

# Kant's Mathematical Sublime: The Absolutely Great in Aesthetic Estimation

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## Abstract

According to Kant's *Critique of the Power of Judgement*, in the end all estimation of magnitude is sensible, or 'aesthetic', and the absolutely great in aesthetic estimation is called 'the mathematical sublime'. This article identifies the relevant sensible element with an inner sensation of a temporal tension: in aesthetic comprehension, the imagination encounters an inevitable tension between the successive reproduction of a magnitude's individual parts and the simultaneous unification of these parts. The sensation of this tension varies in degree and facilitates aesthetic estimation in general. But in the special case where it comes to involve a sense of exceeding our imagination's limit, we judge a magnitude to be mathematically sublime. *Pace* Kant, I argue that this limit is private and contingent rather than transcendental, such that the judgement of the mathematical sublime is neither universal *a priori* nor necessary.

**Keywords:** Kant, mathematical sublime, aesthetic estimation, imagination, infinite, negative pleasure

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In the *Critique of the Power of Judgement*, Kant claims that 'in the end all estimation of the magnitude of objects of nature is aesthetic', i.e. determined by some non-conceptual aspect of consciousness (*KU*, §26, 5: 251).<sup>1</sup> But there is a special case of aesthetic estimation. Namely, when our imagination fails to comprehend a certain magnitude in 'one intuition', we judge the magnitude as mathematically sublime or absolutely great, beyond all sensible standards. On such occasions, the inadequacy of the imagination (as a faculty of sensibility) reveals its 'vocation' (*KU*, §27, 5: 257) for striving for ideas of reason and, thereby, brings about so-called 'negative pleasure' (*KU*, §23, 5: 245), which comprises

both displeasure in our cognitive inadequacy and pleasure in revealing our rational vocation. For Kant, this relation between sensibility and reason is purposive for our faculty of desire *a priori*, and a judgement of the mathematical sublime thus claims *a priori* intersubjective universality and necessity.

What remains inexplicit in Kant's account, however, is the exact nature of the subjective, non-conceptual consciousness which grounds this special case of aesthetic estimation. In particular, while the experience of the mathematical sublime is 'aesthetic' in terms of the unique 'negative pleasure' in question, this feeling is, as noted, in turn triggered by an element in aesthetic estimation of magnitude *in general*. But as Recki points out, it would be 'unintelligible' to suppose that an aesthetic satisfaction should accompany 'each subjective determination' of magnitude (Recki 2001: 196–7). In addition, apparently attempting to clarify the 'aesthetic' element in question, Kant at one point characterizes the aesthetic estimation as 'in mere intuition (measured by eye)' (*KU*, §26, 5: 252). On a literal reading, Kant thus seems to refer to how much of the visual field an object occupies, which varies with its distance from the viewer (cf. Budd 2003: 124–5). But both common sense and Kant himself tell us that we do not estimate a magnitude aesthetically as great, let alone mathematically sublime, merely because we come really close to it (5: 252). In any case, it is reasonable to suppose that whatever sensible element Kant has in mind as inherent in aesthetic estimation of magnitude in general is key to his theory of the mathematical sublime. But it has not yet received sufficient attention.

This article proposes that, for Kant, even when the imagination succeeds in comprehending a magnitude aesthetically, it encounters an inevitable tension between the *successive* reproduction of the magnitude's parts and the *simultaneous* unification of these parts. This does a certain violence to inner sense, but at the same time facilitates aesthetic estimation in general. In particular, for our purpose in the present discussion: we judge a magnitude simply as 'great' when the sensation of tension in the imagination's comprehension is superior to that in many other cases, and judge it to be aesthetically absolutely great or mathematically sublime when it involves the sense of an attempt to exceed the imagination's limit, thus bringing about a certain sort of 'maximal' sensation of tension.

This article comprises four sections. Section 1 introduces Kant's account of aesthetic estimation in general. Section 2 investigates the imagination's

comprehension in aesthetic estimation and the temporal tension therein. Section 3 discusses how we judge something as mathematically sublime when the temporal tension reaches its maximum. On this basis, section 4 explains how the maximal tension brings about the displeasure in our cognitive inadequacy as well as the pleasure in revealing an *a priori* purposive relation between our sensibility and reason. As I shall show, precisely on account of the essential role of the imagination's maximum, the sense of this *a priori* relation does not suffice to ground Kant's claim to the *a priori* universality and necessity of the judgement of the mathematical sublime.

## 1

Kant defines the mathematical sublime as the 'absolutely great', i.e. a non-comparatively great magnitude (*KU*, §25, 5: 248). He distinguishes between 'to be a magnitude (*Größe*) (*quantitas*)' and 'to be great (*groß*) (*magnitudo*)'. The Latin terms indicate the difference between 'possessing a certain quantity' and 'being superior in terms of quantity'. For instance, both a mansion and a cottage are 'magnitudes' with measurable sizes, and the house is 'greater' in size.

For Kant, we cognize something to be a 'magnitude' (*Größe*) from cognizance of the thing itself, insofar as we regard a magnitude as a 'unity' constituted by a 'multitude of homogeneous elements' (*KU*, §25, 5: 248). Thus the magnitude in question is regarded as an extensive magnitude, in which 'the representation of the parts makes possible the representation of the whole' (A162/B203). In the *Critique of Pure Reason*, Kant describes a threefold synthesis that is essential for cognition of objects: first, the imagination 'apprehends' an object's parts successively in the intuition; secondly, the imagination 'reproduces' the multitude of these parts altogether as one unity, which possesses an extensive magnitude; and thirdly, the understanding 'recognizes' the unity of the initially apprehended and then reproduced parts under a concept (A98–A110). The threefold synthesis grounds the 'axioms of intuition', for example, 'all intuitions are extensive magnitudes' (A161/B202).

Kant further distinguishes between two methods for estimating a magnitude 'to be great'. By the first, we estimate the magnitude *logically* by comparing it with an objective measure, namely, its own part or another magnitude. For instance, we estimate a building as five times higher than each storey it contains, while the latter is two times higher than an average human being. But in this way, the determination is always relative and a greater magnitude is always possible; nothing

in this leads us to a sense of anything sublime. And so, Kant introduces the second kind of estimation as follows:

[I]n a judgment by which something is described simply (*schlechtweg*<sup>2</sup>) as great it is not merely said that the object has a magnitude, but rather this is attributed to it to a superior extent than to many others of the same kind,<sup>3</sup> yet without this superiority being given determinately, this judgment is certainly grounded on a standard that one presupposes can be assumed to be the same for everyone, but which is not usable for any logical (mathematically determinate) judging of magnitude, but only for an aesthetic one, since it is a merely subjective standard grounding the reflecting judgment on magnitude. (*KU*, §25, 5: 249)

This sentence is rather convoluted and bewildering. To begin with, let me examine a possible interpretation, which I shall soon dismiss. By ‘many others of the same kind’, Kant seems to refer to his notion of an ‘aesthetic normal idea’, that is, ‘an individual intuition (of the imagination) that represents the standard for judging it as a thing belonging to a particular species’ (*KU*, §17, 5: 233). Just as Kant characterizes the ‘merely subjective standard’ here as ‘assumed to be the same for everyone’, he declares an aesthetic normal idea to be ‘a universal standard’ (*KU*, §17, 5: 233). Moreover, while he exemplifies the former by ‘the average magnitude of the people known to us’ (*KU*, §25, 5: 249), he exemplifies the latter by ‘the average size’ of a thousand grown men (*KU*, §17, 5: 234). Accordingly, the judgement of the simply great is ‘aesthetic’ because it compares an object with a subjective standard or aesthetic normal idea, which does not refer to any individual object. And so, we estimate the object’s magnitude as superior but do not determine this superiority, insofar as we do not compare the magnitude with any determinate standard.

I believe this is what underlies Allison’s contention that, when characterizing something simply as great, we are implying that ‘its magnitude is greater than that of many other objects of the same kind, even though this superiority is not assigned a determinate numerical value’ (Allison 2001: 312); in other words, we compare the magnitude of the *object* to that of its kindred ones but without mathematical precision. Crowther (1989: 88), Park (2009: 133) and Smith (2015: 102) offer similar readings.

But I find this approach untenable in two respects. First, by comparing a magnitude with an aesthetic normal idea, we can still *determine* its

magnitude, with or without a determinate numerical value. The judgement 'Jordan is much taller than an average American man' is as determining as the judgement 'Jordan is 23 cm taller than an average American male' or 'Jordan is 5 cm shorter than Williams', for they all state an *objective* fact about Jordan's magnitude. Hence, by an aesthetic normal idea, Kant refers to a non-conceptual intuition which is still useable for logical estimation.

Secondly, Kant states that the aesthetic or 'merely subjective standard' in the simply-called-great can be 'given *a priori*'. One such example is the magnitude of a 'certain virtue' (*KU*, §25, 5: 249), which is, paradoxically, conceptual or objective in relation to the moral law. In what sense does Kant call such an objective standard 'subjective' in the aesthetic judgement? Apparently in terms of its usage for subjective (i.e. aesthetic) estimation of magnitude. Put differently, it is the standard's very involvement in the subjective estimation that enables Kant to call the standard 'subjective' – not the other way around. Therefore, the estimation must be aesthetic on account of some sensible element other than the 'subjective standard' involved, in reference to 'many others of the same kind'.

What is this sensible element? Kant gives a hint: when something is simply judged as great, a magnitude is 'attributed to it to a superior extent'. Why does he not straightforwardly state that 'we attribute a superior magnitude to the object' or 'we judge the object's magnitude to be superior'? To show the subtlety in Kant's phrasing, I propose that we break his underlying reasoning into three steps.

To estimate something simply as great: first, we represent the object as having an extensive magnitude (i.e. as a multitude of units) and perceive some *non-conceptual* consciousness therein, which is presumably a kind of *sensation*. Insofar as the representation does not determine the object, it cannot be a sensation of the object, such as the sweetness of sugar, which would constitute a kind of knowledge of sugar; rather, it must be an *inner* sensation, which derives from a representational act in our inner sense.

Secondly, we compare the degree of this sensation in representing this object with something else as its measure, namely, the degrees of sensations in representing many other objects of the same kind, and we judge the former to be superior.

Thirdly, we represent the first object *superiorly*, that is, when we represent it as having a magnitude, we represent it by way of a *superior sensation*.

And what we estimate and compare are in fact really not extensive magnitudes of objects but only intensive magnitudes or degrees of sensations. Put differently, what is superior is not the object's magnitude itself but the degree of sensation in representing this magnitude, such that the judgement is not determining but only reflecting with regard to the object. It would be a subreption to mistake the superiority in the subject's sensation as a characteristic of the object, even though the former is related to the latter, much in the same way that one's satisfaction in sugar is related to its sweetness.

To illustrate: when we represent the average magnitude of most buildings under normal circumstances, we perceive some inner sensation; then, when we represent the magnitude of the Eiffel Tower from an aircraft at high altitude, we also perceive a sensation which might be inferior to the former in degree. Now, by comparing these two degrees of sensations, we describe the tower simply (i.e. aesthetically rather than conceptually) as small. In other words, we attribute our representation of the tower's magnitude to the tower inferiorly, insofar as the representation is accompanied with an inferior sensation. Yet even a child can estimate vaguely, without precise numerical value, that the tower is objectively much higher than most buildings. To describe something simply as great, we represent its magnitude with a superior sensation; we do not determine the magnitude itself insofar as we do not directly compare it with another magnitude. The subjective superiority in aesthetic estimation should be strictly distinguished from the objective superiority in logical estimation.

There must then be a certain kind of inner sensation that facilitates aesthetic estimation of magnitude *in general*. But what would be this sensation? Moreover, by comparing degrees of sensations, we seem to lack an 'absolute concept of magnitude' as much as we do in logical estimation. What would be the absolutely great in aesthetic estimation? Sections 2 and 3 will investigate these two problems in turn.

## 2

This section explains the mental operation in aesthetic estimation. As we shall see, the operation involves the sensation of a temporal tension in the imagination.

Logical estimation of magnitude presupposes an objective measure, but estimation of this measure requires still another measure, and so on and

so forth. Thus Kant claims that, ultimately, the basic measure must be obtained in an *aesthetic* representation (*KU*, §26, 5: 251). He then distinguishes between two actions in an aesthetic representation, namely, the imagination's '*apprehension (apprehensio)*' and its '*comprehension (comprehensio aesthetica)*' (*KU*, §26, 5: 25).

The notion 'comprehension' here, as an action of the imagination, might seem problematic; for Kant also defines comprehension as 'the synthetic unity of the consciousness of this manifold [of intuition] in the concept of an object (*apperceptio comprehensiva*)', which requires not only the imagination but also the 'understanding' (*EEKU*, §7, 20: 220). But we should notice that Kant specifies the comprehension in aesthetic estimation as '*comprehensio aesthetica*', while he claims that mathematical or logical estimation of magnitude involves '*comprehensio logica*' (*KU*, §26, 5: 254). As I see it, by apprehension (*Auffassung*) the mind 'seizes on' a multitude of impressions or elements of intuition, and by comprehension (*Zusammenfassung*) it further 'takes' them 'altogether'. Therefore, I identify comprehension in general with a higher stage of synthesis than apprehension: it is either '*aesthetica*' and corresponds to the imagination's *reproduction* of apprehended elements,<sup>4</sup> or '*logica*' and corresponds to the understanding's *recognition* of the reproduced elements under a concept.

According to Kant, while the imagination's apprehension may advance towards infinity, its aesthetic comprehension becomes more and more difficult (*KU*, §26, 5: 251–2). He elaborates the whole mental operation in a crucial but rather dense text:

The measurement of a space (as apprehension) is at the same time the description of it, thus an objective movement in the imagination and a progression; by contrast, the comprehension of multiplicity in the unity not of thought but of intuition, hence the comprehension in one moment of that which is successively apprehended, is a regression, which in turn cancels the time-condition in the progression of the imagination and makes *simultaneity* intuitable. It is thus (since temporal sequence (*Zeitfolge*)<sup>5</sup> is a condition of inner sense and of an intuition) a subjective movement of the imagination, by which it does violence to the inner sense, which must be all the more marked the greater the quantum is which the imagination comprehends in one intuition. (*KU*, §27, 5: 258–9)

I break Kant's reasoning into four steps as follows.

First, apprehension is successive. For Kant, to apprehend a manifold of intuition, we must ‘distinguish the time in the succession of impressions on one another’ (A99).<sup>6</sup> The distinction of time is necessary not because the existence of the impressions are objectively successive, but because, to regard them as individual elements, we must apprehend them one by one in different moments. To illustrate: in observing a house, I may first take notice of the door, then the window, and lastly the roof. Even though I may eventually recognize these elements as objectively coexistent, I must apprehend them successively in the first place; otherwise I would only obtain *one* impression of the whole house rather than a *multitude* of impressions of its parts. The imagination’s apprehension always relies on this temporal condition, even though the lapses between successive moments could be minimal (provided that the moments are still distinguishable).

Secondly, comprehension is regressive and successive. Since the ‘comprehension’ in question concerns not ‘thought’ but only ‘intuition’, I take it as the imagination’s aesthetic comprehension (*comprehensio aesthetica*) or its reproduction, which is a ‘regression’. According to the first *Critique*, a ‘regressive’ synthesis proceeds from the conditioned towards more and more remote conditions, while a ‘progressive’ synthesis proceeds in the opposite direction (A411/B438). To apprehend the individual parts of an object is also to apprehend the spaces they occupy and to measure a space, which is ‘a progression’. For example, in measuring the space occupied by the house, our imagination apprehends the door, the window and then the roof progressively in three successive moments. On this basis, we reproduce and retain the apprehended impressions and their corresponding spatial parts in a *reverse* order, as we always start from the impression we are now apprehending, move to the one just apprehended, and then to another one apprehended even earlier, and so on and so forth. In this way, the imagination reproduces the roof, the window and lastly the door *regressively* in three successive moments, and this regression happens through *retaining* earlier times rather than merely tracing them. Thus successiveness applies to both stages of synthesis: the longer the progressive apprehension takes, the longer the regressive reproduction or comprehension.<sup>7</sup>

Thirdly, aesthetic comprehension, qua regressive and successive reproduction, is nevertheless simultaneous. The imagination aims to comprehend the apprehended elements simultaneously as one unity. This simultaneity does not conflict with the successive apprehension, for comprehension is a higher stage of synthesis than apprehension. But the simultaneity indeed



conflicts with or 'cancels' the successive *time-condition* underlying both the progression and the regression. Since all our imaginative representations, qua 'modifications of the mind', belong to inner sense (A98), the form of which is time (A33/B49), the aesthetic comprehension does 'violence' (*Gewalt*) to the condition of inner sense.<sup>8</sup> Put differently, we are to reproduce individual elements regressively *one after another* while comprehending them altogether *in one intuition*. The latter movement violates the former, which means a tension between the two time-conditions.

On Smith's reading, when the mind fails to take up the intuition 'simultaneously', our imagination as 'temporally progressive' finds itself to be 'opened', such that it will 'advance towards infinity' (Smith 2015: 114). I consider this interpretation untenable in two respects. First, since Kant explicitly states that there is 'no difficulty with apprehension, because it can go on to infinity' (*KU*, §26, 5: 251–2), the imagination's progressive apprehension does not need to be 'opened' at all. Second, since apprehension and reproduction are two distinct stages in the threefold synthesis, the imagination's successive progression can be neither cancelled nor 'opened' by its simultaneous (and yet successive) regression.

My reading of the 'temporal tension' might appear counterintuitive, as it seems quite natural for us to comprehend several elements simultaneously without perceiving any succession. For example, once we apprehend three colours in a flag, we seem to comprehend them all separately and instantly without any noticeable tension. This leads to the final point.

Fourthly and lastly, the tension intensifies only gradually when we comprehend more and more units in one intuition. The tension is 'all the more marked' when the quantum is aesthetically 'greater'. In the flag example, in fact, the imagination must recollect the three colours in three different moments, which means a succession of events in a succession of moments. And yet, we may take them as one moment insofar as the succession is almost undiscernible. After all, the distinction between these three moments, which enables the distinction between the colours qua three individual elements, is not so much phenomenal as *logical*. Just as we may neglect this tension when it is minimal, we are able to perceive but tolerate it to some extent, which makes cognition possible in the first place; for otherwise we would not be able to comprehend even two elements. Nevertheless, when the imagination takes a significant time to apprehend progressively a significant number of elements (say, ten colours), it must equally take some significant time to reproduce them regressively, which conflicts with its task of simultaneous comprehension.

The sensation of this temporal tension in inner sense, then, may be reasonably supposed to be the sensible element or the subjective aspect of consciousness that grounds aesthetic estimation *in general*. The remaining question is how to acquire the ‘absolute concept of magnitude’ in aesthetic estimation, to which my next section will turn.

### 3

On aesthetic comprehension, Kant writes:

[W]hen apprehension has gone so far that the partial representations of the intuition of the senses that were apprehended first already begin to fade in the imagination as the latter proceeds on to the apprehension of further ones, then it loses on one side as much as it gains on the other, and there is in the comprehension a greatest point beyond which it cannot go. (*KU*, §26, 5: 252)

As discussed, the successive time-condition in the imagination’s apprehension also applies to its simultaneous comprehension. Therefore, the more representations or elements the progressive apprehension obtains, the greater tension the regressive comprehension undergoes.<sup>9</sup> Suppose the imagination already yields its maximal capacity and becomes incompetent to regress any further or to reproduce any more ‘representations of the intuition’; the representations ‘apprehended first’ must then remain un-reproduced and begin to ‘fade’. In the first *Critique*, Kant also writes that ‘if I were always to lose the preceding representations ... from thoughts and not reproduce them when I proceed to the following ones, then no whole representation ... could ever arise’ (A102). When the imagination reaches a ‘greatest point’, it comprehends and ‘gains’ a newly apprehended impression on one side but fails to reproduce and thus ‘loses’ a previously apprehended impression on the other. In this case, the temporal tension and the sensation thereof must be absolutely great, which provides us with an ‘absolute concept of magnitude’ in aesthetic estimation, namely, the *mathematical sublime*.

To illustrate, in the aesthetic comprehension of an Egyptian pyramid, suppose the imagination is only capable of reproducing nine stone tiers in one intuition, then, once the mind apprehends the tenth tier in the pyramid, it is only able to reproduce regressively from the tenth to the second tier, while the tier apprehended first begins to fade. Otherwise, the mind would have to reproduce ten impressions successively and also simultaneously in one intuition, and the tension would exceed the imagination’s limit. Consequently, we fail to represent the complete form of the pyramid.

Indeed, the mathematical sublime is to be found in the formlessness of things (*KU*, §23, 5: 244).

Clewis proposes that Kant may be using 'a concept of form that is frequently found in eighteenth-century aesthetics', which designates 'symmetry, harmony, proportion, or unity', such that a sublime object 'would have an external shape or form detectable by the senses, but would be formless insofar as it lacks symmetry, harmony, and so on' (Clewis 2009: 71).<sup>10</sup> For Guyer (1996: 264), it is also the sublime *object* that is formless and unbounded by, say, a picture frame. To the contrary, I ascribe the formlessness to a cognitive inadequacy in the judging *subject*. For Kant, the sublime may 'appear in view of the form' (*der Form nach*<sup>11</sup>) to be 'unsuitable for our faculty of presentation' (*KU*, §23, 5: 245), and the judgement of the sublime makes 'use of certain sensible intuitions in view of their form (*ihrer Form nach*)' (*EEKU*, §12, 20: 250).<sup>12</sup> Accordingly, we judge an object to be sublime not 'for its unsuitable form' (i.e. *wegen seiner Form*) but in view of its formlessness, that is, when we fail to grasp its form in one intuition.

In line with Allison (2001: 312), I thus consider the judgement of the mathematical sublime to be a special case of aesthetic estimation in general. To the contrary, Park (2009: 134) argues that the simply great cannot be a prototype of the mathematical sublime, because in judging an object simply as great 'the imagination can apprehend its form, especially its extended shape'. But in my view, even when the imagination aesthetically comprehends an object's entire form, we still perceive a temporal tension or 'violence to the inner sense'. When the tension becomes so great that the imagination cannot grasp the object's form, we estimate its magnitude simply or aesthetically as sublime. As Kant puts it, in simply judging an object to be great, we may feel satisfaction '*even if (selbst wenn)* it is considered as formless' (*KU*, §25, 5: 249; my emphasis), which means we do *not necessarily* consider it as formless.

This analysis enables us to understand Savary's report on Egyptian Pyramids, as quoted by Kant: 'in order to get the full emotional effect of the magnitude of the pyramids one must neither come too close to them nor to be too far away' (*KU*, §26, 5: 252). Kant's subsequent comments are intriguing but controversial. I consider the two scenarios as follows.

First, Kant claims that, when we stand too far away, 'the parts that are apprehended (the stones piled on top of one another) are represented only obscurely, and their representation has no effect on the aesthetic

judgment of the subject' (*KU*, §26, 5: 252). When the stone tiers appear puny in vision and undistinguishable from each other, we cannot apprehend them one by one and thus do not reproduce them qua individual elements in different moments; instead, we apprehend the entire pyramid as a multitude of merely a few impressions or simply as one blur, the regressive reproduction of which takes merely a few moments or just one instant and does not challenge the time-condition of simultaneity in aesthetic comprehension.

Second, when we stand too close, says Kant, 'the eye requires some time to complete its apprehension from the base level to the apex, but during this time the former always partly fades before the imagination has taken in the latter, and the comprehension is never complete' (*KU*, §26, 5: 252). This assertion bewilders commentators. Crowther (1989: 103) contends that the text is 'puzzling' and effectively 'disproving' Savary's claim by showing how 'our capacity for comprehension is soon overwhelmed' when we come too close. Similarly, Pillow (2000: 74) states that the fact that 'the comprehension is never complete' signifies exactly the maximum of the imagination's capacity. Accordingly, we should encounter the same inadequacy in judging a *proximate* pyramid just as in judging a magnitude which we would call sublime. Should this be true, Kant would be undermining his own theory – in order to get the full emotional effect, we should approach the pyramid as close as possible.

I find Pillow's argument problematic. Indeed, if it takes too long for us to look upwards, the previous impressions of the pyramid's base begin to 'fade' when the apprehension progresses to its apex. But we should distinguish between two uses of the term 'fade' in Kant's text: first, there is 'fading' due to the imagination's limit, as in Kant's writing of how the elements apprehended earlier 'begin to fade in the imagination *as* the latter proceeds on to the apprehension of further ones' (*KU*, §26, 5: 252, my emphasis). Second, there is 'fading' as in Kant's comments on Savary's report: when we stand too close, the element apprehended first 'fades *before* the imagination has taken in' a new element (my emphasis). On my reading, the fading in the second case is not due to the imagination's limit; rather, it is our *memory* that is inadequate to maintain the impressions in mind during such a long period. In other words, when we try to comprehend all the stone tiers, the earlier impressions of the bottom tiers are already too faint or simply forgotten and for this reason cannot be reproduced. As a result, 'the comprehension is never complete', as it never obtains a *complete multitude*. The partial multitude is not too great but rather *too small* for the imagination to yield its full capacity. Even from an

ideal stance for judging the sublime – suppose we apprehend the tiers very slowly, say, one per minute – the early impressions would also fade in *memory* when the eyes advance to the apex.<sup>13</sup>

In contrast to aesthetic comprehension, Kant declares the tension to be relieved in a *logical* comprehension, where the imagination provides schemata for the understanding's numerical concepts (*KU*, §26, 5: 253). Kant defines a schema as the 'representation of a general procedure of the imagination for providing a concept with its image' (A140/B179). In accordance with a concept, a schema describes the method or rule for presenting images. The schema of magnitude is number, namely, 'a representation that summarizes the successive addition of one (homogeneous) unit to another' (A142/B182). The schema of the number ten does not refer to any particular image, such as ten dots or ten people; it only describes the method of tenfold successive additions of homogeneous elements. The understanding's concept of ten guides the imagination to generate this schema, regardless of which particular impressions should realize the ten elements in an image.

Therefore, to comprehend the pyramid logically, the imagination still apprehends the tiers successively but ascribes them to a numerical concept rather than intuitions. In other words, when the imagination counts the tenth tier, it comprehends this tier along with the *schema* of the number nine (which corresponds to the *concept* of nine) and thus brings only two elements (i.e. the tenth tier and the schema) into a unity, which is then the schema of the number ten and referred to the concept of ten. The reproduction of merely two elements is hardly challenging. Relying on schemata and concepts, the imagination is barely enlarged, however great a number it counts. Thus Kant proceeds to claim that the logical comprehension can proceed 'unhindered to infinity' (*KU*, §26, 5: 254). By contrast, the aesthetic comprehension is 'not of thought but of intuition', in which case the imagination reproduces the tenth tier and the *intuitions* of the previous nine through ten moments, yet also in one moment.

In the Transcendental Deduction in the first *Critique*, Kant already indicates the two time-conditions in cognition, as he writes that we add the units or parts of an object to each other 'successively' so that they hover before our senses 'now', that is, simultaneously (A103). But the temporal tension is relieved when we comprehend or reproduce the units according to a concept, such that we do not perceive any tension in a conceptual comprehension of an object. Nevertheless, insofar as logical estimation is always relative and its primary measure or basic unit must be acquired

in aesthetic estimation, ‘in the end all estimation of magnitude of objects of nature is aesthetic’ (KU, §26, 5: 251), that is, involving a felt tension.

#### 4

I have shown how the sensation of the imagination’s temporal tension grounds aesthetic estimation in general and how, when it comes to involve a sense of attempting to exceed the imagination’s limit, the sensation reaches its maximal degree and provides us with the ‘absolute concept of magnitude’. In this section, I will further investigate how this absolutely great sensation evokes the ‘negative pleasure’ in the judgement of the mathematical sublime.

That the feeling is ‘negative’ is easy to explain. When the imagination is unable to comprehend an object’s form, it fails to achieve a cognitive aim. For Kant, ‘The attainment of every aim is combined with the feeling of pleasure’ (KU, 5: 187). The failure of such an attainment, then, constitutes the displeasure in the sublime feeling. On the other hand, when the imagination *successfully* comprehends a form and fulfils its task, the temporal tension only causes violence to inner sense but not any displeasure.

What is more interesting is Kant’s account of *pleasure* ‘from the correspondence of this very judgment of the inadequacy of the greatest sensible faculty in comparison with ideas of reason’ (KU, §27, 5: 257). Two questions arise: (1) how is the judging of something sensible, such as a pyramid, referred to ideas of *reason*? (2) why should this reference bring about *pleasure*? The answers are indicated in two key texts respectively. The first:

But now the mind hears in itself the voice of reason, which requires totality for all given magnitudes, even for those that can never be entirely apprehended although they are (in the sensible representation) judged as entirely given, hence comprehension in *one* intuition, and it demands a *presentation* for all members of a progressively increasing numerical series, and does not exempt from this requirement even the infinite (space and past time), but rather makes it unavoidable for us to think of it (in the judgment of common reason) as *given entirely* (in its totality). (KU, §26, 5: 254)

For Kant, reason’s ideas give the understanding’s concepts ‘that unity which they can have in their greatest possible extension, i.e. in relation

to the totality of series' (A643/B671). The totality of all appearances would have a magnitude that comprises an infinite multitude of units.<sup>14</sup> Since this multitude cannot be entirely given in our intuition, it is the object of an idea. Kant ascribes to this idea a 'necessary regulative use' in directing our understanding to a cognitive 'goal' (A644/B672). The mind hears this 'voice of reason' and attempts to present the idea, that is, to apprehend and then comprehend all units of this series aesthetically or 'in *one* intuition'.<sup>15</sup> But what is crucial, beyond this, for our present purposes is that when our imagination fails to grasp the form of a certain finite magnitude in aesthetic comprehension, we thereby also come to 'judge' or 'think of' *the infinite* as 'given entirely'.

Thus the situation is the following. On the one hand, we must judge that, if the *infinite* were given in our sensibility, its aesthetic comprehension would occasion an *absolutely great* temporal tension in the imagination. On the other hand, in representing the *finite* magnitude, our imagination encounters an inadequacy or 'greatest point' where it cannot proceed any further, such that the tension it undergoes is *also* absolutely great. Hence, when we compare the temporal tension in comprehending the finite magnitude with the supposed tension in comprehending the infinite, we consider them equivalent in degree. And so, in aesthetic estimation, we describe the finite magnitude to the same 'superior extent' (*KU*, §25, 5: 249) as we would describe the infinite; put differently, we judge the former aesthetically, in terms of the absolutely great sensation, to be tantamount to the latter.

While we 'think of' the infinite as entirely given, what is actually given is only the absolutely great tension (in comprehending something finite) rather than the absolutely great object (i.e. the infinite). Although the infinite 'can never be entirely apprehended', it is nonetheless in a certain sense 'in the sensible representation', namely in the aesthetic comprehension of the finite, 'judged as entirely given'. Strictly speaking, therefore, what we judge as mathematically sublime is only the maximal tension and the maximal sensation thereof. It is not the infinite, which is absolutely great but never given to us, let alone the finite magnitude, which is given but never absolutely great in itself.<sup>16</sup>

In the second key text, Kant then explains how this sort of reference to infinity generates pleasure:

Thus the inner perception of the inadequacy of any sensible standard for the estimation of magnitude by reason corresponds with reason's laws, and is a displeasure that arouses the feeling of

our supersensible vocation in us, in accordance with which it is purposive and thus a pleasure to find every standard of sensibility inadequate for the ideas of understanding. (*KU*, §27, 5: 258)

In judging the mathematical sublime, we think of the infinite as ‘given in sensible representation’ and regard the imagination’s failure as an unsuccessful attempt to comprehend the infinite. Since ‘striving’ for ideas of reason is ‘a law for us’, the imagination’s inadequacy for presenting the idea of infinity (and, by extension, *ideas in general*) is a mental disposition that ‘corresponds with reason’s laws’. As such, it reveals the imagination’s ‘supersensible vocation’, namely, its determination by reason for ‘adequately realizing’ ideas (*KU*, §27, 5: 257). Given that we also strive to realize practical ideas in the sensible world, Kant describes this disposition as akin to or compatible with ‘that which the influence of determinate (practical) ideas on feeling would produce’ (*KU*, §26, 5: 256). As Allison points out, the feeling of the superiority of theoretical reason to sensibility ‘serves as a reminder’ of a similar superiority of practical reason and thus of our moral autonomy (Allison 2001: 326; cf. Matherne forthcoming). Put differently, the judgement of the mathematical sublime is an indirect representation of the practical purposiveness in ourselves.

Insofar as practical reason aims to determine (*bestimmen*) our acts in the sensible world, its successive determination or vocation (*Bestimmung*) with regard to sensibility fulfils an aim, and consciousness of this fulfilment is pleasure. Even consciousness of the vocation of theoretical reason, as in the case of the mathematical sublime, is an indirect representation of the practical fulfilment and thus pleasure. On the other hand, Kant considers the judgement of the dynamical sublime to be the direct, though still reflecting, representation of practical purposiveness, as it relates the mental movement not to an idea of theoretical reason (i.e. the infinite) but immediately to the faculty of desire (*KU*, §24, 5: 247).

Thus far I have limited myself to an interpretation of Kant’s theory, but now I would like to point out a problem therein. Kant claims that judgements of the mathematical sublime are ‘necessary’ and ‘universally valid’ (*KU*, §24, 5: 247)<sup>17</sup>, because we find in them

a purposive relation of the cognitive faculties, which must ground the faculty of ends (the will) *a priori*, and hence is itself purposive *a priori*, which then immediately contains the deduction, i.e., the justification of the claim of such a judgment of universally necessary validity. (*KU*, §30, 5: 280)



A judgement of the mathematical sublime represents the purposive relation between the imagination and reason, insofar as the former strives to present the latter's idea of infinity but fails. Reason is superior to sensibility. This relation grounds the will *a priori*, because the will as such is to determine our power of choice *a priori*, even though the latter can be affected by sensibility. 'Hence', the relation is purposive *a priori*.

So far so good, until Kant states that this purposive relation 'immediately contains' the deduction of the judgement of the sublime. His reasoning appears to be that, insofar as the judgement represents a kind of *a priori* purposiveness, it must be based *a priori* and thus universally necessary. However, it is one thing that the purposiveness is universal and necessary, but quite another that the *representation* of this purposiveness is also universal and necessary. A judgement of the mathematical sublime represents the *a priori* purposive relation not in thoughts but through a sensible element: the temporal tension in an aesthetic comprehension reaches the *limit* of one's imagination and brings about a certain sort of feeling of maximal violence. Accordingly, universality and necessity of the judgement would presuppose universality and necessity of one's imagination's maximum. But this is problematic.

Cassirer argues that the judgement's deduction consists in its exposition because the latter 'has shown that the human mind, as possessed of imagination and Reason, is capable of relating them to each other, of becoming aware of its supersensible capacity on the presentation of a sensible object' (1938: 249–50).<sup>18</sup> But the problem is exactly the 'becoming aware', which presupposes the sensation of the imagination's inadequacy in judging certain finite magnitudes. This inadequacy, however, seems to be private and contingent.

Kant writes that '[aesthetic] comprehension becomes ever more difficult the further apprehension advances, and soon reaches its maximum' (*KU*, §26, 5: 252), but he provides no deduction for this maximum. For Kant, 'Every necessity has a transcendental condition as its ground' (A106). I have shown that aesthetic comprehension involves an inevitable tension that consists in two *a priori* temporal conditions of reproductive synthesis, implied in the Transcendental Deduction in the first *Critique* and then expounded in the third *Critique*. The tension is indeed universal and necessary but can be tolerated in cognition to some extent, for otherwise no comprehension would be possible. The imagination reaches a maximum *if* it is incompetent to overcome a tremendous tension, but why must the maximum be the same to all judging subjects? Moreover, in

representation of sensible objects, why *must* there be a maximum at all? Why can the imagination not reproduce in one intuition more and more elements with greater and greater hindrance but still advance towards infinity?

Certainly, we would universally and necessarily fail in an attempt at aesthetic comprehension of the infinite. However, we encounter the mathematical sublime in representing certain *finite* magnitudes such as a pyramid. While the imagination's inferiority to reason and its inability for presenting ideas are indeed *a priori*, its inadequacy for the aesthetic comprehension of certain sensible objects is only *a posteriori* and, therefore, neither universal nor necessary.<sup>19</sup> Paradoxically, it is exactly by means of a private and contingent experience that one reveals the necessary and universal supersensible vocation in humanity.

## Conclusion

Kant's assertion that 'in the end all estimation of the magnitude of objects of nature is aesthetic' suggests a kind of sensible element in aesthetic estimation in general. I have identified this element with the inner sensation of a temporal tension in the imagination's aesthetic comprehension, namely, a tension between the successive reproduction of an object's individual parts and the simultaneous unification of these parts. In the special case where the tension comes to involve a sense of exceeding the imagination's limit, we judge a magnitude aesthetically to be 'absolutely great' or sublime. Strictly speaking, however, what is absolutely great is not the magnitude itself but the degree of this inner sensation. *Pace* Kant, I therefore argue that the imagination's limit is private and contingent rather than transcendental, such that the judgement of the mathematical sublime is neither universal *a priori* nor necessary.<sup>20</sup>

## Notes

- 1 Kant's works are cited by abbreviation and volume and page number from *Immanuel Kants gesammelte Schriften, Ausgabe der königlich preussischen Akademie der Wissenschaften* (Walter de Gruyter, 1902–). *EEKU* = *Erste Einleitung in die Kritik der Urteilskraft*; *KrV* = *Kritik der reinen Vernunft*; *KU* = *Kritik der Urteilskraft*. References to the *Critique of Pure Reason* are to the standard A and B pagination of the first and second editions. Unless otherwise specified, translations used are from the *Cambridge Edition of the Works of Immanuel Kant*, sometimes modified: Kant 1987, 1998, 2000. I replace bold in the translations with italics.
- 2 Pulhar mistranslates *schlechtweg* as 'absolutely'. He probably conflates the term with *schlechthin*, which repeatedly appears in the same section. This misleads Goodreau's reading (1998: 137).

- 3 The original text: 'sondern diese [eine Größe] ihm [dem Gegenstand] zugleich vorzugsweise vor vielen anderen gleicher Art beigelegt wird'. Pluhar translates *vorzugsweise* as 'superior', thus 'we also imply that this magnitude is superior to that of many other objects of the same kind'. However, since *vorzugsweise* is an adverb rather than an adjective, it obviously modifies the verb 'attribute' rather than the noun 'magnitude'. Guyer and Matthews' translation is correct, i.e. we attribute this (magnitude) to the object *superiorly* or 'to a superior extent'. As I will discuss, Allison adopts Pluhar's translation and might be misled.
- 4 Strictly speaking, the imagination's *aesthetic* comprehension only refers to its reproduction *without schemata*, which I shall detail in section 3.
- 5 With my rendition of *Zeitfolge* as 'temporal sequence'. Guyer and Matthews translate this term as 'temporal succession', which is not wrong but might lead the reader to associate it with the 'successively apprehended' (*Sukzessiv-Aufgefaßten*) in the same paragraph.
- 6 Interpretation of this text remains controversial. I follow Longuenesse's reading (1998: 37) that 'The temporality we are dealing with here is generated by the very act of apprehending the manifold'; in other words, the temporal distinction precedes and facilitates the consciousness of the manifoldness in an intuition. To the contrary, Allison (2015: 109) argues that the mind distinguishes the time because 'impressions, qua modifications of inner sense, are given successively'; accordingly, the manifoldness would precede and condition the temporal distinction. But it is safe to say that both commentators consider the apprehension of manifoldness to be *successive*.
- 7 Kant mentions 'successive regress' (*sukzessiven Regressus*) several times in the first *Critique*, e.g. A486/B514, A501/B529, A506/B534.
- 8 On other occasions, Kant describes the violence as 'to our imagination' (*KU*, §23, 5: 245) and yet also as 'by the imagination' (*KU*, §27, 5: 259). There is no inconsistency; after all, *the imagination's* simultaneity does violence to *the imagination's* successiveness in *inner sense*.
- 9 Thus I am in disagreement with Makkreel's reading (1994: 73), which takes the 'violence to inner sense' to be occasioned 'in an unexpected reversal' of the imagination's normal operation. Among many things, this approach cannot explain Kant's assertion that 'in the end all estimation of the magnitude of objects of nature is aesthetic' (*KU*, §26, 5: 250).
- 10 Similarly, Uehling (1971: 72) states: 'the object was either devoid of form or the form was such that it "violated", in some sense, human thought'.
- 11 Guyer and Matthews translate *der Form nach* as 'in its form', but I modify this as 'in view of the form', as in contrast to what Kant writes on the beautiful in the same paragraph, namely, that 'beauty . . . carries with it a purposiveness in its form (*eine Zweckmäßigkeit in ihrer Form*)' (*KU*, §23, 5: 245).
- 12 Guyer and Matthews translate *ibrer Form nach* as 'in accordance with their form', which indicates a particular sort of form with certain characteristics that serves as the standard for the judgement of the sublime. I also modify this as 'in view of their form'.
- 13 Myskja (2002: 139) proposes an alternative reading: 'when we are too close, we do not even have a challenge for comprehending the pyramid as a whole, because its single elements dominate the field of vision'. I agree that 'we do not even have a challenge', but I maintain that the reason for this is that we take too much time in apprehension (rather than that 'single elements dominate the field of vision'). Myskja's reading does not take into account Kant's writing that 'the eye requires *some time* to complete its apprehension' (*KU*, §26, 5: 252, my emphasis).

- 14 According to Kant's resolution of the First Antinomy in the first *Critique*, whether the world is infinite or bounded is unknowable (A520/B548). But I shall follow Kant's identification of 'absolute totality' with 'infinity' in the third *Critique*.
- 15 While Matthews (1996: 172) acknowledges the idea's regulative use, she claims that 'the imagination's attempt to illustrate an idea of reason is illegitimate' and that to 'apply' the idea of an absolute totality of the infinite to appearances is a 'transcendental illusion: natural, but also illegitimate' (179). In my view, what would be illegitimate is the imagination's pretension to a *complete* illustration or presentation of the infinite. But in aesthetic comprehension we do not use this idea constitutively or 'apply' it determinatively to appearances; rather, the imagination only *strives* to illustrate the idea and advances as far as possible. Now that the idea effectively guides the imagination's endeavour, the regulation is not illusionary but with indeterminate 'objective reality' (A665/B693). For Kant, insofar as our cognition is directed to 'the totality of series', the 'vocation' of our imagination consists exactly in its attempt at 'adequately realizing that idea as a law' (*KU*, §27, 5: 257).
- 16 Schaper (1992: 384) comments: 'Perhaps Kant's struggle to locate the sublime in that which occasions the feeling *and* in the feeling itself can be seen as indicative of a deeper ambiguity.' This 'ambiguity' is now clarified: Kant locates the sublime only in the inner sensation of the temporal tension, for that which occasions the sensation is a *finite* magnitude; such a magnitude is not absolutely great in itself but only *aesthetically* so, that is, in terms of the absolute great *sensation* in its representation.
- 17 Kant does not clearly distinguish between the necessity and necessary universality of an aesthetic, reflecting judgement. For a detailed discussion, cf. Wang (2018).
- 18 Similarly, Bartuschat (1972: 134) argues that the judgement of the sublime does not require a deduction because it 'exhibits the judging subject and his faculty which is not limitable by nature, so that the feeling of the sublime is only an expression of the subject's disposition'.
- 19 As De Man (1984: 130) points out: 'The [mathematical] sublime cannot be grounded as a philosophical (transcendental or metaphysical) principle, but only as a linguistic principle.' Meanwhile, I maintain that the temporal tension and its sensation in aesthetic comprehension is necessary as they are conditioned on the transcendental operation of the imagination.
- 20 My particular thanks to Martin Moors for the many long and stimulating discussions on this topic. I thank Karin de Boer, participants at the European Society for Aesthetics Annual Conference (Berlin) and the 5th Leuven Kant Conference, and anonymous reviewers and editors of *Kantian Review* for their comments and suggestions on earlier drafts of the article. I also thank Samantha Matherne for sending me her forthcoming paper. This work was supported by the Shanghai Municipal Foundation for Philosophy and Social Science (grant number 2019EZX001).

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