

# Colliding Terminological Systems—Immanuel Kant and Contemporary Empirical Aesthetics

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Gregor U. Hayn-Leichsenring<sup>1,2</sup>   
and Anjan Chatterjee<sup>1,2</sup>

## Abstract

Few classic philosophers are as popular as Immanuel Kant. Kant's ideas seem to be used ubiquitously in contemporary aesthetics discussions. Here, we critically review the way his ideas are being applied in empirical research. We focus on the four moments presented in the *Critique of the Power of Judgment* (first published in 1790) and show that Kant's precise (and sometimes counter-intuitive) use of language paired with his complex transcendental framework make interpretation of his work difficult. In some cases, colliding terminological systems easily lead to misinterpretations of his ideas. Further complicating matters, Kant developed a coherent and static description of *judgments on the beautiful*, while modern empiricists conduct experiments to construct a dynamic explanation of aesthetic experiences. These two approaches are difficult to reconcile. We outline points of tension and also areas where his ideas relate to and might motivate productive research questions.

## Keywords

philosophy, aesthetics, terminology, beauty, aesthetic experience

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<sup>1</sup>Neurology Department, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA, USA

<sup>2</sup>Penn Center for Neuroaesthetics, Philadelphia, PA, USA

## Corresponding Author:

Gregor U. Hayn-Leichsenring, Perelman School of Medicine, University of Pennsylvania, 3710 Hamilton Walk, Philadelphia, PA 19104, USA.

Email: gregorhaynleichsenring@googlemail.com

## Introduction

Within empirical aesthetics, the works of the German philosopher Immanuel Kant (1724–1804) are cited frequently—especially his third Critique *Critique of the Power of Judgment*, sometimes translated simply as *Critique of Judgment* (*Die Kritik der Urteilskraft*; Kant, 1922; first published in 1790). The obvious question is: Why is a philosopher who died over 200 years ago cited—or mentioned—by various contemporary researchers (Belke, Leder, & Carbon, 2015; Brielmann & Pelli, 2017; Chatterjee, 2015; Leder, Belke, Oeberst, & Augustin, 2004; Redies, 2007)? This tendency is especially surprising since Kant's work was not motivated by empirical considerations but represented a theoretical inquiry into consciousness. Kant's *Critique of the Power of Judgment* (Kant, 1922) is one of the most influential books on aesthetic appreciation. However, Kant's œuvre is complex. Consequently, reducing his thoughts to a few characteristic phrases or sentences risk being misleading.

Our aim in this article is not to argue for or against the correctness of Kant's ideas or to analyze how he has been interpreted and reinterpreted over the last two centuries. Instead, we describe aspects of Kant's work which have drawn the interest of modern empirical researchers. Our discussion focuses on the *Critique of the Power of Judgment* (Kant, 1922), Kant's main work on aesthetics. Importantly, while his precritique writings can be interpreted psychologically, his three Critiques (including the *Critique of the Power of Judgment*) are *transcendental* (German: *transzendental*). A *transcendental* approach does not (ontologically) investigate *being* (*Sein*) but rather the *conditions of possibility of experience* (*Bedingungen der Möglichkeit der Erfahrung*). Therefore, a *transcendental* approach aims to understand a person's capacity to construct experiences. In other words: All *transcendental* claims are related to a person's *faculties of cognition* (*Erkenntnisvermögen*) because *faculties of cognition* enable *experiences*.

## Terminology

A major obstacle in interpreting Kant's work is his use of language. Kant defines his terms idiosyncratically. While *beauty* (*Schönheit*) has a broad meaning in everyday language (everything that is appealing or agreeable can be considered beautiful), Kant defines *beauty* as the object of a specific process within the *power of judgment*. He differentiates between *agreeable* (*das Angenehme*), *beautiful* (*das Schöne*), and *sublime* (*das Erhabene*). We will return to these differences later. Here, it is sufficient to state that there are far-reaching differences between the common use and Kant's technical use of these terms as they apply to aesthetics.

The handling of Kant's terminology is made more difficult when confronted with English translations of Kant's original texts. For instance, Kant's original

German expression *Zweck* has been translated as *purpose* (Kant, 2005) as well as *end* (Kant, 2001). While *purpose* is an adequate literal translation, this translation implies a relation to utility or cause, which only applies to Kant's definition of an external *Zweck* and not an internal *Zweck*. Therefore, the translation of *Zweck* as *end* is, presumably, closer to Kant's intent, as it is free of the implication of utility or cause (see section *Third Moment: Purposiveness Without an End*). Thus, while both English expressions are correct, the connotations differ. Philosophical laypeople unfamiliar with Kant's terminology will make different inferences based on which of the two terms they adopt. More generally, tracing Kant's argument relies on a good translation. In this manuscript, we follow the critically acclaimed English translation by Paul Guyer and Eric Matthews (Kant, 2001).

In sum, talking about Kant's works is not as easy as it might appear. To make claims about his thoughts and ideas, one needs to understand his philosophical system, use of language, and appreciate nuances embedded in his thought. In what follows, we delve into the details of Kant's argument to reconstruct his view of beauty and related judgments. Based on this reconstruction, we assess whether contemporary researchers use him appropriately and if his thoughts remain relevant to ongoing empirical research.

## The Four Moments

Kant proposed that defining *beauty* (*Schönheit*) requires an analysis of the *pure judgment of taste* (*reines Geschmacksurteil*).

The definition of taste that is the basis here is that it is the faculty for the judging of the beautiful. But what is required for calling an object beautiful must be discovered by the analysis of judgments of taste. In seeking the moments to which this power of judgment attends in its reflection, I have been guided by the logical functions for judging (for a relation to the understanding is always contained even in the judgment of taste). (KU, AA 05: 4; Kant, 2001)

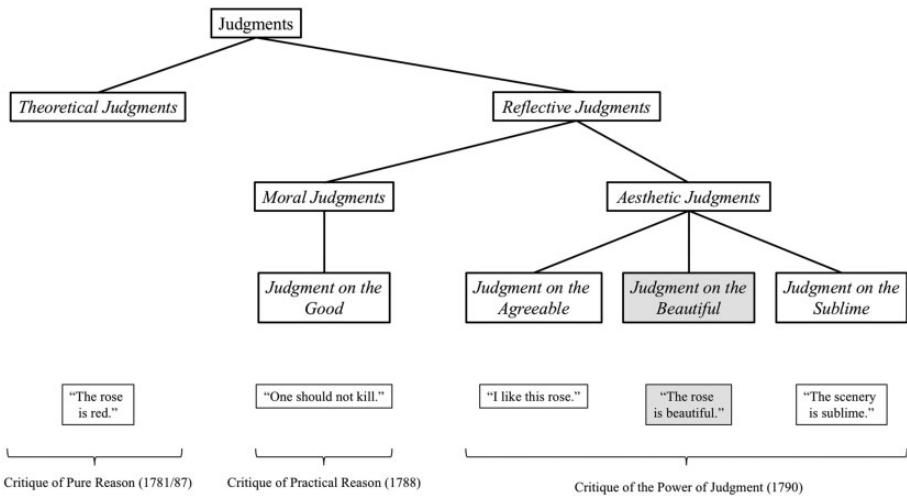
In other words, understanding what makes an object *beautiful* cannot be achieved by examining the object itself. Instead, one has to investigate mental processes of the perceiver, which constitute the *judgment of taste*.

Kant describes several kinds of judgments. Judgments are specific kinds of *cognition* (*Erkenntnis*) generically defined by Kant as conscious mental representations of an object. Therefore, judgments are central cognitive features of the human mind (Hanna, 2008). To understand the implications of a *pure judgment of taste*, Kant's writings on judgments in general are relevant.

In the *Critique of Pure Reason* (*Kritik der reinen Vernunft*; Kant, 1999, first published in 1781/1787), he described a *table of categories* in which he identified four *a priori* categories (*Quality* [*Qualität*], *Quantity* [*Quantität*], *Relation*

[*Relation*], and *Modality* [*Modalität*]) that are related to *theoretical judgments* (Kant, 1999). A *theoretical judgment* (“What is true?”) is the recognition that an *intuition* (*Anschauung*) falls under a *concept* (*Begriff*) and forms an *experience* (*Erfahrung*) (Caygill, 1995; Longuenesse, 2005). The source of *intuition* is *sensibility* (*Sinnlichkeit*); the source of the *concept* is *understanding* (*Verstand*) (Caygill, 1995). *Sensibility* and *Understanding* are two *faculties of cognition*. While *sensibility* is the specific manner in which human beings are receptive (i.e., it is the faculty that provides sensory representations), *understanding* is the specific manner in which human beings are able to think in *concepts* (i.e., it is the faculty that spontaneously provides conceptual representations). Following Kant, *understanding* applies its categories to *experience* and—a *posteriori*—generates *knowledge* (*Wissen*) about the world. Thus, the purpose of *theoretical judgments* is to establish true propositions (e.g., ‘The rose is red.’).

In addition to *theoretical judgments*, Kant described *reflective judgments* (judgments on the *good* [*das Gute*], the *agreeable* [*das Angenehme*], the *beautiful* [*das Schöne*], and the *sublime* [*das Erhabene*]) (see Figure 1 for an overview). *Reflective judgments* are analogous to valuation in contemporary parlance. Kant argues that *understanding* relates to *reflective judgments*, because all judgments are based on the same *faculties of cognition*. He applies his *table of categories* to *reflective judgments*, which is further divided into *moral* and *aesthetic judgments*. *Moral judgments* (“What is good?”) are guided by the *categorical imperative*, an a



**Figure 1.** The judgments as described by Immanuel Kant. These judgments are central cognitive features of the mind and all judgments are based on the *faculties of cognition*. Aesthetic judgments can be divided into three subcategories.

priori law of reason (*Vernunft*) (Longuenesse, 2005) that he described in the *Critique of Practical Reason* (*Kritik der praktischen Vernunft*; Kant & Engstrom, 2002, first published in 1788). *Aesthetic judgments* (*ästhetische Urteile*; judgments on the agreeable, the beautiful and the sublime) are the main topic of the *Critique of the Power of Judgment*. A subcategory of *aesthetic judgments* is the already mentioned *pure judgment of taste* (*judgment on the beautiful* and *judgment on the sublime*). Here, we focus on the *aesthetic judgment on the beautiful*. Following the table of categories, Kant organizes his annotations to *aesthetic judgments* in four *moments* (*Momente*). These four *moments* differ from the *moments* relating to the *theoretical* or *moral judgments* (Zhouhuang, 2016).

Four *moments* of the *judgment on the beautiful* (see also Table 1):

1. *Quality*. First Moment: *Judgments on the beautiful* are *disinterested* (*interesselos*).
2. *Quantity*. Second Moment: *Judgments on the beautiful* are *universal* (*universal*).
3. *Relation*. Third Moment: Objects that evoke *judgments on the beautiful* possess *purposiveness without an end* (*Zweckmäßigkeit ohne Zweck*).
4. *Modality*. Fourth Moment: *Judgments on the beautiful* are *necessary* (*notwendig*).

In what follows, we describe each *moment* and consider their use in empirical aesthetics. In an additional section, we analyze the meaning of the *sublime*. Kant’s writings are framed as a blueprint from which to explore whether his ideas are empirically testable, and whether they might inform current research.

**Table 1.** Aesthetic Judgments.

	Aesthetic judgments		
	Judgment on the agreeable	Pure judgments on taste	
		Judgment on the beautiful	Judgment on the sublime
First moment ( <i>Quality</i> )	<i>interested</i>	<i>disinterested</i>	<i>disinterested</i>
Second moment ( <i>Quantity</i> )	<i>singular</i>	<i>universal</i>	<i>universal</i>
Third moment ( <i>Relation</i> )	<i>purposiveness with an end</i>	<i>purposiveness without an end</i>	<i>purposiveness without an end</i>
Fourth moment ( <i>Modality</i> )	<i>not necessary</i>	<i>necessary</i>	<i>necessary</i>
Related faculty of Cognition	<i>understanding</i>	<i>understanding</i>	<i>reason</i>

Note. This is an overview of Kant’s aesthetic judgments and does not capture the nuance of his thinking.

### First Moment: Disinterestedness

Few terms are as closely connected to Kant as the notion of *disinterested pleasure* (*Wohlgefallen ohne Interesse*, also translated as *disinterested interest*; Kant, 1922, 2001). In §2, “The satisfaction that determines the judgment of taste is without any interest.” Kant defines *interest*: “The satisfaction that we combine with the representation of the existence of an object is called interest” (KU, AA 05: 5; Kant, 2001). So, according to Kant, if someone experiences *pleasure* (*Lust*) from the existence of an object, he is *interested* in this object (Kant, 2001). For *judgments on the beautiful*, a specific state of *disinterestedness* is necessary.

It is readily seen that to say that it is **beautiful** and to prove that I have taste what matters is what I make of this representation in myself, not how I depend on the existence of the object. Everyone must admit that a judgment about beauty in which there is mixed the least interest is very partial and not a pure judgment of taste. One must not be in the least biased in favor of the existence of the thing, but must be entirely indifferent in this respect in order to play the judge in matters of taste. (KU, AA 05: 6–7; Kant, 2001)

Differentiating between subclasses of *aesthetic judgments* is of utmost importance. *Interest* in an object applies to *aesthetic judgments on the agreeable*. This *interest* has an individual (i.e., subjective) component and refers to the existence of the object. Since an individual judgment is not *universal*, it cannot be a *judgment on the beautiful*. For a *judgment on the beautiful*, the existence of the object has to be irrelevant; the perceiver must be *disinterested*. *Disinterested* simply means “not grounded on an interest” (Rind, 2010).

Strikingly, the term *disinterested* has been interpreted by philosophers and scientists in different ways (Zangwill, 1992). Some of these interpretations do not align with the Kant’s use of the term. Kant argues that *interest* is a kind of *pleasure*. This *pleasure* is not the same as *attention* or *motivation*. *Attending* or being *motivated* is an active process, while *pleasure* is received passively (Zangwill, 1992). Therefore, *interest* has to be passive. In modern aesthetics research, the difference between active *attention* and passive *interest* is not often emphasized. Here, we describe two recent interpretations of the term *disinterestedness*.

The specific state of *disinterestedness* is associated with the *aesthetic attitude* (Cupchik, 1992; Dickie, 1964; Leder et al., 2004). An *aesthetic attitude* is defined as a mode of aesthetic contemplation of stimuli (Brattico & Vuust, 2017). People evaluate objects differently if they consider objects as artworks (Gerger, Leder, & Kremer, 2014). An ERP study showed that aesthetic evaluation (or a *judgment on the beautiful*) occurred during contemplation and not during free viewing. Furthermore, *not beautiful* stimuli did not elicit negative fronto-central responses (Höfel & Jacobsen, 2007). This study, however, analyzed an active

process—and, therefore, was not investigating *disinterestedness* as the term is meant by Kant. Nothing indicates that Kant thought that paying *attention* to or contemplating an object in a certain way is relevant for a *judgment on the beautiful*.

On another interpretation, the state of *disinterestedness* (or better *disinterested interest*) is relevant to the neuropsychological state of *liking* without *wanting* (Belke et al., 2015; Chatterjee, 2010, 2015). In the latter, an (beautiful) object induces *aesthetic pleasure* without evoking additional desires. But it is disputable if the notion of *wanting* is the same as Kant's *interest*. *Wanting* is defined as motivation for a reward and has two components: not necessarily conscious "incentive salience" and "conscious desires for incentives or cognitive goals" (Berridge & Kringelbach, 2008). There is a similarity between *wanting* and *interest*. Both relate to utilitarian goals (Belke et al., 2015). Nevertheless, the terms are not congruent. Following Kant's notions, *judgments on the beautiful* can only be made without *interest*. But one could certainly *want* to possess a *beautiful* object because of the *pleasure* derived from it. Therefore, to *want* an object does not mean that it cannot be *beautiful*, while having an interest on an object means that it cannot be beautiful. Here, one of the main obstacles in mapping Kant to modern research becomes obvious: Kant uses a language with a different (a philosophical) reference system. *Liking* and *wanting* are neurophysiologically defined, while *interest* is a philosophical term. Therefore, redefining terms is necessary when operating with Kant's terms. For example, in order to use the term *disinterestedness* in neurophysiology, one risks altering the philosophical meaning. By taking the term out of the context of *judgments on the beautiful*, the term has different connotations. One could, for instance, redefine *disinterestedness* as an absence of *wanting* and investigate whether this absence of *wanting* is necessary for *aesthetic experiences*. However, this definition of *disinterestedness* is not Kant's use of the term.

Within his philosophical system, Kant does not fully describe how one gets to the state of *disinterestedness*. Therefore, it is difficult if not impossible to empirically investigate this *Moment* (as described by Kant). However, to argue for universality, Kant needs the concept of *disinterestedness*. *Disinterested judgments* are not subjective. This is the only way to assume that everybody would agree with a *judgment on the beautiful*. Therefore, being *disinterested* is *necessary* to make a *judgment on the beautiful*.

### **Second Moment: Universality**

It was common in 18th century Western philosophy to assume that everybody agreed on judgments about the beauty of an object. This idea was elaborated by other philosophers before Kant published his works on aesthetics (e.g., Baumgarten, 1758; Hume, 1757). Kant's philosophical concept, however, focused on subjective experiences. Therefore, he merged two contradicting

premises: (a) *judgments on the beautiful* are universal (*allgemeingültig*) and (b) *judgments on the beautiful* are subjective (*subjektiv*). His solution lies in §9: “Investigation of the question: whether in the judgment of taste the feeling of pleasure precedes the judging of the object or the latter precedes the former” (KU, AA 05: 27; Kant, 2001). Kant writes:

Thus it is the universal capacity for the communication of the state of mind in the given representation which, as the subjective condition of the judgment of taste, must serve as its ground and have the pleasure in the object as a consequence. Nothing, however, can be universally communicated except cognition and representation so far as it belongs to cognition. For only so far is the latter objective, and only thereby does it have a universal point of relation with which everyone’s faculty of representation is compelled to agree. Now if the determining ground of the judgment on this universal communicability of the representation is to be conceived of merely subjectively, namely without a concept of the object, it can be nothing other than the state of mind that is encountered in the relation of the powers of representation to each other insofar as they relate a given representation to cognition in general.

The powers of cognition that are set into play by this representation are hereby in a free play, since no determinate concept restricts them to a particular rule of cognition. Thus the state of mind in this representation must be that of a feeling of the free play of the powers of representation in a given representation for a cognition in general (KU, AA 05: 27–28; Kant, 2001).

According to Kant, the *judgment on the beautiful* precedes *pleasure*. If *pleasure* were to precede a judgment, then the result would in his terms be an individual *judgment on the agreeable* (Kant, 2001). Instead, the *judgment on the beautiful* is—like a *theoretical judgment*—based on *faculties of cognition* (*Erkenntnisvermögen*) that are identical in everyone. *Beautiful* objects evoke *free play* (*freies Spiel*) of the *faculties of cognition* (*sensibility* and *understanding*) and this *harmonious* (*harmonisch*) *free play* leads to a feeling of *pleasure*. But *beautiful* objects do not trigger *free play* because of their objective properties—see §11: “The judgment of taste has nothing but the form of the purposiveness of an object (or of the way of representing it)” (KU, AA 05: 34; Kant, 2001). Instead, *free play* is based on their *purposiveness without an end* (see section *Third Moment: Purposiveness Without an End*). In short, Kant proclaims that the reason for the *universality of judgments on the beautiful* lies in the *universality* of human *faculties of cognition*. Our ability to make *theoretical judgments* (e.g., ‘The rose is red.’) is based on the same mechanism as our ability to make *judgments on the beautiful* (e.g., ‘The rose is beautiful.’). But in a *judgment on the beautiful*, the *faculties of cognition* are in *free play* (Kant, 1999, 2001). This *free play* is evoked if an item



looks *as if* it possesses an intrinsic *end* (*Zweck*) but actually does not (see section *Third Moment: Purposiveness Without an End*).

Most modern empirical aesthetics researchers disagree with strictly universal claims. Instead, they often focus on individual preferences (Leder, Gerger, Briber, & Schwarz, 2014; Mallon, Redies, & Hayn-Leichsenring, 2014). However, several psychophysical approaches to aesthetics strive to identify universally preferred object properties. Gustav Theodor Fechner (1876) is regarded as the founder of Psychophysics. He measured objective properties and related them to beauty. For instance, he proposed that the Golden Ratio is universally preferred—an idea that has not been confirmed consistently (McManus, 1980). There is little evidence for the existence of universally beautiful psychophysical properties. One reason for the absence of such *universals* might be that experiences of *beauty* are domain specific (Marković, 2014). By contrast, recently low-level image statistics have proposed as attributes of universally preferred in visual stimuli (Brachmann, Barth, & Redies, 2017; Graham & Field, 2007; Redies, Hasenstein, & Denzler, 2007).

In comparison, *universals* in empirical aesthetics are based on consistency of preference ratings, while Kant proposed an absolute agreement on all *judgments on the beautiful*. Consequently, the two types of *universality* in aesthetic judgments differ. Furthermore, in empirical aesthetics, the notion of *universality* is based on objective similarities in neurophysiological responses or on objective similarities between *beautiful* items. While Kant did not know about neurophysiological responses, he negated the existence of objective *universal* properties for *beautiful* items. Instead, he proposed that *beautiful* items share one single aspect: *purposiveness without an end* (Kant, 2001).

### *Third Moment: Purposiveness Without an End*

The *purposiveness without an end* (*Zweckmäßigkeit ohne Zweck*, also translated as *purposiveness without purpose* or *finality without an end*; Kant, 1922, 2001, 2009) is—according to Kant—the only thing that beautiful items have in common. But what does Kant mean? In order to investigate his meaning, one has to interpret Kant's definition of *end* and *purposiveness*.

If one would define what an end is in accordance with its transcendental determinations (without presupposing anything empirical, such as the feeling of pleasure), then an end is the object of a concept insofar as the latter is regarded as the cause of the former (the real ground of its possibility); and the causality of a **concept** with regard to its **object** is purposiveness (*forma finalis*). (KU, AA 05: 32; Kant, 2001)

Therefore, the *end* (or *purpose*) of an object describes the causal relation between the *intuition* of the object and the *concept* it falls under. There is a reciprocal relation. Objects that have an *end* fall under a *concept* (e.g., we can name an

object *hammer* because our *understanding* relates the object to the *concept hammer*)—but only because these objects exist, a *concept* is established (i.e., because there are *hammers* in the world, the *concept hammer* exists). *Purposiveness* is the property of appearing as created or designed. Usually, objects that possess *purposiveness* have an *end*, the exception are *beautiful* objects. Kant differentiates between an external *end* (what the item was meant to accomplish, relating to utility) and an internal *end* (what the item was meant to be like, relating to perfection). This distinction gives two types of *beauty*: *free beauty* and *adherent beauty* (sometimes translated as *dependent beauty*).

There are two kinds of beauty: free beauty (*pulchritudo vaga*) or merely adherent beauty (*pulchritudo adhaerens*). The first presupposes no concept of what the object ought to be; the second does presuppose such a concept and the perfection of the object in accordance with it. (KU, AA 05: 48; Kant, 2001)

According to Kant—*beautiful* human beings, *beautiful* horses (in Kant’s understanding, horses can be seen as a kind of tool for field work) and *beautiful* buildings presuppose a *concept* (i.e., they have an *end*) and, therefore, possess *adherent beauty*. This list can be extended to all functional (design) objects but not to artworks, because for *adherent beauty*, a state of *disinterestedness* is not required. Thus, only *free beauty* leads to a *judgment on the beautiful*, because by definition, these *judgments* are free of *concepts* (see KU, AA 05: 48; Kant, 2001: “That is **beautiful** which pleases universally without a concept.”). Kant gives examples, that to us appear odd, to illustrate his point. Natural objects possessing *free beauty* are flowers, some birds (parrots, hummingbirds, and birds of paradise), and marine crustacean. As an example for human-made items possessing *free beauty*, he cites nonrepresentational drawings (*designs à la grecque*), foliage and wallpaper (KU, AA 05: 49; Kant, 2001). He does not mention specific artworks.

Kant proposes that *beautiful* objects appear *as if* (*als ob*) they have an *end* (*purpose*) without actually having one. *Beauty* has neither utility nor perfection, but it still appears like it has an *end*. The *faculties of cognition* (*sensibility* and *understanding*) usually categorize objects (or *intuitions* of objects) as falling under a *concept*. *Beautiful* objects do not fall under a *concept* but appear *as if* they do. Thus, they elicit *free play* of the *faculties of cognition*. This, in fact, is the reason why *beautiful* items evoke a kind of *pleasure*. In short, this *pleasure* is defined as a feeling that is evoked by the recognition of *purposiveness*—see §6: “On the combination of the feeling of pleasure with the concept of the purposiveness of nature” (KU, AA 05: 17; Kant, 2001).

Thereby, one has to distinguish natural and artistic objects. *Beautiful* natural objects (such as trees, mountains, birds, etc.) appear *purposive* (it seems *as if* they were created in order to achieve a specific goal), but—following Kant—their *beauty* does not possess an *end* that is detectable to the human mind

(Kant, 2001) In other words: There is no (human related) *end* in nature. Only humans are able to create objects with specific (human related) *end*. Artworks are different. A *beautiful* artwork is a human-made object without an *end*. In order to create objects with an *end* one applies rules, but there are no rules from which a *beautiful* item is created:

In a product of art one must be aware that it is art, and not nature; yet the purposiveness in its form must still seem to be as free from all constraint by arbitrary rules as if it were a mere product of nature. On this feeling of freedom in the play of our cognitive powers, which must yet at the same time be purposive, rests that pleasure which is alone universally communicable though without being grounded on concepts. Nature was beautiful, if at the same time it looked like art; and art can only be called beautiful if we are aware that it is art and yet it looks to us like nature. (KU, AA 05: 179; Kant, 2001)

Kant proposes an inverse *as if* for the beauty of nature and art. Nature is beautiful if it appears *as if* it is art and art is beautiful if it appears *as if* it is nature. Both as-if-conditions lead to a *purposiveness without an end*.

To our knowledge, *purposiveness without an end* has not been tested in empirical aesthetics research. However, cognitive mechanisms (that might be related to the *purposiveness without an end*) are important in empirical aesthetics. In the *Model of aesthetic appreciation and aesthetic judgments*, Leder, Belke, Oeberst, & Augustin (2004) discusses an inherent cognitive component in aesthetics. Following this model, the perceiver of an aesthetic object (consciously and subconsciously) reflects on the item from which he might have an *aesthetic experience* (or feel *aesthetic pleasure*). There are two major differences between Kant's notions and Leder's model. First, the model is not concerned specifically with *beauty*, but rather *aesthetic judgments* and *aesthetic pleasure*. The proposed judgments are determined individually and, therefore, not congruent with Kant's universal *judgments on the beautiful*. Also, *aesthetic pleasure* is not congruent with the pleasure stemming from the *judgment on the beautiful*. The *judgment on the beautiful* evokes a *pleasure* of a very specific kind (namely, the *pleasure* based on the *purposiveness without an end*) that is largely different from, for instance, the *pleasure* of *interest* (see section *First Moment: Disinterestedness*). Thus, equating *pleasure* on the *judgment on the beautiful* with physiological reactions associated with *aesthetic pleasure* can be problematic (see also Vale, Gerger, Leder, & Pelli, 2015). Secondly, while the cognitive aspects in the model are relevant for modern art, the model does not address nature. *Purposiveness without an end*, however, applies to artificial and natural objects (Kant, 2001).

In conclusion, the notion of *purposiveness without an end* is not represented in the widely cited *Model of aesthetic appreciation and aesthetic judgments* (Leder

et al., 2004; Leder & Nadal, 2014). To our knowledge, *purposiveness without an end* has not been taken up as a focus of inquiry in modern aesthetics research.

#### Fourth Moment: Necessity (*sensus communis*)

In the Fourth Moment, Kant attempts to show that *judgments on the beautiful* are *necessary* (*notwendig*). *Necessity* (*Notwendigkeit*) implies that everybody agrees with *judgments on the beautiful*. It is, however, a necessity of a special kind, namely, an *exemplary* (*exemplarisch*) and *conditional* (*bedingte*) *necessity* (Kant, 2001). *Exemplary* means that the *judgment on the beautiful* does not follow or produce a mere concept of *beauty*. Instead, it reflects a “necessity of the assent of all to a judgment that is regarded as an example of a universal rule that one cannot produce” (KU, AA 05: 62; Kant, 2001). In other words: A singular *judgment on the beautiful* is an example of how everyone should be judging. The term *conditional* refers to the causation of the *necessity* of the *judgment on the beautiful*. It is based on *common sense* (*Gemeinsinn, sensus communis*). *Common sense* is a subjective principle that allows one to judge based on feeling of *pleasure* rather than on *concepts* (as is the case in *theoretical judgments*).

By “*sensus communis*,” however, must be understood the idea of a **communal** sense, i.e., a faculty for judging that in its reflection takes account (*a priori*) of everyone else’s way of representing in thought, in order **as it were** to hold its judgment up to human reason as a whole and thereby avoid the illusion which, from subjective private conditions that could easily be held to be objective, would have a detrimental influence on the judgment. (KU, AA 05: 157; Kant, 2001)

In §22, “The necessity of the universal assent that is thought in a judgment of taste is a subjective necessity, which is represented as objective under the presupposition of a common sense” (KU, AA 05: 66; Kant, 2001), Kant explains the outcome of the *a priori common sense* in detail.

In all judgments by which we declare something to be beautiful, we allow no one to be of a different opinion, without, however, grounding our judgment on concepts, but only on our feeling, which we therefore make our ground not as a private feeling, but as a common one. Now this common sense cannot be grounded on experience for this purpose, for it is to justify judgments that contain a “should”: it does not say that everyone **will** concur with our judgment but that everyone **should** agree with it. Thus the common sense, of whose judgment I here offer my judgment of taste as an example and on account of which I ascribe **exemplary** validity to it, is a merely ideal norm, under the presupposition of which one could rightfully make a judgment that agrees with it and the satisfaction in an object that is expressed in it into a rule for everyone: since the principle, though only subjective, is nevertheless

assumed to be subjectively universal (an idea necessary for everyone), which, as far as the unanimity of different judges is concerned, could demand universal assent just like an objective one—if only one were certain of having correctly subsumed under it. (KU, AA 05: 66; Kant, 2001)

For Kant, all four moments can be summed up in the notion of the *common sense*. It is the connection between *universal judgments* and *subjective feelings* and, therefore, the key to our aesthetic capabilities. There is, however, no empirical evidence for Kant's notion of *common sense* in human beings. Instead, Kant seems to make a circular argument: Only *common sense* allows us to make *universal judgments on the beautiful* and the fact that we make *universal judgments on the beautiful* is evidence that we possess *common sense*.

While—to our knowledge—there is no proof of Kant's idea of *necessity*, empirical findings seem to contradict his theory. The *default mode network* (DMN) reflects task-independent brain activity that is associated with self-reflection and introspection (Gusnard, Raichle, & Raichle, 2001). The DMN is also active when participants perceive artworks rated as highly *moving* (Vessel, Starr, & Rubin, 2013). The ostensible contradiction between the DMN and Kant's notions about *necessity* is that while the DMN is activate when participants perceive their individual favorite artworks, Kant proposed that everybody has to (rightfully) demand agreement on his or her *judgments on the beautiful*. If an object possesses a *purposiveness without an end*, everybody should judge it as *beautiful* because everybody has a (similar) *common sense*. This relationship can be seen as causal. However, the trigger stimulus for the DMN activation is highly individual. The results are based on different *tastes* for *moving* art. The ostensible contradiction is again based on incongruent terminologies. *Moving* (the term used in the experimental design) is an aesthetic category that might refer to *judgments on the agreeable*. *Aesthetical experiences* that *move* us are not free of individual components. Instead, individual factors such as cultural background, individual knowledge, and subjective preferences are of utterly importance for *aesthetic judgments* (Leder et al., 2004; Leder & Nadal, 2014; Vessel et al., 2013).

Kant had a clear definition (very specific and theoretical) of *judgments on the beautiful* which modern researcher usually do not follow. Of course, they are not obliged to do so. There is no reason to rely on an old and nonempirical definition of a loaded term. But these circumstances make it nearly impossible to make nontrivial statements on Kant's philosophy based on empirical results.

## The Sublime

We focused on the *beautiful* (and the *agreeable*). However, the *sublime* (*das Erhabene*) is another prominent aesthetic term that Kant introduced in an earlier text (Kant, 2004; first published in 1764) and elaborated in his third critique.

The *sublime* is closely related to the *beautiful*. Both are reflective and do not depend on the mere perception of an object.

The beautiful coincides with the sublime in that both please for themselves. And further in that both presuppose neither a judgment of sense nor a logically determining judgment, but a judgment of reflection: consequently the satisfaction does not depend on a sensation, like that in the agreeable, nor on a determinate concept, like the satisfaction in the good; but it is nevertheless still related to concepts, [ . . . ]. (KU, AA 05: 74; Kant, 2001)

Despite a similar structure of both *pure judgments on taste (judgments on the beautiful and judgments on the sublime)*, the two aesthetic terms differ.

The most important and intrinsic difference between the sublime and the beautiful, however, is this: that if, as is appropriate, we here consider first only the sublime in objects of nature (that in art is, after all, always restricted to the conditions of agreement with nature), natural beauty (the self-sufficient kind) carries with it a purposiveness in its form, through which the object seems as it were to be predetermined for our power of judgment, and thus constitutes an object of satisfaction in itself, whereas that which, without any rationalizing, merely in apprehension, excites in us the feeling of the sublime, may to be sure appear in its form to be contrapurposeful for our power of judgment, unsuitable for our faculty of presentation, and as it were doing violence to our imagination, but is nevertheless judged all the more sublime for that. (KU, AA 05: 76; Kant, 2001)

Kant writes that the *judgment on the sublime* can only be made on objects of nature and that these *sublime* objects are defined by their *boundlessness (Grenzlosigkeit; Kant, 2001)*. While the *beautiful* relates to the *understanding*, the concept of the *sublime* is related to *reason (Vernunft)*: **“That is sublime which even to be able to think of demonstrates a faculty of the mind that surpasses every measure of the senses”** (KU, AA 05: 85; Kant, 2001). *Reason* is—in contrast to *understanding*—independent of *sensibility* (or perception). While *understanding* operates through a *posteriori* judgement, *reason* operates through a *a priori* syllogism. Therefore, the *sublime* is something beyond *experience*.

That the sublime is therefore not to be sought in the things of nature but only in our ideas follows from this; but in which of these it lies must be saved for the deduction.

**The above explanation can also be expressed thus: That is sublime in comparison with which everything else is small.** (KU, AA 05: 84; Kant, 2001)

Kant distinguishes between *mathematical sublime* (*Mathematisch-Erhabenes*) and *dynamic sublime* (*Dynamisch-Erhabenes*). *Mathematical sublime* is the quality that something is overwhelming in size (e.g., a mountain range) and *dynamic sublime* is the quality of power that does not affect us directly (e.g., a thunderstorm from a safe position).

Hur and McManus (2017) argue that the sublime is not commonly (or properly) involved in aesthetic models, because of the difficulty in defining the term. Instead, *sublime* is used vaguely so that it can be associated with nearly every kind of *aesthetic experiences* (Hur & McManus, 2017; Pelowski, Markey, Forster, Gerger, & Leder, 2017). Edmund Burke's notion of the term *sublime* is more objective than Kant's (Burke, 1998, first published in 1757) and, therefore, Burke's definition could be beneficial as a source for empirical aesthetic research. While Kant explicitly restricted the *sublime* to natural objects, Burke's notion of the sublime incorporates human-made objects. The feeling of the *sublime* during the perception of artworks has been investigated. In a rating study, Eskine, Kacirik, and Prinz (2012) showed that fear—but not happiness or arousal—enhances the feeling of the *sublime*. However, this finding does not apply to the *sublime* as the term was used by Kant.

## Discussion

It is difficult to review Kant's third critique in a short paper. Nevertheless, we touch on his main ideas and have tried to connect them to recent research in empirical aesthetics.

Philosophical books (like Kant's *Critique of the Power of Judgment*) are usually written with the objective of reaching (universal) agreement. The arguments are constructed to be logically validated rather than empirically tested. For instance, experiments cannot easily falsify the existence of *purposiveness without an end* or *disinterestedness* (as Kant meant).

With these limits in mind, a major challenge in connecting Kant's ideas to modern empirical aesthetics is that Kant created a coherent system in which his putative components are closely and inseparably connected. In brief, an object that possesses *purposiveness without an end* is necessarily judged as beautiful (*judgment on the beautiful*), because it evokes in every (*universal*) person a feeling of *disinterested pleasure*. Such objects have only one thing in common: They evoke the *free play of the faculties of cognition* (*sensibility* and *understanding*). If the *faculties of cognition* are in *free play*, *common sense* necessarily leads to a *judgment on the beautiful* (i.e., 'The object is *beautiful*.') (Kant, 2001). To accept Kant's ideas, one has to endorse an entire system. If one component is negated, the whole system collapses.

The specific (and complex) terminology in his work makes using Kant's ideas difficult. This problem is evident in the interpretation of Kant's term *disinterested*. Most scientists neglect the passive nature of the term *interest* and, instead,

equate it with active processes (*wanting*; *disinterestedness* as analogy to *aesthetic attitude*).

The term *universal* is also critical. In empirical research, perfect consensus in any evaluation is never achieved. *Universal* in Kant's terms means that everybody makes the same judgment. On a separate note, Kant did not exactly construct an argument that *judgments on the beautiful* are *universal*. To be more precise, he assumed (as was common in his time) that *beauty* is *universal* and built his philosophical system of aesthetics on this assumption.

To our knowledge, no modern researcher in empirical aesthetics follows Kant's definition of *beauty*. In experiments, terms are often defined operationally, and left up to the participants' judgments (Brielmann & Pelli, 2017; Hayn-Leichsenring, Lehmann, & Redies, 2017). In theoretical articles, scientists usually use the term *beauty* in an objective-formalistic way (Chatterjee & Vartanian, 2016). For example, Redies (2014) defines *beauty* as a "formal inherent property of visual stimuli that has the potential to elicit visual pleasure by direct sensory stimulation." Following this definition, the (objective) property of beauty might or might not elicit *pleasure*. In contrast, as described in section *Fourth Moment: Necessity (sensus communis)*, Kant's *judgments on the beautiful* are not based on objective properties and they irrevocably triggers the *judgment on the beautiful*.

This contrast relates to another major difference between Kant's aesthetics and modern empirical aesthetics: the relation to *necessity*. Kant's system is based on a *universal* (nonobjective) feature of *beautiful* objects that *necessarily* leads to positive *judgments on the beautiful*. This idea is not compatible with empirical aesthetics. Experimental participants' preferences vary (Gerger et al., 2014; Lyssenko, Redies, & Hayn-Leichsenring, 2016; Vessel et al., 2013). Consequently, modern researchers look for correlations of specific (often objective) criteria with preference ratings and individual *aesthetic experiences*. This variability does not make sense for Kant's *judgments on the beautiful*. Individual variability for Kant applies to the *agreeable*:

For one person, the color violet is gentle and lovely, for another dead and lifeless. One person loves the tone of wind instruments, another that of stringed instruments. It would be folly to dispute the judgment of another that is different from our own in such a matter, with the aim of condemning it as incorrect, as if it were logically opposed to our own; thus with regard to the agreeable, the principle **Everyone has his own** taste (of the senses) is valid.

With the beautiful it is entirely different. It would be ridiculous if (the precise converse) someone who prided himself on his taste thought to justify himself thus: "This object (the building we are looking at, the clothing someone is wearing, the poem that is presented for judging) is beautiful **for me**." For he must not call it **beautiful** if it pleases merely him. Many things may have charm and agreeableness for him, no one will be bothered about that; but if he pronounces that something is



beautiful, then he expects the very same satisfaction of others: he judges not merely for himself, but for everyone, and speaks of beauty as if it were a property of things. Hence he says that the **thing** is beautiful, and does not count on the agreement of others with his judgment of satisfaction because he has frequently found them to be agreeable with his own, but rather **demands** it from them. (KU, AA 05: 19-20; Kant, 2001).

Some researchers might be tempted to equate Kant's *judgment on the beautiful* with *aesthetic experience*. However, for Kant, *aesthetic judgments* are a broader category than *beauty* and do not have to be *disinterested* (see Belke et al., 2015). A *judgment on the agreeable* is also an *aesthetic judgment*, one without *disinterestedness*.

The main obstacle in applying Kant's aesthetics to modern empirical aesthetics is terminological misunderstanding. Researchers do not typically recognize distinctions between Kant's three *aesthetic judgments* (on the *agreeable*, the *beautiful*, and the *sublime*). Furthermore, they do not link these judgments to the *faculties of cognition* (in a Kantian sense). While one could combine these three judgments and denote them together as constituting *aesthetic experiences*, these *aesthetic experiences* are not the same as Kant's notions of the *beautiful*. This misapplication leads to the problem of a *pars pro toto* argument. One cannot state one's research is in accordance with or in opposition to Kant's ideas without a common terminology and conceptual understanding.

## Outlook

Mapping the works of Immanuel Kant to research in empirical aesthetics can be problematic. Should we abandon reference to Kant? Or is there a way that his writings could inform contemporary research? Some areas of inquiry that relate to Kant's aesthetics are as follows:

1. The term *beauty* (see section *Terminology*). For Kant, *judgments on beauty* assumed universal agreement. For an evaluation with individual variability, he reserved the term *agreeableness*. Empirical researchers are not obliged to follow Kant's definitions. Researchers are also not obligated to treat *beauty* as a dichotomous variable—that an object either is or is not *beautiful*. From Kant's framework, one can appreciate that not all preferences are the same. There is greater agreement in judgments for some objects, such as faces and landscapes, and less for other objects, such as (abstract) artworks. *Beauty* might apply more closely to natural kinds (faces, landscapes) and *agreeableness* to artifacts (artworks and architectural spaces). Using the same term *beauty* for both kinds of judgments might elide their differences. Empirical researchers might be sensitive to the fact that we have different kinds of

preferences that might be obscured when we ask participants if they *like* or they *prefer* something.

2. *Beauty and disinterestedness* (see section *First Moment: Disinterestedness*). Key to a misinterpretation of Kant is that *interest* on his account is passive and not—as it is sometimes interpreted—active. Again, there is no inherent reason for empirical scientists to accept Kant’s constraint. Increasingly, contemporary cognitive science recognizes that much of our cognitive faculties are linked to actions in the world. One might ask how different forms of *pleasure* predispose us to act. Again, contemporary researchers might regard *interest* and *disinterest* as continuous variables. Reframing the ideas as questions about *aesthetic experiences* that are more or less likely to predispose the viewer to act or objects that engage our motor systems would be fruitful.
3. *Universality for beauty* (see section *Second Moment: Universality*). Is there anything *universal* about *beauty* based on the similarity in human’s cognitive features? Most empirical scientists reject the notion of an absolute *universal* in *beauty*. Clearly, people’s personal, educational, and cultural histories affect our *beauty* experiences. However, separating the effects of bottom-up formal psychophysical properties of visual images, which are most likely to be shared across individuals, from top-down educational, cultural, and historical contributions to *aesthetic experiences* is a critical goal of contemporary aesthetics.
4. *Purpose and beauty/agreeableness* (see section *Third Moment: Purposiveness Without an End*). Aesthetic considerations can influence decisions. People are willing to pay a premium for *beautiful* cars or clothes. Aesthetic features in these examples have an economic *purpose*. However, Kant stated that *beautiful* objects do not have an *end* (or *purpose*) even when they look as if they have one. This dilemma can be solved by the consideration that design objects do not qualify as *beautiful*, but rather as *agreeable* (since *agreeable* objects have an *end*). Subsequently, *aesthetic judgments*—but in Kant’s terminology only *judgments on the agreeable*—can influence decisions. Especially in neuroeconomics and decision neuroscience, investigating the neural bases for between utilitarian and nonutilitarian rewards would be in accordance with distinctions drawn by Kant.
5. *Beauty and common sense* (see section *Fourth Moment: Necessity (sensus communis)*)? Kant proposed that *aesthetic judgments* are based on general cognitive features and, therefore, rejected the idea of a genuine aesthetic sense. This view is in line with approaches in neuroaesthetics. The *aesthetic triad* (Chatterjee & Vartanian, 2014) describes *aesthetic experiences* as emergent states that arise from interactions between the sensory–motor system, the emotion–valuation system, and the meaning–knowledge system in the brain. Following this model, *aesthetic experiences* are generated by an interplay of neural systems that also have other functions. The investigation of this interplay will be crucial to understand *aesthetic experiences* in more detail.

6. The *sublime* (see section *The Sublime*). In Kant's thinking, *judgments on the sublime* are largely independent of sensory aspects. The *feeling of the sublime* (following the *judgment on the sublime*) incorporates a combination of positive and negative *feelings*. *Aesthetic experiences*, on the contrary, are often more closely associated with *emotions* rather than *feelings* (*emotions* are complex and temporary and depend on the external world, while *feelings* are simple and long-lasting without relation to perceived objects). Contemporary empirical aesthetics is starting to pay attention to complex combinations of positive and negative *emotions in aesthetic experiences*. However, the relation of *aesthetic experiences* to *feelings* has not been explored.

This application of Kant's ideas in modern empirical aesthetics always faces an imminent danger. If researchers are not thoughtful in referencing Kant's ideas and using Kant's terminology, the result can be problematic. As we showed in the notion of Kant's term *disinterestedness*, an undisciplined use of Kant's concepts may lead to confusion and false assumptions and, therefore, has the potential to compromise the interpretation of empirical data.

In summary, empirical aestheticians need not be driven to prove or disprove Kant's ideas. It is incumbent on researchers, if they make references to his ideas, to do so accurately. Rather than adjudicate the correctness of Kant's ideas, it may be more useful to explore his ideas as a potential reservoir from which to reevaluate old questions and invite new questions in empirical aesthetics.

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### ORCID iD

Gregor U. Hayn-Leichsenring  <http://orcid.org/0000-0002-7248-381X>

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### Author Biographies

**Gregor U. Hayn-Leichsenring** received a DDS degree as well as a BA degree in philosophy from the University of Jena. Previously, he performed research in neuroembryology as well as empirical aesthetics, focusing on face attractiveness, beauty in visual abstract artworks, and philosophical aesthetics at the Institute of Anatomy I in Jena. At present, he is a postdoctoral scientist at the University of Pennsylvania working on global image properties and their correlation with neurophysiological activities. He is trying to relate the neuronal responses to landscape paintings, art portraits, and abstract art paintings with their statistical image properties. Special focus is on specific areas of the sensorimotor system and the emotion-valuation system.

**Anjan Chatterjee** is the Frank A. and Gwladys H. Elliott professor and Chair of Neurology at Pennsylvania Hospital and the founding director of the Penn Center for Neuroaesthetics. He is a member of the Center for Cognitive Neuroscience, and the Center for Neuroscience and Society at the University of Pennsylvania. He received his BA in Philosophy from Haverford College, MD from the University of Pennsylvania and completed his neurology residency at the University of Chicago. His clinical practice focuses on patients with cognitive disorders. His research addresses questions about spatial cognition and language, attention, neuroethics, and neuroaesthetics. He wrote *The Aesthetic Brain: How we evolved to desire beauty and enjoy art* and co-edited: *Neuroethics in Practice: Mind, medicine, and society*, and *The Roots of Cognitive Neuroscience: behavioral neurology and neuropsychology*. He is or has been on the editorial boards of: *American Journal of Bioethics: Neuroscience, Behavioural Neurology, Cognitive and Behavioral Neurology, Empirical Studies of the Arts, European Neurology, Journal of Cognitive Neuroscience, Journal of Alzheimer's Disease, Journal of the International Neuropsychological Society, European Neurology, Neuropsychology*, and *the Psychology of Aesthetics, Creativity, and the Arts*. He was awarded the Norman Geschwind Prize in Behavioral and Cognitive Neurology by the American Academy of Neurology and the Rudolph Arnheim Prize for contributions to Psychology and the Arts by the American Psychological Association. He is a founding member of the Board of Governors of the Neuroethics Society, the past President of the International Association of Empirical Aesthetics, and the past President of the Behavioral and Cognitive Neurology Society. He has served on the boards of the Norris Square Neighborhood Project and the Associated Services for the Blind and Visually Impaired. He currently serves on the Boards of The College of Physicians of Philadelphia and Haverford College.