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Art as Artifact: An Empirical Approach to Locating its Hedonic Function

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Abstract

Standard accounts of artifacts claim that they are objects purposefully designed by an agent (or agents) to realize a function. Art objects have often been regarded as functionless entities; thus, many have disqualified them from possessing artifact status. With this paper, I defend the view that art objects (at least paintings and sculptures) are, in fact, artifacts since they serve hedonic functions. In my view, declarations for the functionless nature of art objects are due to an epistemically impoverished position regarding neural responses to artworks. I introduce recent research from neuroaesthetics, the study of the neural underpinnings of aesthetic experiences, which demonstrates that art objects act as a catalyst that stimulates the neural reward circuitry which in turn produces heightened hedonic sensations. These hedonic sensations, I claim, are the function of art objects, art appreciators seek them out and artists desire to induce them.

Key Words: neuroaesthetics, art, artifacts, function, ontology, neural reward system

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Introduction

Artifacts are pervasive in our everyday experiences, yet their ontological status has only recently received greater philosophical attention.[1] While some philosophers dispute the need to posit artifacts as an ontological category (Sperber, 2007; Koslicki, 2018) or even if artifacts exist (van Inwagen, 1990; Merricks, 2003) a standard ontological account of artifacts is prevalent within the literature (Hilpinen, 1992; Baker, 2004, 2012). This received view claims that an artifact is an object purposefully designed by an agent (or agents) to serve a purpose or to perform a proper, or teleological function (e.g., tables, chairs, smartphones, and spatulas).

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Within the last two decades, the ontology of artworks has also received increased attention.[2] Notably, some have inquired whether artworks qualify as artifacts (Hilpinen, 1992; Dippert, 1993; Levinson, 2007). While artworks like paintings and sculptures meet some of the necessary conditions to qualify as an artifact (e.g., they are designed by an agent), several philosophers doubt whether they can meet the necessary condition of performing a proper function (Baker, 2007; Juvshik, 2021). As a result, artworks are often denied artifact status. With this paper, I will argue that artworks are artifacts since they primarily serve a hedonic function. In my view, claims that artworks are functionless are the result of an epistemically impoverished vantage point regarding how human brains respond to artworks. Since the neural mechanisms that activate our responses to artworks have only recently been observed, we have lacked empirically informed perspectives for why we engage with artworks and why they are held in such high esteem. I will introduce recent research in neuroaesthetics, the study of the neural underpinnings of aesthetic experiences, and demonstrate that artworks act as a catalyst that activates our neural reward circuitry, which results in heightened hedonic sensations. In my view, artists (consciously or not) desire to induce hedonic aesthetic experiences in their audience, and this function is fully realized when the audience experiences these elevated sensory sensations. This position is largely sympathetic to aesthetic hedonism, which claims that the value of an artwork is determined by its hedonic-inducing powers. Ultimately, I will claim that art is an artifact because it meets all the standard criteria for artifact status, including having the capacity to realize a proper function (i.e., a hedonic function).

In the next section, I will introduce the standard account of artifacts, along with a discussion on proper (or teleological) functions and aesthetic hedonism. In section two, I will provide a brief history of neuroaesthetics and highlight some of its recent research, which reveals a maturing science of sensory experiences and hedonics. In the third section, I will make my empirically informed argument that artworks serve a hedonic function. I will also address why artworks that are more conceptually driven as opposed to aesthetically driven, like Duchamp's ready-mades, do not evade my hedonic thesis. In the fourth and final section, I will address objections that often confront defenses of aesthetic hedonism, including our reverence for painful art, the philosophy of swine, and fungibility objections.

Finally, when I refer to hedonic sensations or experiences, I am only referring to pleasurable sensations. This distinction is important since within the affective neuroscience literature, hedonics refers to the

[1] For recent discussions regarding the ontology of artifacts, see: Baker, 2004, 2012; Houkes & Vermass, 2004, 2010; Preston, 2009; Evnine, 2013; Juvshik, 2021.

[2] For recent discussions regarding the ontology of art, see: Thomasson, 2004; Rohrbaugh, 2005; Irvin, 2008; Davies, 2009.

experience of both pleasure and displeasure (Becker et al., 2019). This restriction is based on a desire to align aesthetic hedonic sensations with aesthetic hedonism.

1. Artifacts, Proper Function, and Art

For philosophers working on the ontology of artifacts and art, a loose approximation of what they do is to determine what kind of category they are and what constitutes inclusion and exclusion. In this section, I provide a brief review of this literature along with a discussion on what philosophers mean by proper function.

1.1 The Ontology of Artifacts

While a consensus regarding the ontological status of artifacts has not been reached, a standard account (or received view) is prevalent within the literature (Hilpinen, 1992; Baker, 2004, 2012). In this received view, an artifact is a physical object that has either been manipulated or manufactured to serve a particular purpose or function (Hilpinen, 1992). Unlike functionless by-products, like pencil shavings, whose existence is the result of indirect manufacturing, artifacts are intentionally designed to serve a function. Lynne Rudder Baker (2004) has presented four necessary and sufficient conditions that must be met for an object (x) to qualify as an artifact (Baker, 2004, pp. 102 – 103):

> (A1) *x* has one or more makers, producers or authors. Designers and executors of design (perhaps the same people) are authors.
>
> (A2) *x*'s primary kind (its essence, its proper function) is determined in part by the intentions of its author.
>
> (A3) *x*'s existence depends on the intentions of its authors and the execution of those intentions.
>
> (A4) *x* is constituted by an aggregate that the authors have arranged or selected to serve the proper function entailed by the artifact's primary kind.

How well do artworks satisfy these conditions? (A1) seems unproblematic since having a maker or producer would also be a necessary condition for the creation of a work of art. Nor does (A3) seem problematic since artworks are brought about by the artist's intentions and the execution of those intentions.[3] However, (A2) and (A4) do seem

[3] By intentions, I take Baker to only mean that one has a desire or goal to make a particular object. A watchmaker has the intention of making a watch, just like a landscape painter has the intention to paint a landscape. I do not take Baker to be engaging with the discourse on artist intention in which a work of art means what the artist says it means. For the seminal challenge to this notion, see: Beardsley & Wimsatt (1946).

problematic. Concerning (A2), an artifact's proper function is determined by the creator's intentions, and (A4) requires the creator to arrange the parts of the artifact to serve its proper function. Given that artworks are typically considered functionless, these two conditions (A2 and A4) would preclude artworks from qualifying as artifacts according to this received view.

1.2 Artifact Proper Function

According to Baker, the proper (or teleological) function of an artifact is the purpose it was designed to serve or what goal it was meant to achieve (2004). This account of proper function shares traces with Millikan's (1989, 1999) and Neander's versions of proper function (1991). According to Neander the "function of an artifact is the purpose or end for which it was designed, made, or (minimally) put in place or retained by an agent" (1991, p. 462).[4] In addition, according to Baker, the proper function that "an artifact has determines what the artifact most fundamentally is – a boat, a jackhammer, a microscope, and so on. And what proper function an artifact has is determined by the intentions of its designer and/or producer" (2004, p. 102). For instance, the proper function of a jackhammer is to break apart hard materials; therefore, a jackhammer is fundamentally an entity that breaks apart hard materials. Therefore, locating a proper function for artworks also determines its ontological status, or what it fundamentally is.

Importantly, on Neander's account (and this should hold for Baker's as well), an artifact can serve multiple or secondary functions. For instance, a frying pan can be used for self-defense, and a flat-head screwdriver can open paint cans.[5] In my view, artworks can have multiple functions as well. In many cases, ascertaining the function of a particular work of art is not difficult, since artists have been explicit about the purpose of a specific work of art. Picasso's *Guernica* (1937) was created with the purpose of expressing the horrors of the Spanish Civil War, while van Gogh's self-portraits have the function of expressing his emotional state. Thus, many token artworks have particular functions. However, if artworks in general are to achieve artifact status, they must perform a general proper function, like coffeemakers and watches. As stated above, I will argue, via empirical research, that artworks in general serve a hedonic function.

[4] For challenges to Neander's account of proper function, see Vermaas and Houkes, 2003.
[5] The dual-function analogy of a flathead screwdriver comes from Piccinini (2015).

1.3 Aesthetic Hedonism

Aesthetic hedonism is the view that the value or aesthetic merit of an artwork is derived from its power to induce pleasure in its audience (Matthen, 2018).[6] While I am sympathetic to aesthetic hedonism, discussing the hedonic function of artworks in contrast to establishing aesthetic value has the benefit of restricting the kinds of things that can qualify as an artwork. For example, many ordinary objects can induce aesthetic hedonic sensations (e.g., coffee tables and lamps); however, their primary or proper function is not to create these sensations. On my account, the only objects whose primary or proper function is to realize hedonic sensations through their formal or aesthetic properties are art objects.[7] Even though non-art objects may also induce hedonic sensations, their proper function is the realization of something other function (e.g., lamps produce light). This distinction avoids having to bite embarrassing bullets that leave open the possibility that aesthetically pleasing things like some mathematical equations are works of art. The primary reason why artworks exist is to produce aesthetic pleasure in its viewers; anything that primarily exists to serve some other function beyond aesthetic pleasure is not an art object.

2. Neuroaesthetics: Uncovering Neural Responses to Aesthetic Experiences

Neuroaesthetics is a relatively new branch of cognitive neuroscience that examines the neural correlates of aesthetic experiences. It is primarily concerned with identifying and understanding the neural mechanisms that underlie responses to art, beauty, and ugliness (Chatterjee, 2011). Aesthetic experiences, as neuroaesthetics researchers largely conceive of them, are interactions with objects or images that produce a variety of sensations, from intense emotions to pleasant or noxious experiences (Chatterjee & Cardilo, 2021).[8]

[6] For discussion on aesthetic hedonism and its defenders, see: Beardsley (1969, 1982); Walton (1993); Isminger (2004); Goldman (2006); Stang (2012); Levinson (2016); Matthen (2018). For challenges to aesthetic hedonism, see: Shelley (2019); Lopes (2018); Gorodeisky (2019); Peacocke (2021); Van der Berg (2020). For a discussion on hedonism simpliciter, see Crisp (2006).

[7] The proper function of psychoactive drugs is to realize hedonic sensations as well. However, this realization is through direct chemical manipulation of neural mechanisms. Artworks influence neural mechanisms through their formal or aesthetic properties. I will discuss this in greater length in section 4.

[8] Within the philosophy of art, discourse regarding the nature of aesthetic experiences is extensive. The above definition of aesthetic experience is commonly used among researchers working in neuroaesthetics. However, this definition would not be fully endorsed by many working on the philosophy of art since aesthetic experiences are often described as a particular state of mind or attitude that arises in the presence of aesthetic objects. For recent philosophical discussions regarding aesthetic experience, see: Iseminger (2003); Carroll (2012); Goldman (2013); Levinson (2016); Lopes (2018).

2.1 An Emerging Science: Brains Responding to Art

Neuroaesthetics emerged as an extension of the research program known as empirical aesthetics (Skov, 2022). While empirical aesthetics attempted to employ rigorous methods for measuring and studying human responses to artworks, it was mostly constrained as a theoretical enterprise since the possibility of directly observing neural responses to aesthetic objects was unavailable. However, inventions during the latter decades of the 20th century made observation and measurement of neural activity possible, causing a revolution in experimental methods. Those interested in how the brain responds to artworks and how it produces aesthetic experiences were finally able to make important observations. Non-invasive neuroimaging techniques like electroencephalography (EEG), positron emission tomography (PET), transcranial magnetic stimulation (TMS), functional magnetic resonance imaging (fMRI), and magnetoencephalography (MEG), along with advances in eye-tracking equipment, allowed neuroscientists to test the theoretical frameworks from which they have been operating.

Research on neuroaesthetics was initially slow to develop; however, by the mid-2000s, noteworthy findings were beginning to emerge. For example, researchers using fMRI observed that different regions of participants' brains became active when they observed paintings that they considered beautiful, in contrast to when they observed paintings that they considered ugly (Kawabata and Zeki, 2004). Yue et al. (2007), in seeking to locate the neural basis of scene preferences, asked participants, while under fMRI observation, to observe and give preference ratings for a variety of images (e.g., natural vistas, city streets, and rooms). The results suggested that the neural systems controlling scene preference are in the parahippocampal cortex, which is associated with the processing of episodic and spatial memories along with emotional processing (Aminoff et al., 2013). Using fMRI, Bar and Neta (2007) demonstrated significant amygdala activation, which plays a vital role in processing emotions, when participants observed sharp objects in contrast to objects with curved contours. Following these findings, the researchers suggested that "sharp-angled objects are liked less because of an increased perception of threat that they convey, consciously or not, even for visual stimuli whose semantic meaning is emotionally neutral" (p. 6). Suzuki et al. (2008), using PET, demonstrated that major and minor keys, while both can be perceived as beautiful, activate distinct regions of the brain. Importantly, this study pointed out that the pleasure evoked by music is brought about by the dopaminergic reward system.

The above examples are representative of the first decade of neuroaesthetics research. Essentially, the researchers maintained an exploratory stance and observed the neural responses to various

artworks and images. However, when aesthetic response studies, like the ones above, were gathered into meta-analyses, notable discoveries were uncovered. Brown et al. (2011) gathered 93 neuroimaging studies that focused on aesthetic processing. The tasks performed in these analyzed studies incorporated the aesthetic evaluation of pleasantness, attractiveness, and liking across four sensory modalities (vision, audition, gustation, and olfaction). This meta-analysis revealed an overlap in the neural mechanisms that respond to artworks and objects that mediate appraisal of homeostatic or adaptive importance. For instance, the same components of the neural reward system that become active when artworks are observed are the same components that become active when sought-after foods and attractive faces are observed. More specifically, when participants under neural observation perceived both art and non-art objects, the same regions of the brain, which are associated with aesthetic appraisal and emotion, became active. Following these results, some neuroaesthetic researchers argued for a reconceptualization of aesthetic processing, claiming that aesthetic responses ought to be recognized as sensory information that obtains value based on the pleasant or unpleasant sensations they evoke (Skov & Nadal, 2020). On this account, it is incorrect to think that aesthetic experiences are special human responses to unique objects but rather, "evolved first for the appraisal of objects for survival advantage, such as food sources, and was later co-opted in humans for the experience of artworks of the satisfaction of social needs" (Brown et al., 2011, p. 250).

Following Brown et al. (2011), three other meta-analyses were performed (Kühn & Gallinat, 2012; Sescousse et al., 2013; Bartra et al., 2013). In these meta-analyses, participants, while under neural observation, were subjected to a variety of stimuli, including various odors, foods, paintings, music, photos, money, and arousing images. In all of these meta-analyses, neural reward systems (e.g., the nucleus accumbens, orbitofrontal cortex, the anterior cingulate cortex, insula, and the amygdala) were consistently activated during a variety of sensory valuations, and this includes stimuli that are relevant to homeostatic or adaptive needs. According to Martin Skov, a leading neuroaesthetics researcher, these findings make clear that the neural reward system evolved to activate aesthetic appreciation and hedonic value regardless of what object is being evaluated. On this account, "objects traditionally thought to be distinctively "aesthetic," such as art objects or faces, are appreciated by the brain using the same neurobiological value mechanisms it uses to assess liking for food, drinks, odors, landscapes, tables, chairs, or computer products – even money" (Skov, 2019, p. 231 – 232).

Collectively, these meta-analyses present a relatively clear picture that aesthetic processing and the phenomenal experiences that they realize are the result of neural reward systems. Furthermore, these reward

systems were initially shaped by natural selection to provide quick, automatic, and unconscious sensory information that influences appropriate adaptive action. However, since it appears that these reward systems have not been fine-tuned to only respond to stimuli that possess adaptive value, then any external stimuli, like artworks, can co-opt this system and activate a sensory reward. A recent study further justifies the claim that aesthetic pleasure can be realized from entities that do not offer any homeostatic benefit. Zeki et al. (2014), using fMRI, observed the neural responses of professional mathematicians when they perceived the images of well-known mathematical equations. The mathematicians were asked to rate the equations as beautiful, neutral, or ugly. The results showed that when the mathematicians perceived equations that they considered beautiful, neural mechanisms in the midbrain that are typically associated with pleasant emotional sensations became active. On this account, "the experience of mathematical beauty correlates with activity in the same brain area(s), ... that are active during the experience of visual, music, and moral beauty" (p. 8).

2.2 A Science of Sensory Experiences

By its second decade, neuroaesthetics research was moving beyond the observation of brains responding to artworks and into the study of the neural mechanisms, in particular the neural reward system, that realize sensory experiences in response to aesthetic properties. The initial observations that located correlations between the structural connectivity of the neural reward system and aesthetic appreciation found greater confirmation through more advanced observation and interventionist techniques. For example, using DTI (diffusion tensor imaging), Loui et al. (2017) demonstrated that an individual (BW) who has music anhedonia, a condition in which musical pleasure cannot be experienced, has significantly less white matter connectivity in the auditory/reward system in contrast to the control group. Following this observation, the researchers concluded that from an evolutionary perspective, "the emotional content of sound might have accessed these auditory-reward pathways, which then predisposed the brain toward developing reward sensitivity.... While reward pathways and auditory perception-action pathways are conventionally seen as separate and dissociable systems in the brain, the present study suggests that they operate in concert" (p. 9). In a related study, Mallik et al. (2017) pharmacologically induced music anhedonia in participants by administering naltrexone, an antagonist that blocks the dopamine-mediated anticipatory reward circuit. By artificially inducing music anhedonia, this study suggests that music appreciation is largely facilitated by the dopaminergic system. Following this pharmacological

manipulation, the researchers hypothesized that "music has developed to exploit an already existing reward system that evolved for other purposes, such as recognizing and responding appropriately to various human and animal vocalizations" (p. 4). In another related study, Ferreri et al. (2019) brought about positive and negative responses to music by administering participants with a dopamine precursor (levodopa) or a dopamine antagonist (risperidone). On this account, when dopamine levels increased via levodopa, reports of greater musical pleasure also increased. Conversely, when dopamine levels decreased via the administration of risperidone, reports of musical pleasure decreased. Accordingly, these results further confirm previous reports that the dopaminergic system mediates aesthetic reward. In addition, these researchers also noted that the dopaminergic system is primarily involved in promoting rewarding sensations that motivate drives toward adaptive needs like food and sex.

While the above research studied the neural reward systems that responded to music, in my view, following the above meta-analysis data, it is safe to assume that artworks, along with all other external stimuli, similarly activate the neural reward system. According to the above studies, aesthetic experiences are connected to our affective and reward systems that were initially shaped to maintain homeostatic balance or to realize adaptive functions. The above evidence demonstrates that human brain sensory responses to aesthetic experiences are just another form of liking and disliking and that artworks are just another type of object that can elicit a hedonic response.

3. Art as Artifact

According to Baker's (2004) necessary and sufficient conditions, for artworks to meet artifact status, a proper function must be determined. In this section, I will present my case, based on evidence from neuroaesthetics, that artworks realize a hedonic function; thus, they meet all the criteria for achieving artifact status under the received view. I conclude this section by discussing how conceptual or non-aesthetic artworks, like Duchamp's ready-mades, are not problematic for my hedonic thesis.

3.1 Working with the Lights On: Uncovering Arts Hedonic Function

According to recent evidence, the human brain does not respond any differently to artworks over non-art entities; rather, responses to artworks are derived from the same system that produces all manner of pleasure and displeasure, the mesolimbic reward system (Skov & Nadal, 2020). On this interpretation, our reward and evaluative systems have

been shaped by natural selection to induce pleasant sensations for stimuli that are beneficial to an organism and to produce unpleasant sensations for stimuli that are detrimental to an organism (Brown et. al., 2011). Thus, our subjective aesthetic responses are the result of neural mechanisms that were initially selected to provide sensory information that enhanced fitness, yet they have now been co-opted to induce hedonic sensations when observing objects like paintings and sculptures. With this in mind, I claim that artworks act as a catalyst that co-opt the activation of the neural reward system, which induces heightened hedonic sensations in its perceivers. It is this activation of hedonic sensations that is the proper (or teleological) function of artworks. Artists seek to embed their works with this function, and art audiences seek out art that can activate these elevated hedonic sensations.

Since the neural activity that responds to artworks has been black-boxed for nearly the entire history of art, artists and their audiences have largely been making and appreciating artworks in the dark. They have only had an unconscious or partial understanding of what the proper function of an artwork is. Consider Randall Dipert's comments when he defended the view that artworks are artifacts:

> If we describe human purposes broadly enough, and if art really does not serve *some* function, play some role in contributing toward our conception of a fruitful life, it is unimaginable why we would voluntarily engage in it. Assuming human rationality, art surely serves some human needs, for both artist and appreciator, and so is but a "means" to *some* end. We are perhaps less conscious of precisely what this goal is in our experience of art than in our experience of other artifacts, especially practical ones. (Dipert, 1993, p. 111)

Following Dipert, in my view, even though artists have not been explicitly aware of art's proper function, since access to neural circuitry is only a recent phenomenon, they have at least unconsciously desired to create artworks that can induce these hedonic sensations in their audiences. Ramachandran and Hirstein (1999) made a similar statement when they sought to provide an early neurological theory of aesthetic experience; they argued that "artists either consciously or unconsciously deploy certain rules or principles ... to titillate the visual areas of the brain" (p. 17). On this account, artists like Dali, Rothko, and Noguchi, while not aware of the neural operations of aesthetic pleasure, embedded their works (consciously or not) with the proper function of inducing hedonic sensations in their audience. From this perspective, masterpieces like Dali's *Persistence of Memory* (1931), Rothko's *Orange, Red, Yellow* (1961), and Noguchi's *Sun at Noon* (1969) all serve the same type or general function. These objects were designed (consciously or not) to induce hedonic sensations in the individuals who view these objects, and this

occurs due to the triggering of the neural reward circuitry in the perceivers of these artworks.[9]

With the emergence of neuroaesthetics and the ability to observe and intervene on neurological mechanisms, we now have useful information regarding how and why we respond to artworks. The confusion or dismissal of whether artworks serve a proper function is the result of an epistemically impoverished position due to an inability to access brain responses to various objects. From the armchair, claims for the hedonic function of artworks would not likely be enough to sway skeptics. It is only with the current state of neuroaesthetics that this hedonic function for artworks could reasonably be articulated and defended.

It is also worth repeating that the proper function of an object is its primary function. Some ordinary objects might have aesthetic properties that evoke hedonic sensations; however, these objects likely have another primary function, the aesthetic appeal is secondary. For example, I am fond of the aesthetics of my stainless-steel French press coffeemaker; it reminds me of some minimalist sculptures that I admire. However, the coffeemaker has a primary function of making coffee; thus, it cannot be considered an artwork. Artworks, on the other hand, have the primary proper function of inducing hedonic sensations. They were brought into existence to serve this purpose or to realize this hedonic-inducing goal.

Another upshot of establishing the proper function of artworks and thus placing them within the taxonomy of artifacts is that it determines what artworks are. For example, the proper function of a boat is to provide transportation over bodies of water; thus, boats fundamentally are mechanisms that provide transport over water. The proper function of a microscope is to provide visualization of microscopic entities; thus, microscopes fundamentally are mechanisms that provide visualization for microscopic entities. Since, in my view, artworks have the proper function of evoking hedonic sensations, then artworks fundamentally are objects that were created to primarily evoke hedonic sensations. In addition, placing artworks within the category of artifacts also provides a larger claim regarding what art is, and this has been one of the foundational issues within the philosophy of art.

[9] There is more to say regarding what is meant by an artist consciously or unconsciously creating an art object with the intention of evoking hedonic sensations. In brief, an artist could create an artwork with the explicit intention of evoking hedonic sensations, while also being unaware that this is the proper function of artworks in general. At the same time, an artist could also think that their work does something other than evoke hedonic sensations, like Dali's probing of the human psyche, yet the end result is still primarily a hedonic experience.

3.2 Working in the Dark: Urinals, Soup Cans, and Bananas

In April 1917, Marcell Duchamp submitted *Fountain*, a urinal turned upside down, into the inaugural exhibition of the Society of Independent Artists in New York City. Ever since that exhibition, Duchamp's *Fountain* has been both a highly controversial and an extremely influential work of art. *Fountain*, along with other Duchamp ready-mades, has evoked serious debate over art's function and what makes something an art object over an ordinary object. In 2019, Maurizio Cattelan exhibited *Comedian*, a banana duct taped to a gallery wall at Art Basel Miami. Much like Duchamp's work, Cattelan's piece also evokes questions regarding the purpose of artworks and what distinguishes them from ordinary objects. Within the nearly one hundred years from Duchamp's piece (1917) to Cattelan's sculpture (2019), several other artists have created works of art that are either ordinary objects or are images of ordinary objects. For example, in the early 1960s, Andy Warhol became famous for his paintings of Campbell's soup cans, and in the 1980s, Jeff Koons exhibited vacuum cleaners encased in an acrylic plastic case as works of art. While controversial, these works of art have been accepted into the canon and are largely considered important works of art. Significantly for this project, these ready-mades and ordinary/art objects appear to serve as an excellent foil for my hypothesis regarding the proper function of artworks. I am sure that most who have experienced a Duchamp ready-made or Campbell's soup can painted by Warhol would not claim to have experienced an aesthetically driven hedonic sensation. Thus, it would seem that either my claim regarding the proper function of artworks is wrong-headed, or these objects do not qualify as artworks since they do not perform a proper hedonic function.

In response to this challenge, I argue that non-aesthetic or conceptual artworks still evoke hedonic sensations and thus do not challenge my hedonic claim. While their aesthetic properties do not evoke hedonic sensations, their mundane or ordinary properties can still evoke hedonic sensations since they function more like intellectual puzzles that promote a kind of cognitive pleasure. On this account, these artworks are acting more like riddles or brain teasers, which do offer pleasant sensations. While more evidence would be needed to assert this claim, I do think this response could find empirical justification. Recall that the Zeki et al. (2014) experiment revealed that hedonic hotspots of mathematicians became activated while under fMRI observation when they viewed mathematical equations that they deemed to be beautiful. From this perspective, aesthetic properties may not be the only avenue for hedonic activation, but perhaps cognitive activities can as well. If this hypothesis is true, then upside-down urinals and bananas duct taped to a gallery wall can still evoke hedonic responses due to their brain-teasing capacities, and if this is correct, then even these artworks realize their proper hedonic function.

4. Objections: Painful Art, Swine, and the Experience Machine

As stated earlier, my position regarding the proper hedonic function is sympathetic to aesthetic hedonism. Thus, many challenges to aesthetic hedonism are also challenges to my hedonic function thesis. In this section, I address some of these challenges and demonstrate that they are not defeaters against my hedonic function thesis.

4.1 Painful Art and the Cocaine Puzzle

Since aesthetic hedonism claims that aesthetic value is determined by pleasure, then works of art that evoke displeasure should have little value. However, many gravitate toward works of art that express negative emotions. Smuts (2007, 2009) has referred to this phenomenon as the *paradox of painful art*. This paradox is rooted in the observation that ordinary individuals avoid painful sensations in real life, yet they also seek out art experiences that evoke painful sensations. Shelley (2019) argued that Picasso's *Guernica* stands as a counterexample to aesthetic hedonism since its imagery evokes negative emotions and experiences. According to Shelley, "*Guernica* does not have whatever aesthetic value it has in virtue of any pleasure it gives" (2019, p. 7). Furthermore, "hedonism cannot explain the aesthetic value of *Guernica* because horror, shock, disorientation, disgust, and revulsion are not themselves valuable" (2019, p. 9).

This challenge holds for my view as well. Since I argue that the proper function of artworks is their capacity to evoke hedonic sensations, then how would I account for artworks that evoke negative or painful sensations? Consider the emaciated, emotionless, and defeated figures in Alberto Giacometti's paintings and sculptures. On my account, I am committed to the view that these works, like *Guernica*, are evoking hedonic sensations in their perceivers. My response to this notable challenge will again engage with the neural reward circuitry. However, a caveat is needed. There is a gap in the literature regarding the neural mechanisms of displeasure; thus, my response to this painful art challenge, while using some empirical data, is still largely a sketch.

For many years, dopamine was thought to induce hedonic sensations much like serotonin and oxytocin. However, the hedonic qualities of dopamine have recently been disputed (Berridge & Kringelbach, 2013, 2015; Becker et al., 2019). Dopamine is now better understood as a neurotransmitter that evokes motivational sensations or a kind of 'wanting', as opposed to serotonin, which induces sensations of 'liking' (Berridge & Kringelbach, 2013, 2015). This removal of dopamine from its hedonic-inducing status has created a new challenge now referred to as the cocaine puzzle (Berridge & Kringelbach, 2013, 2015). Cocaine is a stimulant that elevates dopamine levels (Volkow et al., 2006). Since

dopamine is now better understood as a motivational or 'wanting' neurotransmitter, then why does a drug like cocaine that elevates this non-pleasure-inducing neurochemical produce pleasurable sensations? This is the cocaine puzzle.

A recent explanation for why cocaine induces pleasant experiences points out that "cocaine ... stimulate[s] secondary recruitment of endogenous opioid and related neurobiological hedonic mechanisms, beyond directly raising dopamine levels (Berridge & Kringelbach, 2015, p. 657). On this account, the dopamine-stimulating drugs also recruit the release of endogenous opioids, which increase a hedonic 'liking' sensation. Importantly, endogenous opioids are associated with pain relief and modulation, and when the pain subsides, endogenous opioids with their pain-relieving properties can induce intense hedonic sensations (Benarroch, 2012).

How does the cocaine puzzle connect to this painful art challenge? Evidence suggests, including evidence that explains the cocaine puzzle, that there is a correlation between elevated dopamine levels and elevated levels of endogenous opioids (Soderman & Unterwald, 2009; Colasanti et al., 2012). On this account, when dopamine levels rise, endogenous opioid levels rise as well. Furthermore, additional evidence suggests that stress, anxiety, and exposure to intense stimuli and arousing events increase dopamine levels (Horvitz, 2000; Bromberg-Martin et al., 2010; Cabib & Puglisi-Allegra, 2012; Brandão & Coimbra, 2019). With this data, one can infer that an increase in stress and anxiety and/or exposure to intense stimuli or arousing events not only increases dopamine levels but also increases endogenous opioid levels. If this is correct, then it is plausible that painful artworks are contributing to an increase in endogenous opioid levels, which in turn produces hedonic sensations. Thus, even in the face of painful or unpleasant art, hedonic sensations can still be realized. In fact, since the perceiver's painful art responses are not elicited from their own real-world experience, the unpleasantness will likely subside, allowing the hedonic qualities of the opioids to override the experience.

4.2 The Philosophy of Swine and the Experience Machine

Given my hedonic function thesis, one could claim that I am framing artworks with the same proper function as psychoactive drugs (e.g., marijuana, MDMA, LSD, and cocaine). I accept this framing. In my view, both artworks and psychoactive drugs perform the same proper function; they both induce elevated hedonic sensations that can act as either a stimulant, a depressant, an opiate, or a hallucinogen. In fact, given current evidence, both psychoactive drugs and artworks co-opt or manipulate the same neural reward circuitry to activate the additional

release of a variety of pleasure-inducing neurotransmitters, neuropeptides, and endogenous opioids (Berridge & Kringelbach, 2013, 2015; Becker et al., 2019). For example, ecstasy increases serotonin levels (Mustafa et al., 2020) while cocaine increases dopamine levels (Aguinaga et al., 2018). Both neurotransmitters, which are associated with inducing phenomenological hedonic sensations, are released by the neural reward system, which can be activated by a variety of stimuli, including visual images and psychoactive drugs. This claim leaves me vulnerable to two related criticisms. Firstly, since I claim that something as high-minded and revered as the arts performs the same function as substances that destroy lives, I am advocating for a position that makes it impossible to distinguish between the 'higher' and 'lower' pleasures. Secondly, my position appears to commit me to the view contra Nozick (1974) that nothing matters outside of our internal sensations, whether they are realized by actual experiences, drug-induced, or virtually created.

At first pass, I could reject the swine objection and highlight that my hedonic claim thesis regarding the arts has to do with function, not value. From this view, I could claim that the arts are in the same class of artifacts that induce hedonic states like psychoactive drugs, sporting events, and sex toys without making any value claims. However, I will address the swine objection since I think a better response is on offer. According to the philosophy of swine objection, the hedonist is solely advocating for a life of sensual pleasures. Furthermore, all pleasures are equally valuable insofar as they induce intense and long-lasting sensations. Likewise, no pleasure-inducing objects/experiences are more noble than any other. I am, in fact, willing to gently bite this bullet. For example, I would not claim that watching Ingmar Bergman films is more noble or a higher pleasure than watching a WWE wrestling match. While I prefer the former, insofar as both experiences activate similar neurological mechanisms that induce hedonic sensations, I would not claim that one has more value over the other. Nor would I claim that the pleasures induced from aesthetic experiences are higher than sexual encounters. I would just claim that they are different kinds of pleasures. From this perspective, I am walking a pluralist line regarding distinguishing 'higher' from 'lower' pleasures. However, there is a sense in which I do not fully embrace the pluralist line, which is why I only gently bite the swine bullet. Recall the Brown et al. paper (2011), in which they claimed that much of the stimuli we currently encounter co-opt our reward circuitry that was initially shaped by natural selection to produce hedonic rewards for stimuli that benefited homeostatic needs. I have argued that artworks are examples of entities that co-opt this system, but many other entities co-opt this system as well, which can yield negative consequences. Due to their caloric density, we have evolved to crave fats and sugars (Wiss et al., 2018). Thus, when we eat foods that are both high in fats and sugars (e.g., a hot fudge sundae), our

reward system unleashes a hedonic bonanza. However, today, most foods that are high in fat and sugar are ultimately detrimental to our well-being, and this includes long-term pleasure. The most obvious culprit of this co-opting/exploiting phenomenon is psychoactive drugs. As stated above, these substances explicitly co-opt our reward circuitry and thus manipulate intense hedonic sensations. However, they are extremely dangerous and ultimately lead toward the antithesis of hedonic experiences. Artworks, on the other hand, are not addictive and detrimental to one's well-being; they do not raise blood pressure to dangerous levels, lead to diabetes, or even death. While artworks, psychoactive drugs, and hot fudge sundaes may share a proper function, once long-term consequences are factored in, artworks pull ahead in terms of value, thus the swine objection is avoided.

The bullet that I must firmly bite down on, given my hedonic position for the function of the arts, is the acceptance that one would stay plugged into Nozick's experience machine. In Nozick's well-known thought experiment, one can float around in a tank while being hooked up to neural stimulators that provide identical sensations of lived experiences. If we are willing to unplug, as Nozick suggests, then there must be something more to our lives than just hedonic experiences. Van der Berg (2020) has presented a similar objection, the fungibility objection, which is specifically directed toward aesthetic hedonism. This objection points out that aesthetic hedonism is stuck with the implication that "if we could take a designer drug or put on a VR headset providing exactly the same experience as that of engaging with some aesthetically great artwork, we would have identical reasons to opt for the drug or headset as we would to travel to visit the museum" (p. 6). Just like I think one would stay plugged into the experience machine, I also think, since their proper functions are all hedonic, that one has identical reasons for going to a museum, plugging into virtual reality, or taking a designer drug (assuming they are free of negative consequences). Admittedly, this bullet has an acrid taste; however, given the vulnerability of the reward circuitry to manipulation and exploitation, I think the aesthetic hedonist must accept this result.

5. Conclusion

According to the received view, artifacts are objects purposefully designed by an agent to perform a proper function. Even though artworks are designed and constructed by an agent, it has been doubted that they perform a proper function. As a result, artworks have often been denied artifact status. With this paper, I argued that artworks serve a hedonic function and thus meet all the requirements to fulfill artifact status. I introduced recent research in neuroaesthetics and demonstrated how artworks act as a catalyst that co-opt the activation of our neural reward

circuitry, resulting in heightened and often hedonic sensations. I further argued that an artwork's proper function is to produce these elevated hedonic sensations triggered by the neural reward circuitry. Furthermore, I claimed that since the neural mechanisms that drive this function have been black-boxed to both artists and their audiences alike, a clear presentation of this proper function could never have been fully articulated without being paired with the appropriate empirical data. Additionally, I addressed concerns that other defenses of aesthetic hedonism have had to contend with. Specifically, I sketched a potential response to the paradox of painful art, addressed the philosophy of swine concerns, and gave in to the experience machine. Ultimately, I claimed that artworks are artifacts because they meet all the standard criteria for artifact status, including serving a proper function, and this proper function is to induce hedonic sensations.

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Conflict of interest statement

The author declares that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Biography

Dan Durso (b. Indianapolis, IN) is currently a PhD candidate in philosophy at the University of Illinois, Urbana-Champaign. Dan is also a visual artist and holds an MFA from Parsons School of Design in visual art.

References

Aguinaga D, Medrano M, Vega-Quiroga I, Gysling K, Canela EI, Navarro G, Franco R. Cocaine effects on dopaminergic transmission depend on a balance between sigma-1 and sigma-2 receptor expression. *Front Mol Neurosci*. 2018;11:17.

Aminoff EM, Kveraga K, Bar M. The role of the parahippocampal cortex in cognition. *Trends Cogn Sci*. 2013;17(8):379-390.

Baker LR. The ontology of artifacts. *Philos Explor*. 2004;7(2):99-111.

Baker LR. The ontological significance of artefacts. In: *Ontologies of Artifacts: The Interaction of "Natural" and "Artificial" Components of the Lifeworld*; 2012:18-33.

Bar M, Neta M. Visual elements of subjective preference modulate amygdala activation. *Neuropsychologia*. 2007;45(10):2191-2200.

Bartra O, McGuire JT, Kable JW. The valuation system: a coordinate-based meta-analysis of BOLD fMRI experiments examining neural correlates of subjective value. *Neuroimage*. 2013;76:412-427.
Beardsley MC. Aesthetic experience regained. *J Aesthet Art Crit*. 1969;28(1):3-11.
Beardsley MC. *The Aesthetic Point of View: Selected Essays*. Wreen MJ, Callen DM, eds. Ithaca, NY: Cornell University Press; 1982.
Beardsley MC, Wimsatt WK. The intentional fallacy.
Becker S, Bräscher AK, Bannister S, et al. The role of hedonics in the Human Affectome. *Neurosci Biobehav Rev*. 2019;102:221-241.
Benarroch EE. Endogenous opioid systems: current concepts and clinical correlations. *Neurology*. 2012;79(8):807-814.
Berridge KC, Kringelbach ML. Neuroscience of affect: brain mechanisms of pleasure and displeasure. *Curr Opin Neurobiol*. 2013;23(3):294-303.
Berridge KC, Kringelbach ML. Pleasure systems in the brain. *Neuron*. 2015;86(3):646-664.
Brandão ML, Coimbra NC. Understanding the role of dopamine in conditioned and unconditioned fear. *Rev Neurosci*. 2019;30(3):325-337.
Bromberg-Martin ES, Matsumoto M, Hikosaka O. Dopamine in motivational control: rewarding, aversive, and alerting. *Neuron*. 2010;68(5):815-834.
Brown S, Gao X, Tisdelle L, Eickhoff SB, Liotti M. Naturalizing aesthetics: brain areas for aesthetic appraisal across sensory modalities. *Neuroimage*. 2011;58(1):250-258.
Cabib S, Puglisi-Allegra S. The mesoaccumbens dopamine in coping with stress. *Neurosci Biobehav Rev*. 2012;36(1):79-89.
Carroll N. Recent approaches to aesthetic experience. *J Aesthet Art Crit*. 2012;70(2):165-177.
Chatterjee A. Neuroaesthetics: a coming of age story. *J Cogn Neurosci*. 2011;23(1):53-62.
Chatterjee A, Cardilo E, eds. *Brain, Beauty, and Art: Essays Bringing Neuroaesthetics into Focus*. Oxford, UK: Oxford University Press; 2021.
Colasanti A, Searle GE, Long CJ, et al. Endogenous opioid release in the human brain reward system induced by acute amphetamine administration. *Biol Psychiatry*. 2012;72(5):371-377.
Crisp R. Hedonism reconsidered. *Philos Phenomenol Res*. 2006;73(3):619-645.
Davies D. The primacy of practice in the ontology of art. *J Aesthet Art Crit*. 2009;67(2):159-171.
Dipert RR. *Artifacts, Art Works, and Agency*. Philadelphia, PA: Temple University Press; 1993.
Evnine SJ. Ready-mades: Ontology and aesthetics. *Br J Aesthet*. 2013;53(4):407-423.
Ferreri L, Mas-Herrero E, Zatorre RJ, et al. Dopamine modulates the reward experiences elicited by music. *Proc Natl Acad Sci U S A*. 2019;116(9):3793-3798.
Goldman AH. The experiential account of aesthetic value. *J Aesthet Art Crit*. 2006;64(3):333-342.
Goldman AH. The broad view of aesthetic experience. *J Aesthet Art Crit*. 2013;71(4):323-333.
Gorodeisky K. On liking aesthetic value. *Philos Phenomenol Res*. 2021;102(2):261-280.
Hilpinen R. On artifacts and works of art 1. *Theoria*. 1992;58(1):58-82.
Horvitz JC. Mesolimbocortical and nigrostriatal dopamine responses to salient non-reward events. *Neuroscience*. 2000;96(4):651-656.
Houkes W, Vermaas P. Actions versus functions: A plea for an alternative metaphysics of artifacts. *Monist*. 2004;87(1):52-71.
Houkes W, Vermaas PE. *Technical Functions: On the Use and Design of Artefacts*. Vol 1. Springer Science & Business Media; 2010.
Irvin S. The ontological diversity of visual artworks. In: *New Waves in Aesthetics*. London, UK: Palgrave Macmillan; 2008:1-19.
Iseminger G. Aesthetic experience. In: Levinson J, ed. *The Oxford Handbook of Aesthetics*. Oxford, UK: Oxford University Press; 2003:99-116.
Juvshik T. Function essentialism about artifacts. *Philos Stud*. 2021;178:2943-2964.
Kawabata H, Zeki S. Neural correlates of beauty. *J Neurophysiol*. 2004;91(4):1699-1705.
Koslicki K. *Form, Matter, Substance*. Oxford, UK: Oxford University Press; 2018.
Kühn S, Gallinat J. The neural correlates of subjective pleasantness. *Neuroimage*. 2012;61(1):289-294.
Levinson J. Artworks as artifacts. In: *Creations of the Mind: Theories of Artifacts and Their Representation*. 2007:74-82.
Levinson J. Toward an adequate conception of aesthetic experience. In: *Aesthetic Pursuits: Essays in Philosophy of Art*. 2016:28-46.
Lopes DM. *Being for Beauty: Aesthetic Agency and Value*. Oxford, UK: Oxford University Press; 2018.
Loui P, Patterson S, Sachs ME, Leung Y, Zeng T, Przysinda E. White matter correlates of musical anhedonia: implications for evolution of music. *Front Psychol*. 2017;8:281556.
Mallik A, Chanda ML, Levitin DJ. Anhedonia to music and mu-opioids: Evidence from the administration of naltrexone. *Sci Rep*. 2017;7(1):41952.

Matthen M. New prospects for aesthetic hedonism. In: *Social Aesthetics and Moral Judgment*. Routledge; 2018:13-33.
Merricks T. *Objects and Persons*. Oxford, UK: Oxford University Press; 2003.
Millikan RG. In defense of proper functions. *Philos Sci*. 1989;56(2):288-302.
Millikan RG. Wings, spoons, pills, and quills: A pluralist theory of function. *J Philos*. 1999;96(4):191-206.
Mustafa NS, Bakar NHA, Mohamad N, et al. MDMA and the brain: a short review on the role of neurotransmitters in neurotoxicity. *Basic Clin Neurosci*. 2020;11(4):381.
Neander K. The teleological notion of 'function'. *Australas J Philos*. 1991;69(4):454-468.
Nozick R. *Anarchy, State, and Utopia*. Oxford, UK: Blackwell; 1974.
Peacocke A. Let's be liberal: An alternative to aesthetic hedonism. *Br J Aesthet*. 2021;61(2):163-183.
Piccinini G. *Physical Computation: A Mechanistic Account*. Oxford, UK: OUP Oxford; 2015.
Preston B. Philosophical theories of artifact function. In: *Philosophy of Technology and Engineering Sciences*. North-Holland; 2009:213-233.
Ramachandran VS, Hirstein W. The science of art: A neurological theory of aesthetic experience. *J Conscious Stud*. 1999;6(6-7):15-51.
Rohrbaugh G. Ontology of art. In: *The Routledge Companion to Aesthetics*. Routledge; 2005:261-274.
Sescousse G, Caldú X, Segura B, Dreher JC. Processing of primary and secondary rewards: a quantitative meta-analysis and review of human functional neuroimaging studies. *Neurosci Biobehav Rev*. 2013;37(4):681-696.
Shelley J. The default theory of aesthetic value. *Br J Aesthet*. 2019;59(1):1-12.
Skov M. Aesthetic appreciation: the view from neuroimaging. *Empir Stud Arts*. 2019;37(2):220-248.
Skov M. Neuroaesthetics as a scientific discipline: an intellectual history. In: *The Routledge International Handbook of Neuroaesthetics*. Routledge; 2022:1-28.
Skov M, Nadal M. A farewell to art: aesthetics as a topic in psychology and neuroscience. *Perspect Psychol Sci*. 2020;15(3):630-642.
Smuts A. The paradox of painful art. *J Aesthet Educ*. 2007;41(3):59-76.
Smuts A. Art and negative affect. *Philos Compass*. 2009;4(1):39-55.
Soderman AR, Unterwald EM. Cocaine-induced mu opioid receptor occupancy within the striatum is mediated by dopamine D2 receptors. *Brain Res*. 2009;1296:63-71.
Sperber D. Seedless grapes: nature and culture. In: *Creations of the Mind: Theories of Artifacts and Their Representation*. 2007:124.
Stang NF. Artworks are not valuable for their own sake. *J Aesthet Art Crit*. 2012;70(3):271-280.
Suzuki M, Okamura N, Kawachi Y, Tashiro M, Arao H, Hoshishiba T, Yanai K. Discrete cortical regions associated with the musical beauty of major and minor chords. *Cogn Affect Behav Neurosci*. 2008;8(2):126-131.
Thomasson AL. The ontology of art. In: *The Blackwell Guide to Aesthetics*. 2004:78-92.
Van Inwagen P. *Material Beings*. Ithaca, NY: Cornell University Press; 1990.
Van der Berg S. Aesthetic hedonism and its critics. *Philos Compass*. 2020;15(1):e12645.
Vermaas PE, Houkes W. Ascribing functions to technical artefacts: a challenge to etiological accounts of functions. *Br J Philos Sci*. 2003;54(2):261-289.
Volkow ND, Wang GJ, Telang F, Fowler JS, Logan J, Childress AR, Wong C. Cocaine cues and dopamine in dorsal striatum: mechanism of craving in cocaine addiction. *J Neurosci*. 2006;26(24):6583-6588.
Walton KL. How marvelous! Toward a theory of aesthetic value. *J Aesthet Art Crit*. 1993;51(3):499-510.
Wiss DA, Avena N, Rada P. Sugar addiction: from evolution to revolution. *Front Psychiatry*. 2018;9:545.
Yue X, Vessel EA, Biederman I. The neural basis of scene preferences. *Neuroreport*. 2007;18(6):525-529.
Zeki S, Romaya JP, Benincasa DM, Atiyah MF. The experience of mathematical beauty and its neural correlates. *Front Hum Neurosci*. 2014;8:68.