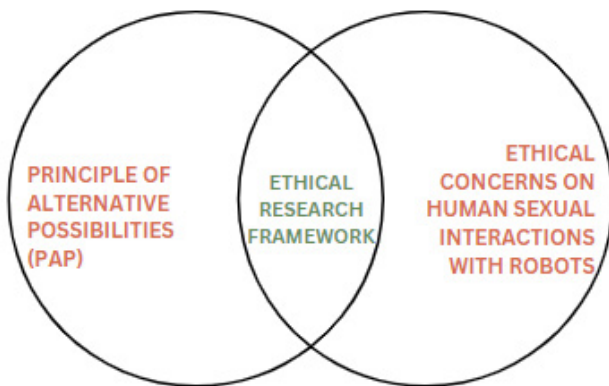
In this article, I present the ethical Principle of Alternative Possibilities (from now on: PAP) as a valid ethical framework to be taken when performing

ethical research in the field of human sexual interactions with robots. To make this article relevant, and after clarifying the methodology in “Materials and methods”, I deliver the results of this research in “Results”. The results show PAP as a valid ethical position when performing ethical research on human sexual interactions with robots. Its validity is the consequence of being an inclusive research framework which acknowledges, and considers, different concerns and realities that appear when obtaining conclusions about human sexual interactions with robots. In “Discussion”, I present a philosophical discussion concerning the subject, and I acknowledge some of its limitations, while presenting potential lines of future research.

### Materials and methods

In this article, I use a qualitative and theoretical research approach. I focus this research on analyzing the most academically recognized literature regarding the Principle of Alternative Possibilities (PAP). I extend, after, the research to human sexual interactions with robots. The goal is to identify the most common scenarios and concerns present in this relatively new philosophical topic. To conclude, I apply PAP to these scenarios. See Figure 1:

**Figure 1.** Combination of both axis of this research with the goal in the center



The choice to employ qualitative analysis of secondary data, and a theoretical approach, is driven by various considerations. Firstly, the research question is exploratory and conceptual. Secondly, there is a wealth of scholarly literature on PAP, social robotics, human-robot interactions, and human-centered creativity, but not too many publications exist on quantitative studies regarding

human sexual interactions with robots, and its research framework. One of the exceptions could be the one from Brandon and colleagues (2022). Lastly, this method allows for the integration of diverse perspectives from multiple sources, facilitating a comprehensive exploration of the research question.

To conduct this qualitative and theoretical analysis, I performed a literature review which involved reputable academic databases, including peer-reviewed articles, books, conference proceedings, and relevant reports. I selected the sources based, exclusively, on their relevance to the research topic and prestige within the scholar system.

By utilizing secondary data, I use a cost-effective and efficient methodology to address the theoretical validity of PAP as a conceptual framework to perform research on human sexual interactions with robots. Additionally, I mitigate ethical concerns associated with direct human empirical experimentation.

## **Results**

The research findings underscore the different existing possibilities when approaching the topic of developing, distributing, and engaging with sexual robots. These options range from empowering advancements to potentially harmful stereotypes and ethical dilemmas. This diversity in its development, distribution, and engagement, reflects a diversity of expectations, principles, and anticipated social outcomes associated with sexual robotics. It also highlights the interplay between technological innovation, societal values, and ethical considerations in shaping the future of human-robot interactions.

Moreover, the active role of different social agents in choosing among these diverse possibilities emphasizes the importance of individual decision-making. Due to this fact, I conclude that the Principle of Alternative Possibilities emerges as a pertinent framework for understanding and evaluating these decisions and their moral implications. This principle acknowledges that social agents are morally responsible for the choices they make, given the alternative possibilities available to them.

I defend that by using PAP as a research framework it is respected the diversity of choices, the moral agency of social agents, and the ethical responsibilities inherent in decision-making. According to the obtained results, this framework offers insights that can inform responsible innovation, ethical guidelines, and societal discourse surrounding sexual robotics. See Table 1:

**Table 1.** Results of this research based on the development, entanglements, and ethics involved in the different cases evaluated

	Case A	Case B	Case C	Synthesis
Development	Sex robots could be developed with agency and sentience, or without it.	Sex robots could be developed as stereotypical women, to be abused, or as lacking complete agency, They could also be developed in different ways.	Sex robots could be developed as a necessary tool, and under monopolistic conditions. They could also be developed in different ways.	Sex robots could be developed in many ways, even in opposite ways. This decision could be the result of different expectations and principles, and could produce different social outcomes.
Entanglements	Developers could decide what kind of robot to develop. Distributors could decide what kind of robot to distribute, to whom, and under what circumstances. The customer could select how to use the robot, and how it affects its human sexual partners.	Developers could decide what kind of robot to develop. Distributors could decide what kind of robot to distribute, to whom, and under what circumstances. The customer could select what kind of robot to select.	Developers could decide what kind of robot to develop and what business ethics to follow. Distributors could decide what kind of robot to distribute, to whom, and under what circumstances. The customer could choose to use the robot as a complement, or as a substitute.	Different social agents could choose among the different available possibilities.

Ethics	Developers, distributors, and users, have different possibilities. According to PAP, they are accountable for the chosen option among the possibilities.	Developers, distributors, and users, have different possibilities. According to PAP, they are accountable for the chosen option among the available choices.	Developers, distributors, and users, have different possibilities. According to PAP, they are accountable for the chosen option among the available choices.	Different social agents are morally responsible for their decision, and usage, regarding sexual robots. This is coherent with the Principle of Alternative Possibilities.
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**Discussion**

***Principle of Alternative Possibilities (PAP)***

The objective of this research is not to perform a metaethical approach to the PAP, but rather its applicability as a research framework for human sexual interactions with robots. As a consequence, the results are based on the definition of the PAP provided by the Stanford Encyclopedia of Philosophy. According to it, “a person is morally responsible for what she has done only if she could have done otherwise” (Robb, 2020).

This approach has been criticized, mainly, by deterministic approaches. Although I acknowledge the deterministic approach, it does not seem to invalidate, specially, the relevance of the PAP as a research framework for human sexual interactions with robots. If by adhering to a strong deterministic viewpoint we conclude that Genetics, God, limited foresight, or other factors limit a person’s capacity to choose among alternatives, this does not seem to make a difference between sex with robots, or any other kind of action. Precisely because of this, usually the PAP considers the concept of freedom. Again according to the Stanford Encyclopedia of Philosophy, “a person is ultimately morally responsible for what she has done only if she could have done otherwise [and often] only if she did it freely” (2020).

I conclude that the PAP, as a research framework in which “a person is ultimately morally responsible for what she has done only if she could have done otherwise [and often] only if she did it freely” is valid for human sexual interactions with robots. However, to come to this conclusion logically, I

have to prove that in the majority of scenarios present in the scholar literature, the involved agents are free, and can choose, by action or omission, among courses of action.

### ***Sexual robots with or without agency***

Academic production concerning sex robots focuses mainly on robots lacking sentience or agency (Akova, 2023). This is because the technical requirements to achieve robots with agency and sentience are very complex, and are still far from being achieved. When this kind of robot is possible (if ever), its price will be very high, at least initially, if we take as a reference the example of other technological innovations (Jackson, 2018). This means that in our current economic context, sexual robots with agency and sentience will not be available, soon, to the public. However, the source of the artificial sentience and agency is often thought to be possible in the same way as other artificial organs work. For example, a Total Artificial Heart replaces a natural heart, and with that (among others), human life is possible. In the same way, the usage of an artificial element might replace the natural part that allows for sentience and agency, without compromising sentience or agency for the robot (Akova, 2023).

In these cases, the main philosophical concerns refer to the fact that, if a robot does not have agency or sentience, the user could instrumentalize it, and by extension, end up instrumentalizing human sexual partners (Lancaster, 2021; Richardson, 2015). While acknowledging this concern, from a PAP approach, the user has certainly the possibility of instrumentalizing the robot, as with another artificial interactive device thought to generate pleasure or fun, let's say, a vibrator, or a console to play video games. The user has, nevertheless, other alternatives. The user could, for example, show attitudes of respect, care, and even admiration towards the artificial object, similar to those shown by collectors towards the inanimate, artificial and interactive objects that they own. An illustrative example of this could be the one from a car collector.

As I already mentioned, the other main concern that often appears when addressing the topic of sexual robots without agency or sentience, is that the instrumentalization of the robot would extrapolate to human sexual partners, for example, in the form of rape (Danaher, 2017; Regehr and Glancy, 2001; Sparrow, 2017). Once again, I would like to acknowledge the relevance



of those concerns. We could probably agree, however, in the existence of interactive practices involving humans and artificial instruments, such as laser tag or paintball. Statistically speaking, people playing laser tag or paintball, do not end up committing murder. Due to this, and from a PAP perspective, there exist alternative possibilities, both from the developer and the consumer standpoint. Even if at any point it is possible to develop sexual robots with agency and sentience, the developer could decide not to develop them, and make them without agency and sentience. The manufacturer could even decide not to produce sexual robots of any kind, being therefore ethically responsible for his decision.

The customer, from his side, could decide not to engage in any sexual activity with a sexual robot, or to treat the robot as a mere tool, or as a tool to which some feelings of respect, care, and admiration are attached. Independently of this, the customer could treat equally, or differently, its human sexual partners.

Some authors defend that there is not alternative possible, since patriarchal societies are making this kind of choice not realistic (Mohajan, 2022). I reject this approach since, firstly, there is no clear evidence of this fact. Secondly, developers, and consumers do not necessarily have to be men, and all of them can have diverse socio-cultural determinant characteristics. Lastly, even in the case of accepting the argument, the ethical issue presented is not intrinsic to the research in the field of sexual robots, and therefore, is out of the scope of this article.

A similar degree of autonomy seems to apply to the distributor, who might choose what kind of sexual robot, if any, distribute. The distributor could also select to whom, and under what kind of circumstances, the distribution takes place.

As a consequence, from a human perspective, the creation, distribution, and consumption of sexual robots with or without agency and sentience, does not seem to limit to zero, or to one, the available courses of action to be taken. Therefore, humans must be ethically accountable. See Table 2:

**Table 2.** Development, entanglements, and ethics involved in sexual robots with or without agency

	Case A
Development	Sex robots could be developed with agency and sentience, or without it.
Entanglements	Developers could decide what kind of robot to develop. Distributors could decide what kind of robot to distribute, to whom, and under what circumstances.
Ethics	Developers, distributors, and users, have different possibilities. According to PAP, they are accountable for the chosen option among the available choices.

### *Sexual robots with specific shapes*

Philosophically, another ethical reflection is often related to the design and aesthetics of these robots. The attention is given to sexual robots which, due to their shape, could be ethically considered as unnecessary, undesirable, and/or not salutary (Sterri and Earp, 2021). Mainly, the shapes that fall into this category, although not hermetically divided in reality, can be seen in Table 3:

**Table 3.** The most common designs of sexual robots

Robot design	Reason for concern
Female-shaped, whose design matches social and pornographic stereotypes	Feminist philosophy considers this design a concern since it can contribute to women's objectification.
Designed to be raped or abused	Although it could be used therapeutically, these practices could also be extended to real humans. At the same time, a robot with the ability to actively not grant consent could generate the necessary scenario for rape simulation
Minors or without entire agency	This issue raises questions about consent, autonomy, power dynamics, and moral responsibility.

*Note.* The most common designs of sexual robots, which generated philosophical discussion. Based on: Danaher (2017; 2019), Kubes (2019), Peeters and Haselager (2021), Richardson (2015), Sparrow (2017), Strikwerda (2017).

In this case, and following a very similar reasoning as the one performed in the previous step, it appears that PAP is a valid ethical research framework to analyze the topic of the design. This statement is sustained by the fact that, the manufacturer of the robot, is free to choose its design according to its values. For example, while one designer could opt for designing robots which resemble stereotypical women, or minors, or people with limited agency, another could opt to perform robots which are for a specific niche. This other niche could include empowered robots, or robots with different gender and overall characteristics. Even if the society as a whole would only be interested in sexual robots which objectify women, or which are considered to be not salutary, nor desirable, the producer could always opt to perform any other professional activity, if that aligns better with its values.

Regarding the distributor, and the consumer, the same reasoning applies. While the distributor could be free to decide what kind of model they distribute, and under what circumstances, the consumer could engage with some type of robot, and not with another. The consumer could even choose between companies which offer similar robots, based on their values. Let's imagine that one produces creates a robot which resembles an adult man, with whole agency, and empowered. The customer could have two very similar models, at very similar prices, provided by two different manufacturers and distributors. One of the manufacturers, however, allocates a part of its money to prevention of sexual abuse policies as a form of corporate social responsibility, and this is a decisive factor in the customer's final decision (Islam et al., 2021). See Table 4:

**Table 4.** Development, entanglements, and ethics involved in sexual robots with specific shapes

	Case B
Development	Sex robots could be developed as stereotypical women, to be abused, or as lacking complete agency. They could also be developed in different ways.
Entanglements	Developers could decide what kind of robot to develop. Distributors could decide what kind of robot to distribute, to whom, and under what circumstances. The customer could select what kind of robot to select.
Ethics	Developers, distributors, and users, have different possibilities. According to PAP, they are accountable for the chosen option among the available choices.

### ***Human practices towards robots and humans***

The third type of scenario that philosophically generated philosophical inquiry is the one that proposes how the sexual interaction between humans and robots can affect sexual relations between human and human (Sterri and Earp, 2021). This topic is not hermetic, since it has points of contact with others, such as the one initially presented regarding objectification of the other. However, here I am referring to situations in which the production, distribution, and consumption of sexual robots would generate a different sort of impact.

Philosophically relevant situations in this aspect are, to put just an example, those in which the consumption of sexual robots ends up limiting sexual interactions between humans, ending in situations of loneliness, lack of empathy, or lack of social engagement (Lawson, 2017).

Another example would be the one derived from a situation in which the excessive customization of the robot prevents the owner from accepting the existing alternatives available when trying to establish a human-human sexual relationship (Oleksy and Wnuk, 2021). Even if the result of this kind of situation can be similar to the previous one, in this case, the reaction could be of a more offensive nature towards the other humans, and less introspective.

As on previous occasions, PAP seems to be a valid framework to establish an ethical research environment because, although it is true that from the manufacturer's standpoint, some type of sex robot could even limit the number of human sexual interactions to the point of turning sex robots almost a necessity or even a kind of monopoly; there is also the possibility of creating robots from a business ethics perspective. In this case, that would contribute to improving confidence in people who, for different reasons, do not feel comfortable, or cannot have human sexual relations, but wish to (Fosch Villaronga and Poulsen, 2021; Fosch-Villaronga and Poulsen, 2020). This includes, but it is not limited to, people with social anxiety, psychological trauma, or mobility problems. In this case, perhaps the robot must not be understood as an entertainment robot, but a therapeutic or educative one, which usage promotes positive sexual human-human interactions (Cox-George and Bewley, 2018; Eichenberg et al., 2019; Peeters and Haselager, 2021).

From the distributor's perspective, he would also have the freedom to choose to whom and under what circumstances he distributes those sex robots, depending in part on their desired impact on human relationships. In fact, we are used to seeing how the production of some artificial materials is considered ethical under some circumstances but not under others. We can use drugs as an example. Drugs are a technological production that, when obtained under the mediated role of health personnel without conflict of interests, are generally considered socially positive (Azcarate et al., 2020). On the contrary, drugs distributed in uncontrolled, unregulated, and illegal circumstances, purely for recreational purposes, are typically considered unethical (Muncan et al., 2020). As with the drugs, a similar reasoning could be applied to sexual robots, and its social consequences.

To conclude, and as far as the consumer is concerned, a similar reasoning can be applied. From the customer's approach, the usage of a robot as a complement or substitute for the human, can improve the pleasure obtained, self-esteem, etc. On the other side, abusive usage of these robots could result in a lack of socially constructive interactions, as other technological developments have already shown (Lawson, 2017). This could lead to lack of acceptance towards other humans, or the creation of false expectations, such as it happened with some forms of porn consumption (Donnerstein, 1980, 1984; Goldsmith et al., 2017; McKee et al., 2021). Also in this case, the decision among all possible alternatives by the consumer, seems

to be consistent with the PAP framework. It is the consumer's decision to understand that the robot is a simple tool, which it is not a substitute, but a complement of the real human. It is the customer's decision to understand that, at least, at this step of their development, no sexual robot can fully substitute human-human interactions. See Table 5:

**Table 5.** Development, entanglements, and ethics involved in sexual robots and its impact in human-human sexual relations

	Case C
Development	Sex robots could be developed as a necessary tool, and under monopolistic conditions. They could also be developed in different ways.
Entanglements	Developers could decide what kind of robot to develop and what business ethics to follow. Distributors could decide what kind of robot to distribute, to whom, and under what circumstances. The customer could choose to use the robot as a complement, or as a substitute.
Ethics	Developers, distributors, and users, have different possibilities. According to PAP, they are accountable for the chosen option among the available choices.

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