



Co-seeing and seeing through: reimagining Kant's subtraction argument with Stumpf and Husserl

Clare Mac Cumhail

To cite this article: Clare Mac Cumhail (2020): Co-seeing and seeing through: reimagining Kant's subtraction argument with Stumpf and Husserl, British Journal for the History of Philosophy, DOI: [10.1080/09608788.2019.1695579](https://doi.org/10.1080/09608788.2019.1695579)

To link to this article: <https://doi.org/10.1080/09608788.2019.1695579>



© 2020 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group



Published online: 10 Mar 2020.



Submit your article to this journal [↗](#)



Article views: 150



View related articles [↗](#)



View Crossmark data [↗](#)

Co-seeing and seeing through: reimagining Kant's subtraction argument with Stumpf and Husserl

Clare Mac Cumhaill

Philosophy, Durham University, Durham, UK

ABSTRACT

I draw on Carl Stumpf's essay "Psychologie und Erkenntnistheorie" (1891), and his precocious *On the Psychological Origin of the Idea of Space* (1873), to set out a charge he raises against Kant's form/matter distinction. The charge rests, I propose, on the supposition that colourless extension, or empty space, cannot be seen. I consider an objection that Stumpf raises against Kant's notorious 'subtraction' argument. Kant supposes that we can 'take away' from the representation of a body all that the understanding thinks in relation to it and extension would yet remain (*Remainder*), separate from all sensation (*Separateness*). Stumpf denies both claims but I suggest he needn't. I outline a way of defending *Remainder* without *Separateness*, extrapolating from some neglected descriptive phenomenology in Husserl's 1907 "Thing and Space" lectures: we see empty regions insofar as we see things *through* them. Finally, by appeal to so-called 'structural' features of visual experience, I detail a distinctive approach to making the subtraction argument intelligible.

ARTICLE HISTORY Received 26 February 2019; Revised 6 October 2019; Accepted 16 November 2019

KEYWORDS Kant's subtraction argument; empty space; perception; Husserl; Carl Stumpf

1. A puzzle

In the first book of the *Treatise*, Hume argues that our idea of a vacuum is fictitious. There is no visual impression from which the idea of a vacuum – an empty space – can be copied (Kemp Smith, *The Philosophy of David Hume*, 288–90). Ideas, moreover, are faint *images* of impressions. But as there can be no impression of an empty region – of an intangible, invisible distance – nor can there be any *image* of such.¹ Instead, a "true idea of extension" is

CONTACT Clare Mac Cumhaill  clare.maccumhaill@dur.ac.uk

¹See Frasca-Spada, *Space and the Self in Hume's Treatise*, for discussion of Hume's treatment of space and how he circumvents his own copy principle in the case of betweennesses – relations between things, or what I will later call interspaces.

© 2020 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way.

derived from complex impressions of perceptual minima – “colour’d points” – “dispos’d in a certain manner” (*A Treatise of Human Nature*, 82).

C.D. Broad insists that there is “nothing whatever in Hume’s doctrine of space except a great deal of ingenuity wasted in recommending and defending palpable nonsense”; it is “very queer stuff indeed”, “rubbish” (“Hume’s Doctrine of Space”, 161–76). Yet with respect the related question “can there be an extended mental image ... which has no imaginal quality corresponding to either sensible colour ... or any other sensual quality?”, he tends to agree with Hume, at least as he reads him: “The answer seems pretty obviously to be: No!” (“Hume’s Doctrine of Space”, 163).

In this paper, I consider a treatment of empty space which chimes in certain respects with Hume’s dismissal, and which shares the introspective phenomenological intuitions of Broad – that offered by the so-called father of Gestalt Psychology and student of Brentano, Carl Stumpf. My comments are restricted to his 1891 essay “Psychologie und Erkenntnistheorie” (*P&E*), a translation of which is published in this volume, and to his precocious *Über den Psychologischen Ursprung der Raumvorstellung* (UR) written in 1873, when he was just 25. In both works, Stumpf is concerned to cast doubt on the form/matter distinction, as he attributes it to Kant, and which he claims is “psychologically completely indefensible”. I call this *Stumpf’s Charge*.²

The plan for the paper is as follows. In the first half, I detail the motivations for *Stumpf’s Charge* and its scope, before recruiting some descriptive phenomenology from Husserl (*Thing and Space Lectures*) to unsettle its force. Empty regions are *co-seen* with objects that ‘border’ them, in a sense to be explained. In the second part, I turn to the phenomenology which Stumpf appears to share with Broad against Kant’s notorious ‘subtraction’ argument. Kant contends in his first critique that:

[I]f I take away from the representation of a body that which the understanding thinks in regard to it, substance force, divisibility etc., and likewise what belongs to sensation, impenetrability, hardness, colour etc., something still remains over from this empirical intuition namely, extension and shape.

(A21)

But for Stumpf:

[I]t is impossible to present space, extension and figure without any sensory qualities. I know of only a single author, who in this point openly sides with Kant. (*P&E*, 10, Textor and Leech trans.)³

²I focus specifically on the charge as it applies to space. The respect in which it applies to time as a form of intuition, I leave aside. Thanks to a reviewer for suggesting this explicit gloss.

³That author was Otto Liebmann. Liebmann claimed he could imagine senseless shapes, a proposition Stumpf deems as confused since visible shape must involve a figure/ground contrast. Stumpf also refers to Hermann Cohen, who had criticized Stumpf’s interpretation of Kant. Thanks to a reviewer for suggesting this note.

Since Stumpf is responding to Kant's 'subtraction' argument, we can take it, I think, that like Broad he also supposes that there can be no *mental image* that does not have 'sensual quality', though *prima facie* the above passage reads as neutral between the presentation of space in imagination (say) and its presentation in perception. But here recent scholarship on Kant can be called upon to rescue Kant, even before we get started.

Kant distinguishes the notion of a *form of intuition* from *formal intuitions*, a distinction which Stumpf appears to overlook (though see *P&E*, fn. 11). Formal intuitions are those sensible geometric forms that are produced through construction; for instance, when a geometer demonstrates Euclid's angle-sum theorem by constructing its proof with pen and paper. Such spatial objects – the shapes on the page – instantiate the properties of the form of intuition of space which can thereby be cognized. The investigation of such properties is hence synthetic *a priori*.⁴

The subtraction argument pertains to forms of intuition and *not* to formal intuitions which are sensible forms, whether those sensible forms are 'outer' objects that appear in empirical intuitions or are forms that are successively generated through the productive imagination. But strictly speaking, Stumpf's objection chiefly targets *formal intuitions* which Kant would surely insist *are* essentially sensible. Even so, there remains something important to be gleaned from Stumpf's peculiar objection to the subtraction argument, particularly as he develops it in his earlier *Raubuch* (the *Ursprung*).

Stumpf advances an argument that I think helps home in on the peculiar appearance that *empty regions* have; as I argue, we can intelligibly say that empty regions look 'see-through' insofar as something is seen through them. Unlike the appearance of sensible forms however, such a way of appearing cannot be replicated in imagination. In visual imagination a perspective is only *represented*, not *inhabited*, in a sense to be made plain – so here I am inclined to partially agree with Stumpf in his quibble with Kant. At the same time, I want to suggest that recognizing this much goes some way to reconciling the Broad/Stumpf intuition with the descriptive phenomenology of Husserl and I explain in what sense.

A note about methodology. This essay is avowedly synthetic, as well as selective in the material that it draws upon from its historical protagonists. As such, it is less scholarly than might be expected – and its conclusions are theoretical. The idea is to assemble conceptual resources that may well have relevance for the contemporary philosopher of perception for whom the problem of seeing or imagining empty space is hard to even countenance.

⁴For extensive discussion of this distinction see Onof and Schulting, "Space as Form of Intuition". For consideration of Stumpf's take on Kantian *a priori* judgment, see Fissette and Martinelli, *Philosophy from an Empirical Standpoint*, 25.

This is mostly due to an over-reliance on what Stumpf would call genetic-causal psychology, a psychology that emphasizes causal genesis and third personal methods, often without appeal to other source – to phenomenology, or to the history of philosophy.

2. Stumpf's charge

Stumpf (1848–1936) was a student, first of Brentano and then Hermann Lotze.⁵ He was Husserl's habilitation supervisor at Halle (1887), and a friend of William James, who in the *Principles of Psychology* describes Stumpf as “the most philosophical and profound” (911) of all those theorists on whom his sensationalist account draws.⁶ Unlike Brentano, however, Stumpf never tried to make disciples of his students, an orientation which is said to owe much to the “exceptional” and “considerate” theoretical liberality of Lotze.⁷ Despite this, he widely thought of as the father of Gestalt Psychology. Among his pupils at the Berlin Institute of Psychology which he founded in 1900 were Wolfgang Köhler, Kurt Koffka, and Max Wertheimer. Husserl's *Logical Investigations* (1900–1901) is dedicated to Stumpf “with honour and in friendship”; its Book III, as we will shortly see, is indebted to him.

I begin by considering *Stumpf's Charge*, its motivations and scope, as set out in his lecture “Psychologie und Erkenntnistheorie” (*P&E*, trans. Textor and Leech).

Stumpf teaches that the motive for Kant's form/matter distinction is *epistemological*; it is introduced to make sense of the possibility of synthetic *a priori* judgement, an important class of which judgements are mathematical. Thus, in his first critique we find Kant writing:

Philosophical cognition is rational cognition from concepts, mathematical cognition is that from the construction of concepts. But to construct a concept means to exhibit *a priori* the intuition corresponding to it. For the construction of a concept, therefore, non-empirical intuition is required, which consequently, as intuition, is an individual object ... Thus I construct a triangle by exhibiting an object corresponding to this concept, either through mere imagination, in pure intuition, or on paper, in empirical intuition, but in both cases completely *a priori*.
(A713-14/B741-42)

How is the form/matter distinction intimated in this passage? “The sum of the interior angles of a triangle is 180°” is a synthetic *a priori* judgement. It is *a priori* since it applies independently of all experience with strict universality. It is synthetic since it is grounded in the construction, either in pure or

⁵For an outline of Stumpf's place in the school of Brentano, see Rollinger, *Husserl's Position in the School of Brentano*. For discussion of Stumpf's indebtedness to Lotze, see Centi, “Stumpf and Lotze on Space, Reality, Relation”.

⁶Among them Herring, Volkman, Leconte and Schon.

⁷Lotze is said to have told readers to regard his philosophy as “an open market”, and to pass by the goods they did not want (Milkov, “Carl Stumpf's Debt to Hermann Lotze”, 13).

empirical intuition, of sensible forms – triangles, for instance. Thus, while the intuition determined is non-empirical, it is *epistemically* determined through a constructive process that *exhibits* its properties, a process that involves the production of sensible intuitive forms.⁸

Stumpf rejects this way of conceiving matters; “what is epistemologically true”, cannot be “*psychologically false*”, he says. And by his lights the form/matter distinction is psychologically completely indefensible’ (10). This is *Stumpf’s Charge*. But why does he think it so? And what can be gleaned from his phenomenological certainty in this respect?

Stumpf grants that “it is an indubitable truth” (*P&E*, 4) both that there are synthetic or unifying acts of thinking – for instance, when we judge two objects to be causally related – *and* that it is a function of consciousness to unify. Yet “the core question remains” he says: “What may, can, must we unify, and what not?”

He goes on to single out as “remarkable” (*P&E*, 8) the Kantian notion of “affinity” that appears in the Transcendental Deduction of the first edition of the *Critique* (absent in the B edition). “Affinity” pertains to the “associability of appearances”. Kant insists that appearances must be associable in themselves but then adds – “regrettably” for Stumpf – that the objective ground of this association *cannot be encountered anywhere* but in the “principle of the unity of apperception” (A122). Unity, that is, *cannot be perceived in what is given sensibly* (*P&E*, 9). This is where Stumpf will disagree, finding in Kant’s form/matter distinction the source and nub of, as he puts it, the “[complete resistance to allow] that which is *given sensibly* to us to become authoritative”. Why does Stumpf come to this conclusion?

Stumpf thinks that Kant’s form/matter distinction, despite its epistemological motivation, demands that a distinction be made *within* sensory perception that is ‘psychologically false’, namely the idea that space and time are mere forms of intuition *in contrast to* sensory qualities.⁹ Recall Kant maintains that “that within which the sensations [the manifold of appearance] can alone be ordered and placed in a certain form cannot itself be in turn sensation” (A20/B34). Now, while this might at once suggest that space cannot be part of the *content or matter* of experience, this is not in fact Kant’s assumption – as noted, he distinguishes forms of intuition from intuitive forms. Stumpf, however, *does* seem to attribute some such thought to Kant for his disagreement takes the following shape. He notes that:

⁸For discussion of whether production solely in imagination is sufficient, see Friedman, “Kant on Geometry and Spatial Intuition” and compare Shabel, “Kant’s Argument from Geometry”.

⁹Stumpf opposes this distinction on descriptive, rather than genetic, grounds. See Fissette and Martinelli, *Philosophy from an Empirical Standpoint*, 322 on the genetic/descriptive distinction.

We do not perceive different sense qualities in invariable extension and at invariable locations, but with continually changing spatial determinations.

(P&E, 12)

This is a simple enough observation. When we observe a change in visual quality there is a concomitant change in the spatial determination of that quality. For instance, when one moves away from a table with a yellow jug, one might be said to see 'less' yellow. For Stumpf this simple observation points to a more conclusive lesson. He maintains that it is *impossible* to present space, extension and figure "without any sensory qualities" (P&E, 10), and he treats this in turn as a direct challenge to the psychological adequacy of Kant's form/matter distinction. I return to this idea shortly. First, I make more precise the relation between colour and extension gestured at here.

In his 1873 treatise, Stumpf introduces the notion of 'Teilinhalt' or 'partial' contents.¹⁰ Colour and extension are "partial contents" he says since:

they cannot exist separately in a presentation because of their nature, they cannot be presented separately. From this follows immediately or it is already said by this that space *is just as originally and directly perceived as the quality* ... not only are both contents perceived and presented together now, but already in the first moments of consciousness one is *given* with the other.

(my emphasis *Über den psychologischen Ursprung der Raumvorstellung*, 114)

So, Stumpf maintains that it is part of the nature of colour and extension that they cannot exist in a presentation or be presented separately; to borrow a term of art which we will encounter later in Husserl, one which arguably has a forerunner in Stumpf's use of *mitvorstellen'* in the *Ursprung* (16),¹¹ it might be said that colour and extent are *co-seen*. But if so, we can read Stumpf as rejecting two claims that can be teased apart in Kant.

Separateness

[W]hile the matter of all appearance is given to us *a posteriori* only, its form must lie ready for the sensations *a priori* in the mind, and so must allow of being considered *apart from* all sensation.

(CPR, TA, §1, A20)

Remainder

Thus, if I take away from the representation of a body that which the understanding thinks in regard to it, substance force, divisibility etc., and likewise what belongs to sensation, impenetrability, hardness, colour etc., *something still remains over* from this empirical intuition namely, extension and shape.

(A21)

¹⁰For detailed exposition of the concept of partial contents see Textor, "Apprehending a Multitude as a Unity".

¹¹Stumpf describes seeing the space between two places as co-seen when one sees both places. Thanks to Mark Textor for corroboration of this use.

For Kant, what remains over (*Remainder*) apart from all sensation (*Separateness*) is *colourless extension*.

Now, I have cast Stumpf as insisting that colour is co-seen with form, yet it seems that he goes further than this. He seems to hold that we cannot see colourless extension for he writes: “we present *quality in extension*, extension in quality; they interpenetrate each other” (*Ursprung der Raumvorstellung*, 114, my emphasis). But, as such, it might be thought that by Stumpf’s lights there simply is no perception of *empty space*, a hunch that the following passage from the *Ursprung* treatise seems to recommend:

One cannot represent space without quality, e.g. visually but without colour, tactually without tactual feeling, completely separate from all sensing.

(UR, 19/20)

In §3, I will suggest that this supposition, assuming that it is attributable to Stumpf, is problematic.¹² Why? For if the psychological indefensibility of the form/matter distinction rests not only on the observation that colour is co-seen with form or extent but also the insistence that empty space is *not* seen, and if it can be shown that empty space *is* seen, even while it is granted that colour and form are co-seen, then there may be grounds for unsettling *Stumpf’s Charge*. I show that there are such grounds by drawing on Husserl’s 1907 “Thing and Space” lectures (*Thing and Space Lectures*).

3. Data from the summer semester, Göttingen 1907

Fisette, “Stumpf and Husserl on Phenomenology”, distinguishes two periods in the work of Husserl that are relevant to a consideration of his relation to Stumpf: the Halle period (1886–1901), which includes the *Logical Investigations* (1900–1901), and the Göttingen period (1901–1916), which begins with his arrival in Göttingen in 1901, and includes the 1907 “Thing and Space” lectures. While in his posthumous *Erkenntnislehre* (1939) Stumpf is critical of the transcendental turn that Husserl’s phenomenology takes during the course of the Göttingen period, Husserl’s earlier work is wholly in the descriptive psychological spirit of his onetime ‘fatherly friend’ (Schuhmann, “Malvine Husserl’s Skizze eines Lebensbildes von E. Husserl”, 114). For our purposes, particularly noteworthy is Book III of the *Logical Investigations*, entitled “On the Theory of Wholes and Parts”. This work picks up the Stumpfian notion of *Teillinhalt*, but also the Brentanian notion of a ‘foundation’, which I will gloss only briefly.

¹²As a reviewer notes, Stumpf devotes the long second chapter of *Ursprung der Raumvorstellung* to the presentation of the third dimension (154–271). In my view, consideration of what is involved in the representation of the third dimension – or seeing in depth – is distinct from consideration in what is involved in seeing empty space. The latter posits empty space as an object of perceptual experience and considers how it strikes the perceiver – viz. the phenomenology of being acquainted with an empty region. The former considers the appearance of things as ordered in space. My discussion mostly leaves aside consideration of seeing in depth.

Husserl explains the idea of a foundation as follows: when part A cannot be presented without a part B, A is said to be *founded* on B (LI III, §14). He notes too that foundedness relations can be reciprocal or one-sided, offering the relation of colour to extent as an example of a *reciprocal* relation. To this extent then Husserl might be supposed to *agree* with Stumpf, whose reflections on these matters he variously refers to as “powerful”, “valuable” and “instructive”.¹³ Yet importantly Husserl also adds in these pages a caveat, or so it seems to me. He records Stumpf as urging that “quality is indeed affected in sympathy with changes in extent” (*Über den psychologischen Ursprung der Raumvorstellung*, 112), but he thinks the import of this insight should receive a different emphasis:

Stumpf uses considerations of this sort to *prove* the mutual inseparability of Extension and Quality, and hence their non-independence: we shall rather make use of them to *define* inseparability or non-independence, or contrariwise separability or independence.

(my emphasis, LI III, §5, Vol. 2, 9)

Thus, where Stumpf thinks that the co-presentation of colour with space *disproves* the form/matter distinction on Kantian lines, Husserl might be read as making a weaker claim, namely that the co-presentation of colour with space only defines non-independence which applies equally to, and is characteristic of, other perceptual phenomena – for instance, there is “no tactile quality without something spatial ... no timbre without tone qualities” (LI VI, §2). Further, while Husserl does appear to hold that the relation of extent and colour is *reciprocal*, his argument pertains to the presentation of colour in ‘thought’ – he writes that no colour is *thinkable* without extension and vice versa (§16, Vol. 2, 27). But this leaves open the possibility that while colour is reciprocally founded on extension *with respect to what is thinkable*, it may not be reciprocally founded on extension with respect to *perception*. Colour, that is, may only be *one-sidedly* founded on extent.¹⁴ I pick up this issue shortly as it is relevant to my consideration of Stumpf’s way of responding

¹³For full elucidation of the ways in which Husserl and Stumpf differ with respect to the Brentanian notion of ‘foundation’ and associated concepts, see Rollinger, *Husserl’s Position in the School of Brentano*, Ch3, especially 111–12.

¹⁴Rollinger, *Husserl’s Position in the School of Brentano*, notes an asymmetry that chimes, I suggest, with Husserl’s later phenomenology:

The extension and color of the extended colored surface, according to Stumpf, are inseparable from *each other*. While this certainly seems to be the case, it should also be pointed out that Stumpf’s thought-experiment can be pursued further to show that the extension is not related to the color precisely as the color is related to the extension. It is indeed quite clear that changes in the color participate in changes in the extension, that there is, as it were, less color if there is less extension, and again more color with more extension. It must be asked, however, whether the extension likewise changes in accordance with changes in the color. If a red surface has yellow added to it and thereby becomes orange, while it remains the same in other possible respects, does its extension in any way at all change? Apparently it does not. (105–106)

to Kant's subtraction argument. Before that I sketch the position that Husserl begins to explicitly take with respect to space around the time that he delivers the 1907 "Thing and Space" lectures in the summer semester at Göttingen.

While the *Investigations* might be said to offer a phenomeno-logic – this is insofar as it sets out the structures, and so essences of what is given in experience – the "Thing and Space" lectures, together with the five lectures which preceded them (published in 1947 under the title *The Idea of Phenomenology*) herald Husserl's pioneering advance towards transcendental phenomenology. This change in orientation can be characterized in the following way. The phenomeno-logic of the *Investigations* avoids the perils of psychologism by denying that the logic of appearances (and indeed logic *tout court*) is to be grounded in psychology and by concentrating instead on the nature of the objects of perceptual awareness.¹⁵ In the *Thing and Space Lectures*, we likewise find Husserl writing that "space is a necessary form of *things* and is not a form of lived experience" (my emphasis, §14, 20–22). Like Stumpf then Husserl continues to reject the Kantian conception of space as a form of intuition. Yet he now adds a specification: "[space is] specifically not [a form] of 'sensuous' lived experience" (§14, 23). What is the significance of this appeal to the sensuous?

Here, Husserl can be said to agree with Stumpf, as well as his earlier self, that space is not a form of intuition but is intuitively given. Yet at the same time he might be thought to depart from Stumpf, at least in this respect. Stumpf can be understood to *agree with Kant* to the extent that he takes the categories of form and matter to have traction, where matter here pertains to *quality*. However, the Husserl of the *Things and Space Lectures* now treats of the matter of experience not in terms of quality or sensuous experience, but in terms of *things*, something that is already partly in evidence in the *Investigations*. But this significantly changes the shape and nature of his enquiry. I explain by way of some biographical context.

In the autumn of 1906, Husserl underwent a 'severe crisis',¹⁶ recording in his daily journal doubts concerning his existence as a philosopher and setting out what his primary task must be. In the first couple of pages of the 1907 lectures, we see a glimpse of what that task amounts to:

In order to solve the problems of the constitution of natural scientific reality in the context of the variegated cognitions and cognitive nexuses of natural science, we would need to settle the problems posed by logical-mathematical thinking and to clarify, from the side of experiential cognition, not only the lower levels of the experience *which lies prior to all deduction and induction* – in short, prior to all logically mediated cognition in the usual sense – but also, and *a fortiori*, we would need to clarify the higher levels.

¹⁵For a gloss on Husserl's critique of psychologism, see Kusch, "Psychologism".

¹⁶See Rojcewicz's translator's note to the 1907 Thing and Space lectures (*Thing and Space Lectures*, xii), where this description, which in fact was given by the editor of the five introductory lectures that resulted in the *Idea of Phenomenology*, are discussed.

These are very lofty goals to which we gaze up wistfully, but which we cannot at all seriously set for ourselves here and now. The first elaboration of the field of experience, its phenomena and givens, will offer us an ample supply of difficult and deep problems. We will do well if we cultivate this field so effectively that our successors can then attempt to raise the higher forms of the problems.

(1–2)

A short gloss helps makes sense of this passage. For Husserl, the ‘thing’ of the title of the lectures *Thing and Space Lectures* should be read as an “object of straightforward experience” (Appendix II, 297). But since it is straightforward experience that science must have recourse to, Husserl thinks – as he writes, experience is prior to all deduction and induction – the possibility of science can only be understood once the possibility of the straightforward experience on which it is founded is itself understood.

In particular, it seems that Husserl’s goal was to provide phenomenological grounds for the new non-Euclidean geometry; to make plausible a topological (and not a metrical) analysis of the constitution of corporeality and of space, something that his earlier work at Halle on the *Philosophy of Arithmetic* and *Studien zur Arithmetik und Geometrie*, a collection of manuscripts from 1886 to 1901 and published posthumously (see Haddock, “Husserl and Riemann” for discussion of the latter) prepared him for (see Appendix XII, 339–40). Topology treats of space as a continuous ordering of points such that the same space can survive deformations such as stretching, twisting, and contraction. What matters only for the integrity of a space is the path-connectedness of its points; two points are path-connected if they share the same space. In contrast, in a metric space, distance relations between points are defined. It is thus not possible to *deform* a metric space and for metric relations to be preserved. We shall shortly see how Husserl thinks he can develop an account of the topological constitution of space. First, I note two areas where the Göttingen Husserl of the “Thing and Space” lectures diverges from Stumpf.

Husserl contends that descriptive psychology such as Stumpf’s already takes the possibility of straightforward experience for granted, since it “implies transcendences” – that is, it takes for granted the objective constitution things, the very possibility of which is the task for a pure phenomenology:

As long as descriptive psychology is, in the genuine sense, psychology, then, no matter how narrowly delimited, it is entirely on a par with genetic-causal psychology. As such, we must not lay claim to it, since it implies transcendences. And it actually implies transcendences as long as it is still some sort of psychology.

(cited at fn. 14, 1997, xix)

To get a sense of how a descriptive phenomenology might imply transcendences, consider Husserl’s discussion of the work of the Scottish philosopher Alexander Bain which he came to know through Stumpf’s lengthy exposition

and critique of it in the *Ursprung* (1873, 36–71).¹⁷ Where Kant has it that forms of intuition order sensation in space and time, Bain proposes that a peculiar ‘muscle’ sense is responsible for the fact that what is seen and touched appears in a spatial order (Claesges, “Editors Introduction”, xxvi). But Husserl contends that this appeal to a ‘muscle sense’ is only intelligible once certain determinate physiological and anatomical presuppositions are made – to wit, *transcendent* presuppositions – and he instead introduces the term ‘kinaesthetic’ to describe the mere *sensation* of movement, sensation or feeling now stripped of any transcendent anatomical presuppositions. For instance, what we might otherwise call ‘eye movements’ are now to be identified with continuous sequences of kinaesthetic sensation that are correlated with amplifications and modifications of the two-dimensional visual sense-field. Such sensations are not essentially related to visual sensations as colour is essentially related to extent however, they are functionally related.

The passage below illustrates this line of thinking. Notice that the parentheses contain an otherwise transcendent assumption. Here ‘K’ pertains to kinaesthetic sensation and ‘i’ the visual image:

If the kinaesthetic ocular sensation K_1 is at first ... constant (thus, Objectively speaking, the eye is stationary) perhaps during the stream of time t_0 - t_1 , then the visual image i_1 is also constant during precisely this time. If then K_1 changes in a continuous sequence, during the new span of time t_1 - t_2 into K_2 then the image i_1 also changes into i_2 . If K_2 reverts back to K_1 then so does i_2 into i_1 in the same span.

(§51, 149)

Hand, head, and trunk movements are likewise said to be ‘associated’ with distinct K-series, changes in which also lead to concomitant changes in the i-series. Such associations are said to be ‘immanent’ – no transcendences are implied.¹⁸

Now, for Husserl, Stumpf’s work is not free of such implications. While Husserl has it that the association of two dimensional visual images with various K-factors transforms the visual field into an objective spatial field, for Stumpf, depth is given necessarily and immediately whenever a surface is visually presented; he notes that presented surfaces can be plane or uneven, but “planeness or unevenness [...] involve the third dimension” (*Über den psychologischen Ursprung*, 177). In a stenographic remark in his copy of Stumpf’s book, Husserl adds a note on this comment:

We do not see surfaces, but the visual field is a two-dimensional manifold. The mistake [Stumpf’s] lies in the equivocal concept of surface: 1) surface: two-

¹⁷As Pradelle, “The Autonomy of the Sensible”, 239, explains, Stumpf also objects to Bain inasmuch as his project is to replace our everyday intuition of space with what amounts to a theoretical construct.

¹⁸For further detailed see Scheerer, “The Constitution of Space Perception”.

dimensional manifold, 2) surface: formation, and specifically a two-dimensional formation in space.

(cited at fn. 60, *Thing and Space Lectures*, xxvii)

It seems then that Husserl thinks that Stumpf helps himself to the transcendent notion of a *formation* in space – a corporeal form or voluminous object – but where the possibility of experiencing such a formation, a thing, is *precisely what needs to be accounted for*. I return to Husserl's critique in §4, where I shall in fact side with Stumpf. To close this section, I set out Husserl's descriptive phenomenology, appeal to which I will take as sufficient to unsettle *Stumpf's Charge* along the lines I will suggest.

The following passage appears in Appendix VII (to §76), written in 1909, two years after the 'Thing and Space' lectures were first delivered. The passage is striking insofar as Husserl recognizes that empty space is problematic for his own account:

[I]f we look deeper and more closely into the phenomenon of spatial intuition, then, with a little honesty, which, to be sure, is not easy to come by, we cannot escape the thought that we see the "between" and the entirety of space. If I cast my eye on these or those edges of a seen cavity, or of a hollow space formed by books, tables, etc. And if I transfer my gaze from these edges to the opposite ones, then I "see the air", the "between". I can attend to these or those intervening points or intervening positions, without interesting myself at all in the form of the type of the border.

Is there not an essential difference here between such spatial distance, the way the "between" is "given", and chromatic distance, where we are given no "between" (in the sense of a color)? This or that thing is always given, and specifically in a space ...

One can cudgel one's brains about this, but one must still face the facts and begin with them ... What sort of distinction this is, i.e. the seeing of colour versus the "seeing" (or other perceiving) of space, is a problem.

(324)

Perhaps in the metres of untranslated Husserliana housed in Leuven, Husserl resolves this problem. Without that resolution, I instead gather together the scattered reflections we find in the above passage alone.

Husserl's descriptive phenomenology appears to suggest that:

- (1) We see the 'between' (a sort of *cavity* or *hollow*)
- (2) We see *the entirety of space*
- (3) We can attend to the 'between' *without* interest in *the form* of the border

But to these reflections, I suggest we can add a fourth, namely by returning to §76, which marks the beginning of a new lecture entitled "The modes of givenness of empty space". However to bring the significance of this lecture into view, however, a step back is also needed.

As I have noted, Husserl's project in the lectures is partly to make plausible a topological and not a metrical analysis of the constitution of corporeality and space, an account of which can found the new non-Euclidean geometry.¹⁹ In the course of his elaboration, however, Husserl also explicitly harnesses the conceptual tools of that programme. Thus, we find a 'phenomenologicalized' appeal to notions of rotation, free variation (in imagination), transformation, invariance and manifold (*Mannigfaltigkeit*), now understood topologically in terms of a continuous variation in sensation. Consider how at least some of these notions play out in his descriptive phenomenology. I paraphrase: A thing (objectively speaking) is such that the way it looks to a subject can vary with movement. When you approach a body it may look to you to 'expand' on movement. When you retreat, it may look to grow smaller or 'contract' (a one-dimensional linear manifold of 'receding'). Likewise, in encircling it (a two-dimensional cyclical manifold of 'turning'), it may appear to you as though respective sides 'replace themselves' so that – to use Husserl's words – "the sides are joined to one another as *continuous* ... they bring to appearance the closedness of the nexus of the sides and therefore make the complete corporeal surface appear as a 'closed' one" (*Thing and Space Lectures*, 214, §72, lines 30–34). A thing or corporeality is *constituted* by these patterns of 'expansion' and 'contraction', 'concealment' and 'replacement' – "to be constituted in such a way pertains irrevocably to the essence of a body" (*Thing and Space Lectures*, 219, §72, lines 20–21). In contrast, empty space admits of no such modification; when you move through it, it does not seem to loom or contract; it does not seem to you to have sides that replace each other on movement.

Compare the sky:

[I]f, e.g. the blue of the sky appears as a vault and is thereby interpreted as a body, then this body must indeed have its front and back and its closed surface, which must be constituted in possible transitions, in possible cyclical turnings, etc.

(*Thing and Space Lectures*, lines 17–20)

We don't, however, suppose that the sky has sides in this sense, and the same is true of empty space. Rather, empty space, at least as it is "conceivable within the domain of mere vision", says Husserl, is the 'residue' of visual content which "cannot be accommodated to the yoke of the apprehension of the thing" (*Thing and Space Lectures*, 220, §74, lines 6–8). That is to say, empty space does not seem to 'expand' and 'contract' with the coloured expanses that cue awareness of the presence of objects. We can cast this observation intuitively: When you approach an opaque object, its facing surface looks to you to 'expand'. When you retreat, it may look to contract and 'what is left over' – the visual residue – may look to you to be augmented (viz. there is

¹⁹For discussions see Tiezen, "Free Variation and the Intuition of Geometric Essences". and Hartimo, "From Geometry to Phenomenology".

more of it). In both cases, however, *the residue itself* neither expands nor contracts. Nonetheless, it is only by seeing the residue, qua *residue*, that you can apprehend the ‘expansion’ or ‘contraction’ that cues the awareness of a *non-residual* material object. Insofar as this characterization rings true, we can add (4) to (1)–(3) above.

(4) Empty space is a kind of *visual residue*

But this in turn suggests a tempting line of thought.

If this reading of the Göttingen Husserl is on the right track then Husserl might be said, tentatively I admit, to endorse *Remainder*, at least at this period – after all, empty space is the co-seen visual residue that cues awareness of corporealities. Further, it seems he thinks that we can attend to the ‘between’ *without* interest in the form of the border (1, 3). At the same time, the very requirement for a border suggests a rejection of *Separateness* (“empty space is necessarily an empty *space between things*”). Why? Because the closed nexi that constitute non-residual corporealities are *co-seen* with the betweenness or visual residue that cannot be “accommodated to the yolk of the apprehension of the thing”. Instead, patterns of expansion and contraction unfold against a backdrop – the entirety of space (2) – which *includes* empty regions between things.²⁰ I revisit this last point in §5. For now, return to *Stumpf’s Charge*.

Stumpf seems to think that not only is colour given with extent, *but vice versa*. As such, he might be thought to suppose that we do not see colourless extension – a claim I have attributed to him – which in turn might be supposed to make entirely psychologically indefensible the form/matter distinction which Kant’s epistemology motivates. If Husserl’s descriptive phenomenology chimes with our own however, it seems that we can allow that colourless extension is seen – it is co-seen with the objects that border it. So, we can endorse *Remainder*, but deny *Separateness*, at least with respect to perception. On this understanding, colour is only one-sidedly founded on extent, and not reciprocally. If Husserl is right, there is a

²⁰A possible objection is that for Kant and Stumpf the set of sensory items relative to which a space is said to ‘remain’ is the same as the set from which a space is separated, namely, the set of sensory items filling that space – “in other words, Remainder and Separateness are two sides of the same coin”. Yet in my reconstruction of Husserl, empty space is said to ‘remain’ when all sensory things filling that space are removed, whereas it is said to be non-separated from the sensory things that constitute its boundaries. It is this undue shift in the terms of comparison, the reviewer thinks, which allows me to say that in Husserl there is Remainder without Separateness. I’m grateful to the reviewer for engaging so deeply with my project in this paper. Sh/e is right that there is a ‘shift’, however, not an ‘undue’ one in my opinion. The kind of non-separability I am attributing to *Husserl* pertains to the non-separability of contents in a presentation. In line with this, the data I offer for Remainder is not logical or conceptual – it is not a matter of things and space as necessarily existing independently so that Remainder can be construed in terms of the absence of the former – it is phenomenological. But there is a clear respect in which Kant’s subtraction argument also appeals to at least introspective phenomenology and this is what makes the bridge to my reimagining of the subtraction argument.

functional but not essential relation between space and things (and their qualities).

Yet even if this much is granted this still leaves open whether there is a reciprocal dependency between colour and extent with respect to what can be thought or imagined, as Husserl of the *Investigations* teaches, and as Broad thought obvious. Since *Remainder* is articulated in the context of the imaginative subtraction argument, it is therefore worth returning to this.

4. *Der Zwischenraum* and Stumpf's 'subtraction' argument

In the passage decomposed above, Husserl resolves to "face the facts and begin with them". The relevant fact is: we see empty space. How does Stumpf, who after all rejects both *Remainder* and *Separateness*, deal with this fact?

In the early pages of the *Ursprung*, Stumpf considers Kant's claim that for sensations to be referred to something outside me, and in order that I can represent them as outside and alongside one another, as not only different, but *in different places*, the presentation of space must "lie at the foundation" (*Über den psychologischen Ursprung*, 16). Stumpf identifies two complicit commitments in this claim:

- i the assumption that when two places are represented, the *intervening places* (*Zwischenorte*) are *co-represented* (*mitvorstellen*) and,
- ii the thought that all the places in space are entered into a comprehensive background (*umfassenden Hintergrund*)

This second point can appear striking to 'usual' or 'everyday' opinion ('gewöhnlichen Meinung') we are told, but in fact (ii) is reducible to (i), according to Stumpf. Why so? Representing a collection of places *is* for Stumpf representing space; space is not something 'beside' and 'behind' ('neben und hinter'). Stumpf then does grant that intervening places or interspaces are co-represented. But he insists that we do not in the main notice such interspaces – 'in the main' since he concedes that if the distance between two places is to be measured, the gap must be 'considered'. In what way must it be considered?

Stumpf, as we have seen, rejects *Remainder*. Nonetheless, he seems to grant that intervening spaces are *there*, a fact that he describes as a remarkable peculiarity of space. For Stumpf, however, they are *there* (and only possibly so) insofar as they are parts of wholes, wholes in which individual contents are lawfully grouped together into one collective content (*Gesamtinhalt*). Accordingly, the between, for Stumpf, is *not*, after all, what remains, or what is left over. Rather, the between is *part* of a visual whole.

To get an imaginative grip on this idea, think of the 'silences' that form part of rhythmic wholes. Such gaps or lacuna, when conceived as part of rhythmic

wholes, are not best thought of as *absences* of sound at a time. Rather, *qua* parts of rhythmic wholes they are part of the fabric of the rhythmic whole, together with the weft and warp of the beat and pulse. That is to say, such gaps are not best thought of as auditory lacunae that sounds could fill but don't. Why? For were sounds to take up such lacunae, the *rhythmic* pattern would be destroyed. Or consider the weft and warp of a patch of stiff linen and the pattern thereby constituted. The gaps between the threads are not best thought of places at which additional threads, now absent, could be. This would change the pattern.²¹

I think Stumpf takes a similar line. Apparent betweenesses – spaces between things – at least when conceived as *part* of visual wholes, are not best conceived as *regions that could be occupied but aren't* – that is, as *empty* regions (cf. Husserl, *Thing and Space Lectures*, §76, line 262). Such betweenesses only exist, *qua* betweenesses, as part of visual wholes, forms that contain sensuous matter. This then preserves the Stumpfian rejection of *Remainder*. Later in the *Ursprung*, we are offered an explicit unsettling of the plausibility of Kant's subtraction argument writ large. Before I spell this out; a clarification.

I have been freely using the terms 'extent' and 'extension' interchangeably but it is worth conferring some order on our use of these terms. Husserl, as noted earlier, finds Stumpf equivocating between the notion of a surface as a two-dimensional manifold and the notion of the surface of a 'formation' or thing in three-dimensional space. To distinguish these, let us stipulate that lines and two-dimensional areas have *extent* or are *extended* (2D) and that only three-dimensional volumes have *extension*. When Husserl objects to the equivocation on surfaces above, it is the equivocation between a 2-D area that is *extended*, and the surface of a 3D thing that has *extension* in space. But with this much clarified, we can now say a little more about the scope of co-seeing as discussed earlier.

When it is said that colour is co-seen with extent this might be thought to apply only to coloured *areas*, as perhaps is the case with what David Katz designates as *surface* colour.²² But surely co-seeing ought to be acknowledged to apply also in the case of *volume* colour. If so, then colour can be co-seen with extent *or* with extension. Now, above I suggested, after Husserl, that colourless extension can also be seen so long as it is *co-seen* with something, presumably a coloured thing, which borders it. Here the presumption is that it is *three-dimensional* colourless extension which can be seen. But this leaves open the possibility that we cannot see colourless *extent*. This distinction sets the stage for Stumpf's challenge to Kant's *Remainder* argument. Before that consider a little further the import of the rejection of *Separateness*.

²¹Compare the illuminating discussion in Textor, "Apprehending a Multitude as a Unity".

²²For discussion of the distinction between surface and volume colour, see Katz's authoritative 1935 *The World of Colour*.

We have so far allowed that empty space is co-seen with that which borders it. But perhaps we can say more. Sometimes the seeing of that which borders an empty region involves seeing it *through* that (or another) empty region. For instance, consider the space now between you and this page. The page constitutes the ‘far’ border of the interspace which, in seeing the page, you co-see; you co-see the space through which the page is seen. Why does it make sense to say that such space is co-seen?

Consider: were the empty region you see the page through completely in darkness you would not see the page which borders the region through which it is seen. This makes it plausible to suggest that the concept of a *visibly empty region through which objects are seen* is one that is intelligible. As we will shortly see, some theorists propose an allied conception; they are inclined to say that empty regions are places that fall within the visual field, at which visible material is absent and where, were visible material located there, it would be seen.²³ I return to this formulation in closing. For now, let us recap Kant’s ‘subtraction intuition’ call it, granting that empty regions are *co-seen* with objects *seen through* them.

For Kant, on imaginatively subtracting the properties of substance, force, sensation, colour, impenetrability etc. from the presentation of a body, *something remains*: extension. But recall that for Stumpf:

it is impossible to present space, extension and figure without any sensory qualities. I know of only a single author, who in this point openly sides with Kant.
(P&E, 10, Textor and Leech trans.)

In the *Ursprung*, Stumpf challenges the subtraction argument thus. Supposing all ‘colour’ were to be ‘subtracted’ from a region, we would be left, *not* with colourless extension, but with *black* extension. Black, however, is a colour. The subtraction *cannot* be completed! If this much is granted however, it seems that Stumpf must concomitantly deny that we see coloured expanses through light-filled empty regions, assuming, that is, that such regions are visibly ‘colourless’. But this strikes me as itself tending toward the ‘psychologically indefensible’; the concept of colourless extension is not at all unintelligible so long as the concept of co-seeing is kept in view. Without pursuing this line of thought, I instead show that Stumpf’s objection to the subtraction argument in fact gestures at a way of reconciling Stumpf with Kant, at least once *Remainder* is allowed with respect to perception, *and* once it is granted that empty regions are co-seen with the objects seen through them.

5. Reclaiming remainder and the all-embracing space

Stumpf’s insistence that the subtraction argument would lead only to the apprehension of ‘blackness’, itself a colour, is of a piece with his insistence

²³See Richardson, “Seeing Empty Space”, and Soteriou, “The Perception of Absence, Space and Time”.

that the third dimension is also perceptually given and that depth is given when a surface is visually presented. For it is arguably only on this assumption that the conceit of ‘subtraction’ might be thought to lead to blackness; what is apprehended is *a region in darkness*; there is an absence of light at that place. This assumption preserves the insistence that extension is *essentially* co-seen with colour, an assumption that I have tried to unsettle by appeal to Husserl’s descriptive phenomenology.

As I noted at the outset, however, Broad for one thinks that it is quite obvious that there can be no extended mental image that lacks sensible qualities; Stumpf says he knows of only one theorist who openly sides with Kant on this matter. Instead of ‘siding with Kant’, let me take up a more circumscribed question: What should we say about the fact that, for Kant, subtraction in imagination does *not* yield, as Stumpf suggests it should, blackness? I offer two reflections on this question in closing, both of which draw contemporary philosophy of perception and the Göttingen Husserl together.

There is reason, I think, to take Kant’s subtraction argument, which, as Stumpf emphasizes, does *not* lead to blackness, to point instead to a distinctive feature of imagined space which we might be apt to overlook. Let me explain in what sense.

The content of our sensory imaginings, unlike the content of perceptual experience, is often subject to the will – *what* we imagine is a matter of what we *intend* to imagine and our ends in imagining. This is not to say that sometimes imaginings occur unbidden – they plainly do. Nor is it to suppose that perceptual experience does not involve agency. Perceivers typically exercise agency in determining *which* objects and events fall now within their perceptual purview and ambit (I may move nearer to the yellow jug to see if it is empty). But the agency involved in active projects of imagining – such as the subtraction argument involves – is different.

Soteriou, “The Past Made Present”, frames the difference between perception and imagination with respect to agency, and the attendant consequences for content, in terms of a *temporal* difference. According to Soteriou, in enquiring after when a perceptual experience occurs “one cites the temporal location of the object of experience” (302). Thus, we might say: I see the jug *now* because the object of my experience, the jug, happens to be *now* where I am looking. This helps make salient a difference in cases of imagining.

In the perceptual case, the temporal location of the perceptual act – *when* it occurs – is the same as the temporal location of its object. The jug seen is here *now*; this is a condition on its being *seen*.²⁴ In the case of imagining however,

²⁴It might be asked: What about seen a star up there now that died in the distant past? Is that now seen? I would contend that in this case one sees an image of the star. The interested reader may consult Martin, “Sounds and Images”.

the temporal location of the act of imagining is *not* the same as the temporal location of the object imagined. The latter is typically not determinate at all.

[W]hen you imagine your friend walking towards you, you needn't thereby be imagining that her approach occurs at the actual time of your act of imagining. You could be imagining a future encounter, or you could be imagining a past encounter you wished for, and indeed the question of the time of the imagined event could be left entirely open.

(306)

Some such imaginings may not be intentional. They may be expressive – as when a wished-for past experience is imagined. The subtractive case, however, is plainly intentional. What is the significance of this fact?

As we have noted, *what* one imagines depends on one's ends in imagining – why one is engaged in that process. As with temporal location however, *where* the act of imagining occurs, and the space imagined – the imaginal space your friend traverses in walking towards you say – are also distinct. For instance, there is no visible path that connects where you are now to the imaginal space you imagine your friend to traverse at some imagined temporal present, at least in the limited sense that you do not see your friend walk through a visibly empty region that you could also now traverse to greet him. Likewise, there is no region that he is seen through. Instead, a perceptual space is *represented*. But this represented space is not the kind of space that light can fail to enter, as when night falls.

Certainly, we can *imagine* the subtraction argument to terminate in blackness, perhaps with the intention of exploring Stumpf's own rendering of it. But importantly the space thereby imagined is not one that *could have been otherwise* – namely, filled with light. This is because the content of the experience depends on the act that generates it. Thus, although in imagining your friend walking towards you, he is *represented* as seen from a particular location, you are not path-connected to him through a co-seen light-filled region, through which you see him, and through which you could move to greet him. Let us say then that the subject of the act of imagining does not *inhabit* the place from which imagined objects are represented as being perceived.

It strikes me that these reflections gesture in the direction of some form of phenomenal disjunctivism with respect to empty space. In the perceptual case, empty space is seen through: it is co-seen with the objects seen through it. *Remainder* is assumed, but without *Separateness*. In the imaginary case however, objects are only represented as seen from a particular location. Naturally, a great deal more has to be said to substantiate and make plausible these claims – a task for another occasion. But if this can be completed, as I think it can, it should I think be allowed, with Broad and Stumpf, that, with

respect to imagination (to what is thus ‘thinkable’), colour and extent *are* reciprocally dependent, while, in the case of perception, only the one-sided dependence of colour and extent or extension holds. Importantly, however, Kant’s subtraction argument endorses *both Remainder* and *Separateness*. So, is there any way to make sense of both these claims in a way that nonetheless circumvents Stumpf’s argument? I think there is.

Husserl’s descriptive phenomenology recommends that we see *the entirety of space* (2). This recalls Kant:

[W]e can represent to ourselves only one space; and, if we speak of diverse spaces, we mean thereby only parts of one and the same unique space ... these parts cannot precede the one all-embracing space, as being, as it were, constituents out of which it can be composed; on the contrary, they can be thought only as *in* it. Space is essentially one; the manifold in it, and therefore the general notion of spaces, depends solely on [the introduction of] limitations.

(A25)

Recent neo-Kantian work in the Strawsonian tradition suggests that we should likewise recognize limits or *bounds* that are sensory. In particular, it is argued that we experience our visual field as bounded and that such bounds or limitations are perceptually salient to us as *structural* features of visual experience. Further, in experiencing our visual field as thus bounded, it is said that we are aware of our visual sensory limitations insofar as it seems to us that there is more to be sensed than we are currently sensing. Richardson, “Seeing Empty Space” clarifies:

The claim is that on a cloudless day, looking out to sea on a deserted beach, it would still seem to one that there was more to be seen than one currently could see. It would still seem to you that way in outer space. One is aware of the limits fixed by the visual field in the sense that the space it delimits seems to be limited. It seems, always, as if there is more to be seen, beyond these limits ... This, perhaps, is what Kant meant by the claim that space is an ‘infinite *given* magnitude’.

(234)

Here what is *given* is a sub-region of a larger space – a region delimited by the boundaries of one’s visual field, the limitations of which one is manifestly aware of as boundaries or limits. Insofar as one is thus *aware* of them, one might say that such regions are not co-perceived, but *co-present* in experience. In *Ideas*, Husserl describes the co-present as a ‘constant halo’ around the field of perception, adding:

[I]t is not necessary that [...] objects be found directly in my field of perception. Along with the ones now perceived, other actual objects are there for me as determinate, as more or less well known, without being themselves perceived, indeed, present in any other mode of intuition. I can let my attention wander away from the writing table which was just now seen and noticed, out through the unseen parts of the room which are behind my back, to the

verandah, into the garden, to the children in the arbour, etc., to all the Objects I directly “know of” as being there and here in the surroundings of which there is also consciousness.

(§27, “Ideas Pertaining to a Pure Phenomenology”, 51–52)

For contemporary ‘structural’ theorists, however, it is not simply the *knowledge* that other regions are co-present with the sub-region of space of which one has perceptual awareness that is explanatorily relevant, but the way this knowledge manifests itself in our perceptual awareness. Insofar as we are implicitly aware that there is more to be sensed, we are also aware of our visual field as being limited or bounded. And it is in virtue of our awareness of such boundaries that *empty* regions are said to be seen. We are aware that visible objects, were they to fall within the bounds of the visual field and be located at regions that we would otherwise describe as ‘empty’, would be seen.

This might at once suggest that *Remainder* is advanced without *Separateness* – empty regions are characterized as those where visible objects would be seen should they fall within the bounds of the visual field. But subtraction, recall, is a matter of active imagining. So, is there not a way to *intend* the instructed subtractions bearing in mind the conceptual material that the structuralist theorist makes available with her notion of a structural feature? If so, can we thus ‘side with’ Kant? It is tempting to think so. For if structural features can be imagined to survive subtraction, then Kant’s *Remainder* claim can be itself re-imagined and reclaimed, and arguably without *Separateness* too, for such structural features pertain to the form of experience not to its content or matter.

I don’t have the space for words to explore this possibility, though it does suggest a conclusion in the form of a second descriptive phenomenological route to unsettling *Stumpf’s Charge*. At the same time however, I have suggested that the *Charge* invites a different (partly compatible) conclusion concerning empty space, as well the interspaces between things that in being part of visual wholes we might not otherwise conceive as ‘empty’: Empty space is co-seen insofar as we see things through it, *Stumpf’s* subtractive imaginings aside, where everything goes black.

Acknowledgements

This publication was made possible partly through the support of a grant from the John Templeton Foundation. The opinions expressed in this publication are those of the author and do not necessarily reflect the views of the John Templeton Foundation.

Funding

This work was supported by the John Templeton Foundation.

Bibliography

- Broad, C. D. "Hume's Doctrine of Space". *Proceedings of the British Academy* XLVII (1961): 161–76.
- Centi, B. "Stumpf and Lotze on Space, Reality, Relation". In *Carl Stumpf – from Philosophical Reflection to Interdisciplinary Scientific Investigation*, edited by S. Bonacchi, 69–81. Wien: Kramer, 2011.
- Claesges, U. "Editors Introduction". In *Edmund Husserl: Thing and Space Lectures of 1907*, translated and edited by Richard Rojcewicz, xiii–xxix. Dordrecht, Boston, London: Kluwer Academic Publishers, 1972.
- Fisette, D. "Stumpf and Husserl on Phenomenology and Descriptive Psychology". *Gestalt Theory* 32, no. 2 (2009): 175–90.
- Fisette, D., and R. Martinelli. *Philosophy from an Empirical Standpoint: Essays on Carl Stumpf*. Brill, 2015.
- Frasca-Spada, Marina. *Space and the Self in Hume's Treatise*. Cambridge: Cambridge University Press, 1998.
- Friedman, M. "Kant on Geometry and Spatial Intuition". *Synthese* 186, no. 1 (2012): 231–55.
- Hartimo, M. "From Geometry to Phenomenology". *Synthese* 162 (2008): 225–33.
- Hume, D. *A Treatise of Human Nature*. London: Penguin Books, 1969.
- Husserl, E. *Ideas Pertaining to a Pure Phenomenology and to a Phenomenological Philosophy: First Book: General Introduction to a Pure Phenomenology*. Translated by F. Kersten. Dordrecht: Kluwer Academic Publishers, 1983.
- Husserl, E. *Logical Investigations Volume 2*. Translated by J.N. Findlay. Edited by Dermot Moran. London and New York: Routledge, 1970/2001.
- Husserl, E. *Thing and Space Lectures of 1907*. Translated and edited by Richard Rojcewicz. Dordrecht, Boston, London: Kluwer Academic Publishers, 1972.
- Kant, I. *Critique of Pure Reason*. Translated by Norman Kemp Smith. Hong Kong: Macmillian Press, 1968.
- Katz, D. *The World of Colour*. Translated by R. B. MacLeod and C. W. Fox. London: Kegan Paul, Trench, Trübner, 1935.
- Kemp Smith, N. *The Philosophy of David Hume*. London: MacMillan, 1941.
- Kusch, M. "Psychologism". *The Stanford Encyclopedia of Philosophy*, 2015. Accessed October 2, 2019. <https://plato.stanford.edu/entries/psychologism/>.
- Martin, M. G. F. "Sounds and Images". *The British Journal of Aesthetics* 52, no. 4 (2012): 331–51.
- Milkov, N. "Carl Stumpf's Debt to Hermann Lotze". In *Philosophy from an Empirical Standpoint: Essays on Carl Stumpf*, edited by D. Fisette and R. Martinelli, 101–22. Brill, 2015.
- Onof, C., and D. Schulting. "Space as Form of Intuition and as Formal Intuition: On the Note to B160 in Kant's Critique of Pure Reason". *Philosophical Review* 124, no. 1 (2015): 1–58.
- Pradelle, D. "The Autonomy of the Sensible and the De-subjectification of the a priori by Stumpf". In *Philosophy from an Empirical Standpoint: Essays on Carl Stumpf*, edited by D. Fisette and R. Martinelli, 229–62. Brill, 2015.
- Richardson, L. "Seeing Empty Space". *European Journal of Philosophy* 18, no. 2 (2010): 227–43.
- Rollinger, R. *Husserl's Position in the School of Brentano*. Dordrecht: Kluwer Academic Publishers, 1999.

- Rosado Haddock, G. E. "Husserl and Riemann". In *Essays on Husserl's Logic and Philosophy of Mathematics*, edited by S. Centrone, 229–43. Synthese Library 384. Dordrecht: Springer Nature, 2017.
- Scheerer, E. "The Constitution of Space Perception: A Phenomenological Perspective". *Acta Psychologica* 63, no. 1–3 (1986): 157–73.
- Schuhmann, K. "Malvine Husserls' Skizze eines Lebensbildes von E. Husserl". *Husserl Studies* 5 (1988): 104–25.
- Shabel, L. "Kant's Argument from Geometry". *Journal of the History of Philosophy* 42 (2004): 195–215.
- Soteriou, M. "The Perception of Absence, Space and Time". In *Perception, Causation, and Objectivity*, edited by N. Eilan, H. Lerman, and J. Roessler, 181–206. Oxford: Oxford University Press, 2011.
- Soteriou, M. J. "The Past Made Present: Mental Time Travel in Episodic Recollection". In *New Directions in the Philosophy of Memory*, edited by K. Michaelian, D. Debus, and D. Perrin, 294–312. New York and Oxford: Routledge, 2018.
- Stumpf, C. *Erkenntnislehre*. Leipzig: J.A. Barth, 1939.
- Stumpf, C. "Psychologie und Erkenntnistheorie". In *Abhandlungen der Königlich-Preussischen Akademie der Wissenschaften*, 1–94. Berlin: Verlag der Königlich Akademie der Wissenschaften, 1891. Translated by J. Leech and M. Textor (this volume) as 'Psychology and Epistemology', doi:10.1080/09608788.2019.1709413
- Stumpf, C. *Über den psychologischen Ursprung der Raumvorstellung*. Leipzig: S. Hirzel, 1873.
- Textor, M. "Apprehending a Multitude as a Unity: Stumpf on Perceiving Space and Hearing Chords". In *Philosophy of Mind in the Nineteenth Century: The History of the Philosophy of Mind, Volume 5*, edited by Sandra Lapointe, 198–214. London: Routledge, 2018.
- Tieszen, R. "Free Variation and the Intuition of Geometric Essences: Some Reflections on Phenomenology and Modern Geometry". *Philosophy and Phenomenological Research* 70, no. 1 (2005): 153–73.