

Article

Aesthetic Gadgets: Rethinking Universalism in Evolutionary Aesthetics

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Abstract: There is a growing appetite for the inclusion of outcomes of empirical research into philosophical aesthetics. At the same time, evolutionary aesthetics remains in the margins with little mutual discussion with the various strands of philosophical aesthetics. This is surprising, because the evolutionary framework has the power to bring these two approaches together. This article demonstrates that the evolutionary approach builds a biocultural bridge between our philosophical and empirical understanding of humans as aesthetic agents who share the preconditions for aesthetic experience, but are not determined by them. Sometimes, philosophers are wary of the evolutionary framework. Does the research program of evolutionary aesthetics presuppose an intrinsic aesthetic instinct that would determine the way we form aesthetic judgments, regardless of the environment with which we interact? I argue that it does not. Imitation and mindreading are considered to be central features of the aesthetic module. Recently, and contrary to the prior view, it has been shown that imitation and mindreading are not likely to be innate instincts but socially learned, yet evolved patterns of behavior. Hence, I offer grounds for the idea that the cognitive aesthetic module(s) is socially learned, too. This outcome questions the need for the traditional differentiation between empirical and philosophical aesthetics.

Keywords: aesthetic judgment; bioculturalism; cognitive gadgets; cultural evolutionary psychology; evolutionary aesthetics; global aesthetics; innateness; instincts; modularity; social learning



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1. Introduction

In this article, a conception of an aesthetic (or art) instinct (or impulse) is at stake. From Yrjö Hirn (1900) to Denis Dutton (2009), it has appeared in the tool kit of philosophers talking about our evolved capacities at play in aesthetic judgment [1,2].¹ Many later, often more sophisticated, evolutionary aesthetics works no longer use the term [3,4]. However, occasionally aesthetic instinct still appears in research today [5] (pp. 86–87). This alongside with the history of theorizing about an aesthetic instinct has suggested reliance on innateness in evolutionary aesthetics. Consequently, one of the common worries about evolutionary aesthetics I have encountered both in conversations and in writing is that its appeal to species-typical traits seems to without warrant entail an essentialist and deterministic picture of human behavior [6] (pp. 41–42). I show that this worry is misguided and that it should not be attributed to all versions of evolutionary aesthetics today.

Empirical evidence of what has been interpreted as aesthetic aspects of life emerges from all known human cultures. Moreover, philosophical aesthetics has traditionally held—perhaps most influentially by Kant—that all humans share the potential capacity to form aesthetic judgments [7] (pp. 123–125). Yet, although it is common to speak about aesthetic judgments, it is controversial to hold that all people make aesthetic judgments, either in the sense that everybody would experience the same objects similarly or that there could be universal standards of taste.

Social environments affect the perceptions of sensory data in a unique way for each individual. Along these lines, some scholars have argued that we should not try to look for universal features common to all aesthetic judgments. For example, Bence Nanay

emphasizes the role of top-down influences on perception and uses it as grounds for abandoning cultural universalism in aesthetics [8] (p. 87). However, Nanay still tries to locate some universally relevant features of aesthetic artifacts in order to be able to speak about global aesthetics. The global—culture-dependent—approach calls for “... a conceptual framework that can talk about any artifact, no matter where and when it was made” [8] (p. 93).² If one takes up this challenge, one falls back into advocating a form of universalism.

The usefulness of an evolutionary viewpoint is in that it offers tools for tackling this discrepancy. It can be used to clarify how aesthetic judgments can be both universal and individually or culturally unique. To be more specific, the evolutionary framework clarifies what kind of a relationship there is between the culture-dependent dimension of aesthetic judgment and the underlying universalist claim that we should nevertheless be able to speak about aesthetic judgments that vary culturally. Having read this paper, the reader will have an understanding of how universalism of aesthetic judgment could be true, but at the same time, nativism (innateness) false.

The issue being addressed in this paper is thus that universalism in evolutionary aesthetics should not be considered as equal to innateness of aesthetic judging. It is important, because even though it has always been clear that many singular aesthetic judgements are not innate, the history of talking about an aesthetic instinct and equivalents has painted evolutionary aesthetics in a light in which, sometimes more and sometimes less justifiably, evolutionary aestheticians would be expected to hold that aesthetic judgment as a behavior is an innate trait.

2. Modules, Gadgets, Judgments

Since I am bringing together ideas from both empirical and philosophical approaches to perception, I start by introducing my core terminology in this chapter. In order to examine how aesthetic judging can be universal yet not innate, I provide a clarification of why and what kind of reference to modularity is needed if one wants to hold on to a conception of aesthetic judgement as a functional entity even in the loosest possible sense.

Cognitive or mental *modules* generate patterns of behavior also known as behavioral traits or skills.³ Unlike some of my sources, such as Helen Longino [9], Fabrizio Desideri [12], Cecilia Heyes [13], and Tomi Kokkonen [10], I do not talk about mechanisms. In the case of aesthetic judgments, the exact mechanisms of function are unknown, so I employ the looser term “modules”. Modules are part of flexible functional wholes, organisms, and are often constituted by a variety of other modules. Moreover, although modules are functional entities, they are not completely independent from each other. As Philip Robbins notes, modularity of mind appears across philosophy—to be precise, “[—]in philosophy of science, epistemology, ethics, and philosophy of language[...]” [14]. The general biological definition of modularity is, according to Hugo Mercier and Dan Sperber, the following:

“All these mechanisms on the instinct-expertise continuum are what in biology (or in engineering) might typically be called *modules*: they are autonomous mechanisms with a history, a function, and procedures appropriate to this function. They should be viewed as components of larger systems to which they each make a distinct contribution. Conversely, the capacities of a modular system cannot be well explained without identifying its modular components and the way they work together”. [15] (p. 73)

I have adopted the more recent Carruthersian, instead of the stricter Fodorian, outlook on modularity. Fodor modules are more segregated and inflexible.⁴ The debate over if the mind should be seen as massively modular in the Carruthersian sense is not settled, but the reason I use the loosest possible definition of “module” is that it allows virtual domain-generalty. Otherwise, the domain of aesthetic judgment would have to be too restricted. In other words, domain-generalty is needed because aesthetic judgments apply

to a variety of objects, such as nature, the everyday, and systems. By positing an aesthetic module, we gain an understanding of how aesthetic judgement can be a domain-general functional entity. This understanding is needed if one wants to obtain information about aesthetic judgement on the explanatory level of dealing with functional mechanisms while claiming that aesthetic judgment is an entity.

Modules can be innate instincts, individually constructed or socially acquired. “*Cognitive gadgets*” are types of modules that are learned from other people [13] (pp. 146–147). This does not mean one can say genetic evolution plays no part in the explanations concerning cognitive gadgets and rely solely on social inheritance. Cultural evolution is not totally independent from genetic inheritance. We need our genetically inherited domain-general cognitive mechanisms, such as central processors and certain attentional biases, to be able to construct mechanisms via social learning [13] (pp. 52–54).

The benefit of the modular approach in aesthetics is that it helps to move beyond what we have direct introspective access to.⁵ This is needed in order to form a conception of aesthetic cognition. The question if there is an aesthetic module or not is misleading, because it is a matter of perspective. Modules in complex systems, such as humans, are not clear-cut. Whether there is an aesthetic module depends on what function we attach to it and not on whether the module itself would be a sufficient cause for the pattern of behavior under scrutiny [9] (p. 144), [10] (p. 62).

My scope is *aesthetic judgment*, with which in this article I mean observable behavior, empirically perceived changes that can be mental, verbal, neural, or bodily. Although some of my sources—for example, John Dewey [16]—talk about aesthetic experience, I will go on to aesthetic experience only to the extent necessary to shed light on aesthetic judgment. This is because aesthetic judgement can be more easily grounded in empirical observation. The reason I use aesthetic judgement in this meaning is that materialism forms the basis of naturalism. Robert Stecker persuasively defends a philosophical view according to which aesthetic experience is a valuable experience and aesthetic judgment, in turn, requires second-order processing: acknowledging the value of what we perceive as something that can evoke aesthetic experience [17] (p. 5). Unlike aesthetic experience, Stecker continues, aesthetic judgements are about instrumental value of forms, qualities, and meanings—the judgements concern their interactive force as providers of aesthetic experience for the subject.

I hold that aesthetic experience can only be empirically accessed by looking at judgments, for example via ratings of horror, amusement, etc.⁶ Because aesthetic experience does not take place in a specific brain region, measuring neural activity would not be directly assessing the experience, either, but rather some specific component of it, which tells us even less about the experience in its entirety than measuring judgments.⁷ The same holds true for measuring arousal in response to aesthetic stimuli via, for example, skin conductance—although these are valuable contributions to our understanding of the reactions, they only give us indirect and partial information about the experience as a whole. This being said, for the sake of clarity, it is appropriate to state what kind of existing philosophical theories concerning aesthetic experience my argument allows and contradicts. Since metarepresentationality and domain-generality are central for my conception of aesthetic judgement, I must rule out views on aesthetic experience emphasizing either properties of the object or a specific attitude of the subject. This leads me to embrace theories treating aesthetic experience as a relational organization of attitudes (for Perceptual, Attitudinal, and Adverbialist Models of aesthetic experience, see [18] (pp. 71–73)).

3. Level of the Explanation

The importance of clarifying how aesthetic judging can be universal yet not innate is that it marks a paradigm shift in evolutionary aesthetics. Framing the research question on a different explanatory level than before allows shifting the focus from *why* we, as biocultural beings, form aesthetic judgements to *how* it is possible that we, as biocultural beings, form aesthetic judgements. In order to make this shift from the evolutionary level to

the proximate level in evolutionary aesthetics, a modular treatment of aesthetic judgment is needed.

Evolutionary aesthetics scholars have a common understanding on little more than that there inevitably are some evolutionary aspects to aesthetic judgment, because the aesthetic subject is a bodily entity. The question is about explicating what the evolutionary aspects are, although these aspects are probably not very simple and uniform—just as aesthetic experience and aesthetic judgments are not. The evolutionary explanation in the wide sense can be done at different levels, not all of which are evolutionary in the narrow sense of the word.⁸

I will take a closer look at the levels of explanation in evolutionary aesthetics by contrasting the evolutionary and proximate levels. I am preoccupied with the proximate level (“how?”) of explanation looking at modules at play in aesthetic experience. I am not operating on the evolutionary level (“why?”). With this article, I am responding to Eveline Seghers’ call for proximate-level explanations in evolutionary aesthetics [19] (p. 55).

The aim of traditional evolutionary aesthetics, at least since aesthetics and literature professor Hirn [1], has been to hypothesize on the evolutionary level of explanation whether the ability to form aesthetic judgments is adaptive, beneficial for an individual and its potential offspring. In other words, does it have an evolutionary purpose?

Despite various attempts, this ultimate question might prove to be impossible to answer with the methodology and theories we currently have, as has been frequently noted in evolutionary aesthetics. For the time being, I leave it as a black box and modify the research focus towards proximate questions by concentrating on the module itself rather than the possible evolutionary functions of aesthetic perception or some specific aesthetic judgments. The level of adaptations describes the scope of traditional evolutionary aesthetics. If aesthetic judgment is seen as a proximate-level module, the focus shifts to how and in what contexts the behavior takes place—what its domain is. Clarification of the difference between these two levels shows that contemporary evolutionary aesthetics can move beyond the traditional and problematic evolutionary level of explanation.

Talking about one module may seem overly simplistic, as neuroaesthetics has already established that there is no part of the brain solely for the aesthetic and that there is no reason to assume exclusively aesthetic emotions [20] (p. 471), [21]. Aesthetic judgments concern a very wide group of phenomena, and it would seem more likely that there would be many modules that may work together on a case-by-case basis. This is not a problem, because modules are properties of the mind, not the brain.

Aesthetic judgment is most likely not a uniform behavioral system present in all cases of aesthetic judgment, so all attempts to identify strict necessary and sufficient conditions for an aesthetic module are partial. Different capacities are needed in order to form aesthetic judgments, and it is case-specific which skills are employed on each occasion. What is common for all aesthetic judgments, however, is their metarepresentational nature. I hold (without taking a stance on experience here) that “the aesthetic module” concerning aesthetic judgments is a metarepresentational module, or rather, a functional collection of metarepresentational modules.⁹ If one wants to explore the potential heuristic value of seeing aesthetic judgment as modular in the first place, the purpose for which the module is ‘designed’ is forming aesthetic judgments per se [22].

4. Aesthetic Metacognition

Exploring how aesthetic judgement can be universal yet not innate calls for an explanation on what kind of cognitive process is at stake. In this section, let us look at why aesthetic judgement should be seen as part of metacognition and how, if at all, this view supports the claim that it could be culturally transmitted.

Heyes et al. define metacognition as “[—]representation or evaluation of a cognitive state or process[...].” [23] (p. 350). Metacognition has many forms. Imitation is one example with aesthetic judgment being another. The aesthetic module is part of metacognition because it needs to equip us with abilities to evaluate and process sensory inputs.¹⁰

Deirdre Wilson provides a helpful general definition of metarepresentation: “A metarepresentation is a representation of a representation: a higher-order representation with a lower-order representation embedded within it” [25] (p. 411). The metarepresentational nature of the process of forming aesthetic judgments means, in a nutshell, that aesthetic judgments need to be subjectively justified. Treating aesthetic judgement as a metarepresentational module, as intuitive inference analogical to reasoning, has been examined in another paper, so to avoid overlap, I go through the argument only briefly [22].

The more often used concept in philosophical aesthetics is ‘reflection’ or ‘contemplation’. Yet, I prefer to use metarepresentation because it better captures that the process may be very fast and intuitive. The notion of metarepresentation also acts as a conceptual bridge between philosophical aesthetics and empirical approaches and thus, aids naturalist argumentation in aesthetics. We do not need to make aesthetic judgments demonstrating some predetermined high standard of taste. Cultural conceptions on well-justified aesthetic judgments no doubt shape our aesthetic tastes, but I am not saying that (all) others need to agree with our judgments or that we need to feel we have particularly “good” or sophisticated taste in order to make subjectively well-justified aesthetic judgments. We do not even have to be certain of them, but we can hold degrees of certainty. For example, I can make the judgment “*Valse Triste* is beautiful” or a more modest “I am not sure if I find *Valse Triste* beautiful (please try to convince me if you think it is or is not beautiful)”. I am saying that when we make an aesthetic judgment, be it confident or uncertain, it comes from a place where we are able to make the judgment, in other words, where we have found what we intuitively deem ‘sufficient reasons’ for holding the view—even if we cannot explain what they are. Forming aesthetic judgments is a metacognitive process that requires intuition—which could also be called representation, model, hypothesis, or expectation—of a justified aesthetic judgment in that particular context. The judgment thus forms in a loop of top-down and bottom-up processes as the hypothesis is tested in inference.¹¹

Heyes et al. argue that at least some of metacognition is culturally transmitted, and maybe even formed adaptive—“refined for purpose”—by culture:

“While metacognition is adaptive, and found in other animals, we should not assume that all human forms of metacognition are gene-based adaptations. Instead, some forms may have a social origin, including the discrimination, interpretation, and broadcasting of metacognitive representations” [23] (p. 349).

If this is so, it has implications for evolutionary aesthetics, which now has to take this possibility into account.¹²

Heyes et al. challenge some paradigmatic views on innateness of certain traits drawing evidence for their renowned “cultural origins hypothesis” from previous research on education and metacognitive training that point to social learning enhancing metacognitive sensitivity [23] (pp. 356–357). It is of interest for the article at hand to see if aesthetic judgment fulfills the three empirical predictions or implications of the hypothesis. If so, this would suggest that it is a strong candidate for being mostly culturally—rather than mostly genetically—inherited. I am using the epithet “mostly” because in practice, almost all behavioral traits are some combination of both—at the end of the day, there is no “either or” between nurture and nature, as for example Evelyn Fox Keller clarifies [29].¹³

The first point concerns variation as a condition for selection. Heyes et al. predict cultural variation in metacognitive sensitivity [23] (p. 357). The equivalent here would be “aesthetic sensibility” as described by John Bender. There is variation when people “identify certain features, properties, or relations of a work as being aesthetically significant, i.e., as either being value-making or value-lowering” even when their “perceptual or phenomenal experience” is similar [30] (p. 74).¹⁴ However, metacognitive sensitivity and metacognitive bias cannot be measured in aesthetic judgment, because there is no compelling measure of the alleged accuracy—and even less, correctness—of aesthetic judgments. Yet, there seems to be a belief that there is room for aesthetic education, such as professional art criticism, which implies differences exist.

Second, the cultural origins hypothesis indicates that individuals who most effectively transmit metacognitive skills are themselves exceptionally sensitive in metacognition [23] (p. 358). It is no secret that scholars of aesthetics as well as art critics have (at least in the past) praised themselves—and sometimes even each other—for great aesthetic sensibility and considered cultivating their aesthetic sensibility crucial for their profession. Although we could identify their role in shaping other people's aesthetic judgment, we cannot rely on their authoritative testimony on the accuracy and correctness of aesthetic judgments. The same empirical problem arises as above, but interestingly it may not be as paramount as it seems.

It is not clear whether reliable decision accuracy is a necessary component of metacognitive activity and furthermore, that accuracy is a necessary component of forming meta-level judgments of first-order computations. First-order computations here refer to lower-level aesthetic properties in the judgment at hand.¹⁵ There is empirical evidence to indicate that people may rightly experience the confidence of judgment even when they do not have first-order accuracy [31]. This does not give us a reason to believe that there are correct aesthetic judgments. It only points to that aesthetic judgments in general can be formed metacognitively. We feel levels of confidence in our aesthetic judgments as if they were correct or incorrect, even though there is no first-order accuracy. It has also been empirically indicated that expertise does not make aesthetic judgments based on lower-aesthetic properties more uniform so that absolute correctness of judgments could be standardized [32].

The third prediction is that compared to other animals, our species demonstrates stronger links between sociality and metacognition [23] (p. 358). Although we know little about the aesthetic lives of other animals, there seems to be a consensus in evolutionary aesthetics that aesthetic and social behaviors in humans are closely linked together, and that at least humans, as a species, are prone to patterns of behavior we deem to be linked with the aesthetic [33,34] (pp. 1–2). There is also evidence that aesthetic behavior is not restricted to humans but may have analogs in other animals, and Seghers holds it may have evolved utilizing capabilities shared with chimpanzees [35] (p. 270). However, it is another matter if human aesthetic behavior is *more* connected to sociality than that of other animals. To the best of my knowledge, we do not know for sure.¹⁶

It would not be a strong claim for giving up the analogy that one prediction out of three remains with only modest supporting evidence. Hence, I will continue the thought experiment of treating aesthetic judgment as potentially culturally acquired and transmitted further to other people via social learning.

5. Aesthetic Gadget in Transmission

Finally, I can proceed to elaborate on how, then, aesthetic judging transmits if it is not innate—what cognitive mechanisms give rise to it, and how they are transmitted.

Desideri has studied what he calls “the aesthetic mechanism” from the viewpoint of coevolutionary aesthetics. I base my argumentation on his views and use them as the null hypothesis, the theoretical starting point that sketches out at least some of the sub-modules of the aesthetic module.¹⁷ Desideri states:

“Properly by growing from the soil of perceptual experience (of the «aesthesis»), the aesthetic mechanism cannot be seen as something innate or genetically predisposed. On the other hand, it is not even conceivable that such a mechanism derives only from socio-historical contexts or is transmitted by a cultural tradition” [12] (p. 36).

Although Desideri says that the mechanism is not innate and that his theory resists contrasting innatism (naturism) with historicism (nurturism), and universalism with relativism, he does not enough explain to what extent exactly the mechanism could be both innate and cultural, or universal and relative [12] (pp. 31, 36). I shed more light on these issues. Based on the previous empirical studies, I examine if the factors of Desideri's mechanism are most likely to be learned gadgets, adaptations that have been preserved in cultural selection, not natural selection. If I am correct, this indicates that the module as a

functional whole is likely to be socially transmitted, or in Desideri's words, "transmitted by a cultural tradition".¹⁸

Desideri argues that mimesis, seeking, preference, and play are important for the aesthetic mechanism [12] (p. 31). I proceed to show that at least mimesis—that can more easily than the rest be treated as a module—is largely culturally refined for purpose and culturally transmitted in the context of the aesthetic. I add mindreading, also known as theory of mind, to the list, because it too, more or less implicitly, appears in characterizations of abilities contributing to aesthetic judgment, especially in the case of artifacts. For example, in Gregory Tague's coevolutionary treatment, art is a space for never-ending mindreading [38]. I claim that if art is seen as he does, the central role of mindreading would point away from innateness.

The aim of all of this is to show that the aesthetic module as a functional device facilitating aesthetic judgments and thus, on its part, "material/art culture," as Tague puts it, cannot be a "hardwired" instinct. This is so, although in different instances of aesthetic judgment, the module functions with different combinations of sub-modules, all of which are, in turn, more or less innate. I start with Desideri's factors and then spend more time justifying why I think mindreading should be added.

Mimesis is linked to modelling and learning new things: in Desideri's words, "the expansion of the circle of what is familiar" [12] (p. 31). Heyes argues that in light of empirical evidence, imitation is not an instinct but a socially learned mechanism, a cognitive gadget, that develops in the course of acquiring matching vertical associations; we observe another person doing something and then do it ourselves, learning what it feels like and how it can be activated. Both representations enhance each other, and experience builds up "a repertoire of matching vertical associations", which leads to perceptual sequence learning and motor sequence learning working together. Finally, this forms an imitation mechanism [13] (pp. 122, 142–143). That being said, though, are Desideri and Heyes speaking about the same behavior? I think it is feasible to talk about imitation mechanism in the case of aesthetic judgments. Although Heyes talks about imitating other people, and Desideri about the more general capacity to represent the world, they both refer to learning through producing representations.

With "seeking", Desideri means curiosity, "the pleasure of exploration" [12] (p. 31). Treating as multifaceted behavior employing lots of different modules as seeking as a module induces the common objection to the functional outlook on the mind: should it be treated as a module at all? In other words, would it be too bold a blanket statement, an easy solution for an explanation of what induces the behavior, to assume that it is a functional entity? For this reason, I will restrain from including seeking here as a module. This being said, I do not oppose Desideri in that curiosity is central for making aesthetic judgments.¹⁹

Moving on to preference, Desideri describes it as "the ability to choose as a degree of freedom and an advantage in the conduct of life" [12] (p. 31). If curiosity was a controversial candidate for being a somewhat unified module, seeking should be, too.²⁰ The remaining one of Desideri's features, play, is equally controversial. Desideri defines it as "the intra specific and cooperative practice of learning through the exercise and the simulation reinforced by the pleasure" [12] (p. 31). It often goes together with imitation and social learning, but it is not clear if it should be a module.²¹

All in all, it seems plausible that if we stay true to Desideri's aesthetic mechanism as a functional whole, as a module, it is culturally transmitted. The same holds when, for the sake of the argument, mindreading is added as one more central feature of it.

Mindreading is a means of knowing that other organisms and oneself have inner lives: "In prototypical examples of mindreading, an agent works out what another agent is thinking or feeling *right now* [13] (p. 144)." Mindreading is an example of metacognition because it requires first forming a representation about the world that is then ascribed to the mind in question. Moreover, mindreading cannot be ignored when speaking about aesthetic judgements, no matter how privately or intuitively they are formed.

Throughout the history of aesthetics, aesthetic objects that are artifacts—artworks, adornments, rituals, and so on—have been seen as forms of nonverbal communication. Even when there is no external audience but only the artist, the process of art making itself can be argued to be a communicative feedback-loop. For example, Dewey claims that taking the position of the audience, the artist must have reflective or introspective distance from their emotions to be able to produce an artwork that by definition induces emotional responses [16] (pp. 70–73). This translates into mindreading of the audience’s mental states; the artist needs to exercise mindreading in order to act as the observer in the artistic process itself as well as to be able to claim a piece should be looked at as art. Namely, in order to claim art status, one is required to make the assumption that others are capable of making the same claim. The same holds even if one disagrees with Dewey that art always has an emotional component, or if one thinks that the artist does not always or constantly assimilate the attitude of an audience during the material working process. In order to hold that the poem I just created is meaningful not only for me but potentially for others, although not necessarily in the same way as it is for me personally, I am already engaged in mindreading. I am attaching to others as vivid, at least to some extent, inner worlds as I have.

For Dewey, experience in itself, not only in the cases of art, is communication:

“Experience is the result, the sign, and the reward of that interaction of organism and environment which, when it is carried to the full, is a transformation of interaction into participation and communication”. [16] (p. 22)

Mindreading does not only refer to attaching mental states to other conscious beings but also to oneself [13] (p. 144). If aesthetic experience is treated as communication where the subject is aware of their mental state (that they are having a certain experience, for example that of beauty, even if forming an aesthetic judgment was intuitive), mindreading could be a feature of the aesthetic module regardless of what one is judging. Here, however, I am talking about cases of social artworks.

According to some current views, even the earliest indications of aesthetic value, such as bodily adornments, geometric rock patterns, and other images, often carry with them a reference to human sociality and thus, mindreading—and mindsharing [33] (p. 229), [38]. According to the hypothesis of Gianluca Consoli, mindreading is a condition for aesthetic experience, because these two coevolved [36] (p. 37).²² An artifact would be incomprehensible as an aesthetic object without recursively attaching intentional mental state of the maker to it [36] (p. 48).²³ This, in turn, leads to the development of self-reflection, self-constitution, and self-invention, all of which leads into the production of more aesthetic artifacts [36] (pp. 49–50). Tague goes as far as to claim that “[a]rt is a way to test ideas we form via theory of mind” [38] (p. 178). Although Tague thinks that we have what he calls an *innate* impulse for art-making [38] (p. 1), I think the claim has insufficient evidence.²⁴ I will go into this next to show that innateness should not be taken to be a property of aesthetic judgement in evolutionary aesthetics, and therefore, should not be confused with universalism of aesthetic judgement.

According to Heyes, mindreading is a cognitive gadget. She builds her view on that children gradually learn mental states and their meanings from observing and interacting with adults who are already experts in exercising the mechanism [13] (pp. 153–154, 204). How we read minds does not merely require activation of an instinct by social interaction nor is it constructed by the mindreader herself from environmental cues, but the mechanism is largely defined by the previous generations of mindreaders that teach it to the next one [13] (pp. 146–147). The empirical evidence to back this theory up is that mindreading develops slowly, is cognitively demanding, is linked to specific cortical circuits, and varies from culture to culture [13] (pp. 148–151). In sum, similarly to imitation, although mindreading is adaptive and selected for during evolution for its fitness value, it cannot be assumed to be entirely innate.²⁵

Module refers to provisions that allow a certain type of input to be processed rather than a defined machinery that can be reproduced:

“A cognitive mechanism certainly is not a pellet of information that can be copied inside your head, sent through the air, and planted wholesale in my head. [...] Instead, we can recognize that certain kinds of social interaction, sometimes with many agents over a protracted period of time, gradually shape a child’s cognitive mechanisms so that they resemble those of the people around them”. [13] (p. 44)

As priors become shared this way, aesthetic agents emerge, aesthetic experience and judgments of individuals may overlap, and we start seeing an aesthetic gadget in action. What bottom-up lower-aesthetic features we take into account and what top-down intuitions about good aesthetic explanations we have depends on social transmission and thus cultural evolution as well as forming habits.²⁶ This is not to rule out that it also depends on individual qualities that are genetically inherited. The core message of contemporary evolutionary aesthetics is that aesthetic objects and preferences have led to the evolution of aesthetic judgment (here, as a cognitive module), and not only that aesthetic minds would have unilaterally or completely freely produced aesthetic objects.²⁷ In traditional evolutionary aesthetics, in contrast, aesthetic objects are often treated as developed to match our innate cognitive abilities [50,51] (pp. 416–420).

6. Conclusions

It is a generally accepted notion that aesthetic judgments—for example, what we find beautiful—are largely culturally transmitted. What about the potential mental module for how we form these judgments? My point has been that also the module that determines how the mind works to realize these judgments is culturally transmitted. It is likely that there is no module for aesthetic judgment that people are born with. Rather, there is only an unrealized potential for the ability for aesthetic judgment to develop. In other words, there is a universal—evolutionary—prerequisite for it to be constructable. It is not present at birth nor does it realize itself inevitably, but only in the particular social environments that ensure its transmittance. This statement may sound obvious, but it cannot be directly derived from the mere observation that we have culturally transmitted aesthetic judgements. The value of the article lies within the argumentation itself. To my knowledge, there is no previous account on how exactly the intuitive notion that aesthetic judging is both universal and culture dependent is possible. At present, universalism and culture dependence are often contrasted with each other.

My contribution has been showing how it is possible to agree with both global aesthetics and evolutionary aesthetics. I have argued that an aesthetic gadget is a plausible alternative for an aesthetic instinct. Acknowledging the module(s) for aesthetic judgment as a cognitive gadget(s) rather than innate instinct(s) does not make the evolutionary framework pointless. It shifts the explanation towards the proximate level, alongside the existing developmental level. Most importantly, this also moves the explanation away from the evolutionary level, what has previously been the focus in evolutionary aesthetics emphasizing instincts. This is the new tenet of evolutionary aesthetics in the 2020s.

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Notes

- ¹ Hirn thinks that an artist has an “art-impulse” and a member of the audience has an “art-sense” that both have developed from other traits during the course of evolution [1] (p. 16). Hirn’s theory and terminology are in many parts outdated, but I do not think he explicitly claims that the art impulse and art sense would be innate. Dutton, in turn, uses the terminology of innateness in his book *The Art Instinct: Beauty, Pleasure & Human Evolution* and summarizes his point by saying that “[a]rt may seem largely cultural, but the art instinct that conditions it is not” [2] (p. 206). Hirn uses the *Einfühlung* theories of his era. By leaving the role of emotions and feelings untouched here, I do not wish to indicate they were irrelevant for metacognition, aesthetic judgement, its sub-modules, or its transmission. Since dealing with this important and large issue would mean, for instance, delving in length and detail into the vast Cognitivism vs. Emotionalism debates going on in analytic aesthetics at the moment, I leave it for another paper.
- ² In the case of aesthetic judgment, this would translate into trying to find some loose features of aesthetic objects, not just aesthetic artifacts.
- ³ However, defining a cognitive mechanism and a behavioral trait as well as differentiating between psychological and behavioral traits is ambiguous [9] (p. 151), [10] (pp. 192–193, 200–202, 254–256, 262–263). Furthermore, choosing a focus between behavior and psychology contributes to what questions can be answered. I do not see it relevant to differentiate between sociobiology, behavioral ecology, evolutionary psychology, cultural evolution, and gene-culture co-evolution here, because the dividing lines—if there are any—tell more about the history of evolutionary humanities than contribute to understanding the evolutionary aspects of aesthetic judgment today. The approaches are not fixed or mutually exclusive, and scholars can conduct research under several of these labels at the same time [11] (p. 195). For an analysis on how these approaches intertwine and how their research questions differ, see [11] (pp. 210–213).
- ⁴ The central features of Fodor modules are domain specificity, mandatory operation, limited central accessibility, fast processing, informational encapsulation, “shallow” outputs, fixed neural architecture, characteristic and specific breakdown patterns, and characteristic ontogenetic pace and sequencing. Carruthers modules’ central features are dissociability, weak neural localizability, and central inaccessibility [14].
- ⁵ However, it does not allow direct or empirical access to reality but serves as a heuristic device.
- ⁶ For example, via phenomenology, we can obtain complementary information about aesthetic experience.
- ⁷ I am not saying that empirical aesthetics would give the field of aesthetics no relevant information whatsoever. My point concerns only how we understand the object of the explanation, what we are receiving information about.
- ⁸ “... the ethologist Niko Tinbergen (1963) stressed that, when we ask why an animal exhibits a particular behavioural pattern, we could potentially be asking one of four different questions. First, we can ask questions about the *function* of the behavior pattern implying the role that the trait plays in enhancing reproductive success. Second, we can ask about the *evolutionary history* of the behavior pattern, including an account of its original ancestral state and the selective pressures in the evolutionary history of the lineage that led to the species possessing this derived behaviour. Third, we can ask what *proximate* causes leads the individual to express the behaviour pattern, for instance, by looking at the sensory input, neural mechanisms, and effector systems that produce the behaviour. Finally, we can ask what factors during *development* have played a role in directing the appearance of the behaviour at the relevant stage in its lifetime” [11] (p. 205). Answering all of the Tinbergen’s dimensions separately is a requirement for the evolutionary understanding of a behavioral trait [11] (p. 7). When it comes to aesthetic judgment, researchers are unanimous about none of them. It is also worth noting that it is controversial how many explanatory levels there are. In this article, I am only considering the proximate and evolutionary levels without paying much attention to the rest.
- ⁹ Note that Jérôme Dokic suggests aesthetic experience is not necessarily meta-representational [18] (p. 75).
- ¹⁰ Aesthetic judgment requires inference. The process may be fast, but it includes interpreting evidence—aesthetic properties—for conclusions. As we have to process several aesthetic features and often also data from several senses, we have to employ our working memory. If burdened enough, we experience “aesthetic fatigue” [24]. Further support for treating aesthetic judgment as metacognitive is that we communicate our aesthetic judgments with each other, and they become shared even to the point where they are agreed or disagreed upon. Additionally, so-called external (for the judgment) “second-order” factors, such as previous experience and homeostasis, hunger for example, influence our aesthetic judgments—they are not external to it, strictly speaking [20]. Discrimination means the ability to draw apart different signals so that one can build confidence on the correctness, subjective justification, of a judgment. As already touched upon above, we have an intuition about good aesthetic judgments not as an abstract category but on a case-by-case basis, even when we do not consciously go through or are not able to go through the

exact process of forming an aesthetic judgment. This is a precondition for interpersonal discussion on aesthetic judgments, as well as agreement and disagreement with other people. Heyes et al. state: “Explicit metacognition uses conscious representations in working memory to monitor or evaluate—and often to control—cognitive states and processes. Explicit metacognition (here metacognition, when not qualified) is sensitive to cognitive load, and is typically slow, deliberate, and verbally reportable” [23] (p. 350). It can operate either in the level of first-order (lower-level aesthetic properties), but more commonly, second-order (aesthetic properties) computations (or confidence). I speak only about metacognition and leave it open here whether aesthetic judgment is explicit metacognition.

- 11 Terms ‘representation’ and ‘model’ have several usages. Here, representations are embodied, although not necessarily internal to the brain. They are also far from complete and stagnant. Models, too, refer to a state of the organism: The generative model should therefore be interpreted as instantiated by the agent as a whole. In other words, it is not something that one can abstract away from the phenotypic traits of an organism, because it is those traits, including states of its local niche, that instantiate such a model” [26] (p. 57). The loop of top-down and bottom-up processes refers to the predictive processing framework gaining popularity in philosophy of mind at the moment. The central idea of predictive processing is unconscious prediction error minimization. We receive bottom-up messages from the world (including ourselves) concerning effects, but rather than just passively registering, we process them inferentially. This means that our prior beliefs, accumulated during a longer period of time, shape what causes we end up taking to be most likely for a given effect. We position ourselves in the world so that our expectations or hypotheses and sensory feedback match the best way possible. Understood in this way, perception is action, and action is perception in the sense that perceptual inference works to optimize the mental models about the world to fit the data from the senses, and active inference, in turn, tests the hypotheses and changes the sensory input to fit them [27] (p. 183), [28] (pp. 75, 81, 96).
- 12 Heyes’ hypothesis concerns specifically human metacognition. It is not my aim here to study if aesthetic module is human-specific, or if other species have it as well. For example, Desideri thinks the cognitive mechanism is species-typical for humans [12] (p. 32). This would be in line with the idea that the factors characteristic of his aesthetic mechanism are Heyesian gadgets. For my purposes in this article, however, it suffices to say that at least humans have aesthetic metacognition.
- 13 In a general sense, a scenario where functioning genetic traits would not be realized in culture/nurture is only an abstract thought experiment. An exception could be for example reflexive blinking, but those cases are not relevant for this article.
- 14 Bender talks about “sensibility” whereas Heyes et al. talk about “sensitivity”. For Bender, aesthetic sensitivity refers to differences in the intensity of perceptual experience, sensitivity of the sense organs [30] (p. 76). My argument concerns aesthetic judgments as metarepresentations rather than immediate perceptiveness of the senses, in which case Benderian aesthetic sensibility is analogical to metacognitive sensitivity.
- 15 For the metarepresentational process of forming aesthetic judgments, see [22] (p. 87).
- 16 For an opposite stance, see [36] (p. 48).
- 17 Stephen Davies and Seghers, in turn, talk about “aesthetic sense” [34] (p. 18), [35] (p. 270).
- 18 My argumentation here still leaves open to what extent the module would be innate. I do not by any means rule out that there could be statistically universal aesthetic preferences, such as certain odors. For an empirical study, see [37]. If there are some innate aesthetic preferences, the module utilizes them.
- 19 For the sake of the argument, if one still insisted on treating seeking in the case of the aesthetic as a mechanism, it would point to social learning. It is linked to perceiving symmetry or invariance (and thus, asymmetry and variance) [39]. Nanay argues that people learn socially to direct their attention [8] (p. 92). He refers to attention that can be: “i. Distributed with regards to objects and focused with regards to properties ii. Distributed with regards to objects and distributed with regards to properties iii. Focused with regards to objects and focused with regards to properties iv. Focused with regards to objects and distributed with regards to properties” [40] (p. 24). Attention applies here only in the context of the aesthetic, but talking about a functioning aesthetic module, it suffices for the purposes of this article. If Nanay is correct, how we guide our attention, properties that can catch our attention and hold meaning for us in the first place—things we are curious about and that form the soil of our aesthetic judgments—depend on social learning that molds our “mental imagery”, or horizon of expectation that affects interpretation of signals [8] (p. 90). This means that the way we seek, what generates this behavior, would not be an instinct.
- 20 Again, I will make a detour into the wilder speculations of whether preferring, in the case of aesthetic judgment, is mostly learned. At large, we have the capacity to prefer since day one in our lives—for example, over if we eat or refuse milk, or sleep or demand attention—similar to how we have consciousness since day one. Similarly to consciousness at large, the ability to prefer aesthetically forms fully in the course of social life. For the social development of consciousness, see [41] (pp. 229, 249). This is a rather common notion in philosophical aesthetics and can be derived from what was said about directing attention in the previous note. Besides the abundance of philosophical theorizing, there is also empirical evidence that taste varies according to whether a person is interacting in artworlds or not [42] (p. 32).
- 21 Play, broadly construed, has been considered crucial for the cognitive development of humans [43]. Even if play was treated as a module, it does not entail that we know the evolutionary function and ontogeny of play in humans or in other animals, and it also remains unknown if it is a mostly genetically inherited instinct or not. Neither possibility is ruled out. [44] (pp. 551, 555–556), [45] (p. 1), [46] (pp. 9, 12).

- 22 Consoli also holds that “[—]aesthetic experience is supported by a multiple set of preexisting mental properties, evolved for other reasons, and then exapted to a new and original adaptive function” [36] (p. 39). Although I use Consoli’s stance that mindreading has a role in aesthetic experience, I do not take a stance on the level of adaptations here.
- 23 The view is not challenged by empirical evidence of the appreciation of AI-created art, because the appreciator (not the AI) is in this case the maker or artist as the appreciator is looking at the object as art, as part of the historical continuum of other artworks, no matter how much the algorithm used previous artworks as reference.
- 24 Tague says: “In terms of biology, there clearly are striking benefits to making art over the costs, and the behavior is not only passed on by instruction and learning but the impulse is innate and heritable” [38] (p. 1). Although I agree that at least some of the sub-modules of the aesthetic module are heritable, and that some may also be innate, in this article I argue why it is a bit misleading to talk about *the impulse* for artistic behavior.
- 25 For more on mindreading and imitating other people’s mental states (“embodied simulation”) as different from each other but both present when looking at movies, see [47].
- 26 For habits, see [48].
- 27 See for example, [48,49] (p. 6).

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