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Bolzano and Kant on the Nature of Logic

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Here, I revisit Bolzano's criticisms of Kant on the nature of logic. I argue that while Bolzano is correct in taking Kant to conceive of the traditional logic as a science of the activity of thinking rather than as that of the content of thought, he is wrong in charging him with a failure to identify and examine this content itself within logic as such. This neglects Kant's own insistence that traditional logic does not exhaust logic as such, since it must be supplemented by a transcendental logic that will in fact study nothing other than thought's content. Once this feature of Kant's views is brought to light, a much deeper accord emerges between the two thinkers than has hitherto been appreciated, on both the nature of the content that is at issue in logic and the sense of logic's generality and formality.

1. Introduction: revisiting Bolzano's criticisms of Kant

Thanks to recent work in the past several decades,[1] it has become increasingly well known that Bolzano anticipates Frege and Husserl by criticizing previous philosophers for failing to properly characterize the subject matter of pure logic in such a way that would distinguish it from other disciplines – most importantly, from psychology.[2] More specifically, Bolzano is critical of his predecessors for failing to both draw a sharp distinction between the mental activity of thinking and its contents and see that logic must begin with the examination of the latter. Since Kant is one of Bolzano's chief interlocutors throughout Bolzano's career, concerning both the nature of philosophy, in general, and the nature of logic, in particular,[3] and since Kant himself defines logic as the science of the rules of thinking in general,[4] it is unsurprising that he would serve as one of Bolzano's central targets in this criticism. Indeed, Kant is the very first author to be treated in Bolzano's initial critical 'examination of other definitions' of logic in WL, Section 7.[5]

Though almost all of Bolzano's interpreters have duly noted his criticisms of Kant (and others) in this regard,[6] there have been unfortunately very few attempts made by those more

[1] See *Danek 1975*; *Proust 1989*; *Sebestik 1992*; *Laz 1993*; *Künne 1997*; *Benoist 1999*; *Rusnock 2000*; and, most recently, *Lapointe 2011*.

[2] Husserl himself is aware of this anticipation and is quite open about Bolzano's influence upon his own views on logic; cf. the Appendix in Section 61 of the *Prolegomena* to *Husserl 1900* (p. 225f). There is no decisive evidence that Frege was familiar with any of Bolzano's writings firsthand, though see *Sundholm 2000* and *Künne 2008* (pp. 330–346), for a discussion of Frege's indirect awareness of Bolzano's thoughts.

[3] See *Sebestik 2003* and *Lapointe 2006*; compare *Lapointe 2011* (pp. 1–17), *Benoist 1999* (p. 138), and *Sebestik 1992* (p. 128).

[4] Compare B76 and Jäsche's *Logik* 9:13. These are cited in full in Section 3. I will cite Kant's first *Critique* according to the B-edition pagination, unless it is a text found only in the A edition; I will cite Kant's other works according to the *Akademie Ausgabe* volume and page number. All decisions on translation are my own, though I have consulted (and usually followed) *Kant 1991*, especially in the case of the first *Critique*.

[5] Where Kant's definition is described as 'one of the most familiar' (WL, Section 7 #1, I.23). I will cite the *Wissenschaftslehre* as 'WL', according to the volume number and pagination of *Bolzano 1837*, inserting the section number for ease of reference. Translations throughout are my own, though I have consulted, and at times followed, the partial translation (and additional paraphrases) contained in *Bolzano 1972*.

[6] In addition to those cited in the first note, see *George 1997*.

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familiar with Kant to assess the adequacy of such criticisms from the point of view of Kant's mature system. What I would like to determine in this article, then, is the extent to which Kant himself would accept that Bolzano's criticisms hit their mark.

What will we find? While Kant would surely accept Bolzano's charge – revisited in Section 2 – that he conceives of the *traditional* logic as a science of acts of thinking and understanding, Kant would reject Bolzano's claim that this is *all* that Kant thinks will be investigated within logic *as such*. In Kant's mind, this would ignore altogether his innovative thesis that the traditional logic must be supplemented by what he calls a transcendental logic. Yet while this is a thesis that lies at the heart of the first *Critique* itself, Bolzano himself makes no attempt to address it, nor do his best interpreters. What is more, as I show in Section 3, the task of this new logic, as Kant envisions it, is precisely to shift the focus away from discerning the most basic forms that the activity of thinking can take, in order to investigate instead the most basic forms that the *contents* of thinking can take – what Kant calls the 'pure concepts' of understanding. Hence, once we take Kant's transcendental logic into account, his views draw much closer to Bolzano's than either Bolzano or his interpreters recognize.

In fact, once we begin to look more closely, we will see that the agreement between the two does not stop at this abstract level, but extends to several more concrete yet crucial commitments about the part of logic that deals with such contents (transcendental logic for Kant; the *Elementarlehre* for Bolzano). More specifically, I will show, first (in Section 4), that both Kant and Bolzano accept that the subject matter of this part of logic is essentially *representational* in nature, insofar as both agree that the content that logic is about is a way of representing objects, rather than that of representing these represented objects themselves. I will show, second (in Section 5), that both Kant and Bolzano agree that this part of logic is therefore not unrestrictedly 'general' – or 'general' in the sense that Russell will later suppose[7] – since it does not study *all* objects indifferently, but only some: namely, those which can function as contents of representations. Finally, I will show (also in Section 5) that both agree that the part of logic that studies the contents of thoughts will be *formal* in Bolzano's sense of the term,[8] since it would not deal with any thoroughly individualized content, but only with classes or kinds of contents.

Since Bolzano's depiction of Kant's views on logic is fairly representative of those writing in the tradition in the philosophy of logic and semantics of which he is a key forefather – a tradition that leads to Frege and others and has been called that of 'semantic objectivism'[9] – bringing to light this key omission in Bolzano's critical discussion of Kant should have consequences beyond the circles of Bolzano scholarship itself. More generally, my hope is that the recognition of these points of convergence will help us see Kant's attempt to found a transcendental logic in a new light, since one of his core motivations anticipates this so-called semantical turn in logic in important ways and in turn makes his views on logic as a whole more continuous with these later developments.

Of course, establishing this much would still not establish that Kant and Bolzano hold completely identical views about logic – nor will it be my intention to attempt such a demonstration. Indeed, any claim to demonstrate an even partial accord must ultimately be complicated by Bolzano's rejection of the overarching theoretical context in which Kant's mature conception of logic is developed – namely, Kant's commitment to transcendental

[7] This is what Warren Goldfarb has called the 'universalist' conception of logic; cf. *Goldfarb 2001* (p. 28); see also *MacFarlane 2002* (pp. 33–34). Quotes from Russell can be found in the notes in Section 5.1. For a contemporary exponent of this view, see *Sher 1991*, who draws on remarks from *Tarski 1986*.

[8] Even if not in Kant's sense of the term 'form', see Section 5.2.

[9] For this terminology, see *Benoist 2006*.

idealism and its so-called Copernican turn. In Section 6, I will conclude by taking up the question of how these further features of Kant's views temper the prospects of a more complete rapprochement between the two. I will focus, in particular, first, on the asymmetric dependence between act and content (subjective representations and representations in themselves) that Kant appears to embrace in the course of his 'metaphysical deduction' of the elements of transcendental logic from the traditional logic and, second, on Kant's restriction of our knowledge in general to those (in some way) mind-dependent entities that he calls 'appearances [Erscheinungen]'.

2. Bolzano's reconception of logic

Though Bolzano agrees, in the abstract, with the traditional characterization of logic as the science of 'representations [Vorstellungen]' (especially concepts), propositions ('judgments [Urteilen]', especially truths), and inferences, he thinks that the traditional characterization of these items has been insufficiently nuanced. As we have anticipated already, the most important failing in this regard, as Bolzano sees it, is that previous writers have not sufficiently kept track of the difference between using 'representation', 'proposition', etc. to refer, on the one hand, to something 'subjective', such that it picks out a real or actual occurrence that has existence in time, in the mind of one and only one individual subject, and using the term, on the other hand, to refer to something 'objective', such that it picks out something that is not real or 'actual [wirklich]' or existent in time at all, but is instead something akin to what Frege calls the 'sense [Sinn]' of a linguistic expression, something which serves as the 'matter [Stoff]' of such subjective mental acts or states (cf. WL, Section 48 #3, I.217).[10]

To help separate these two senses of the word 'representation', Bolzano introduces a terminological distinction between 'subjective representations' (with 'representation' here being used in what he takes to be the 'common' sense) and what he calls representations 'in themselves [an sich]'. The term 'subjective representation' picks out acts, events, or states that exist 'for a time' and exist 'for a subject' (they are 'possessed [gehabt]' by a thinker (WL, Section 270, III.5)) and are 'actual' in the sense that they bring about 'effects'. The term 'representation in itself', by contrast, picks out the 'matter' of a subjective representation, which is not itself ever something that is 'actual' or 'existent'.[11]

Bolzano thinks that this distinction obtains not just in relation to simple objective and subjective representations, but also in relation to more complex ones. Perhaps most importantly, it obtains in relation to objective representations that come together to form 'propositions [Sätze]' or things that are either true or false (WL, Section 125, II.7). On account of this, the resulting combinations – what Bolzano in general calls 'propositions in themselves', with 'truths in themselves' being a subspecies – must also be distinguished from propositions 'thought [gedachte]' or 'held-for-true [für wahr gehaltene]', items which Bolzano now

[10] cf. WL, Section 271 (III.9). Frege himself makes a similar terminological distinction between 'subjective' and 'objective representations' in *Frege 1884*, Section 27 (37n), though the significance of this verbal parallel with Bolzano is vitiated by the fact that at that point Frege has not yet drawn a clear distinction between *Sinn* and *Bedeutung*. For a discussion on the closeness of the later Frege, by contrast, to Bolzano on the topic of the contents of mental acts, see *Künne 1997*, reprinted in *Künne 2008*.

[11] A good representative statement of Bolzano's understanding of these distinctions can be found in the following passage: 'Every representation, in this [i.e., the then common] sense of the term, presupposes a living being as the subject in which it transpires; these I name *subjective* representations or representations thought [gedachte Vorstellungen]. The subjective representation is therefore something actual [wirklich]; it has an actual existence for a determinate time, for a subject that is itself represented, and which also brings about effects [Wirkungen]. This does not pertain, however, to the *objective* representation or representation in itself [an sich] that belongs to each subjective representation, which I understand to be something that is not to be found in the realm of actuality, but something which constitutes the proximate and immediate matter [Stoff] of a subjective representation' (WL, Section 48 #3, I.217).

identifies with 'thoughts [Gedanken]' and 'judgments [Urteilen]' (WL, Section 19, I.78).[12] Like the subjective representations of which they are composed, judgments are actual in the mind of individual subjects; like the representations in themselves of which *they* are composed, propositions and truths in themselves have no actuality whatsoever but serve as the 'matter' which subject 'grasps [auffaßt]' through the subjective acts of thinking and judging (WL, Section 122, II.4; cf. WL, Section 19 I.77–78). Since propositions and truths themselves are 'objectively' connected, for example, in relations of 'deduction [Ableitung]' and 'consequence [Abfolge]', similar distinctions must be drawn between these relations 'in themselves' and the mental acts of 'inferring' that trace out such relations (WL, Section 198, II.339–341). In fact, Bolzano thinks that the same distinction must be maintained for every sort of representational content that is of interest for logic.[13]

Put in these terms, then, Bolzano's general thesis concerning his predecessors runs as follows:

> [T]he source of most of the previous errors in logic lies in the fact that people haven't taken care to distinguish sharply enough [scharf genug unterschieden] between truths thought [gedachte] and truths in themselves, propositions and concepts thought and propositions and concepts as such. (WL, Section 12 #2, I.47)[14]

Now, Bolzano himself accepts that logic as such should *eventually* treat the mental acts that correspond to such contents. Indeed, though the first and second parts of his *Wissenschaftslehre* are devoted primarily to the analysis of representations in themselves, propositions in themselves, truths in themselves, and the relations between them, the remaining three parts comprise an examination of just those mental acts that have been taken to be distinctly 'logical' by the tradition – acts such as apprehending or 'grasping [erfassen]' a representation, making a judgment, knowing or 'cognizing [erkennen]' something, drawing an inference, and so on.[15] Not only are such acts the subject matter of these parts, but Bolzano also finds it entirely appropriate to ascribe their production to specific 'powers [Kräfte]' or 'capacities [Vermögen]' that are possessed by thinking subjects.[16]

Bolzano's problem with the tradition, then, is not that they talk about such mental activities or the correlative capacities within the context of logic, but that they fail to realize that the nature of all these acts *depends on* the contents to which they are related. Perhaps most importantly, 'the cognizability [Erkennbarkeit] of truth by us humans' is something that

[12] Hence, Bolzano's use of the term 'Gedanke' must be kept distinct from the mature Frege's use of this term, since in Frege's hands, a *Gedanke* would serve as the 'matter' of what Bolzano calls a 'thought'.

[13] Bolzano gives a general taxonomy of subjective representations in WL, Section 143, II.62–63.

[14] Compare again Frege's remarks at the outset of his 1884 (p. x). At times, Bolzano is even more severe in his assessment of the failings of the tradition. In WL, Section 16, for example, Bolzano claims that not only have previous logicians not *kept track* of these distinctions, but they have altogether also *neglected* to investigate what falls on the objective side, on the side of the representational 'in itself': '[I]n all previous textbooks on logic (or at least all that I am aware of), all of these objects [i.e., representations, propositions, etc] are all treated *only* as (actual or merely possible) appearances [Erscheinungen] in the mind of a thinking being, *only* as ways of thinking [Denkweisen]' (WL, Section 16 #2, I.61; my italics; compare WL, Section 115 #1, I.537). Most other times, however, Bolzano is more measured in his assessment, claiming only that '*most* logicians' have neglected this distinction; compare WL, Section 185, II.245–246.

[15] In Part Three, Bolzano examines thinking or conceiving (understood as 'having' or 'grasping' an idea), judging, knowing, and inferring (WL, Section 269, III.3); in Part Four, Bolzano examines the activity of discovering truths (WL, Section 322, III.293); in Part Five, Bolzano concludes by presenting the rules for the composition or presentation of such truths in a genuinely scientific textbook (WL, Section 392, IV.3); cf. WL, Section 15, I.59.

[16] Bolzano uses the terms 'power' and 'capacity' interchangeably; cf. WL, Section 270 Anm 2 (III.8). In WL, Section 270, Bolzano defines the general notion of a 'power of representation [Vorstellungskraft]' as 'the ability [Fähigkeit] of our soul to produce [erzeugen] subjective representations under certain circumstances' (III.6). Bolzano then goes on to define the specific capacities of 'sensibility [Sinnlichkeit]' and 'understanding [Verstand]' in WL, Section 278, as the 'the ability of our soul to acquire [erhalten] intuitions' and 'the ability to supply itself with concepts', respectively (III.22).

'depends on [abhangen von] properties that pertain to propositions and truths in themselves', rather than vice versa (WL, Section 15 #4, I.58). But then Bolzano thinks that 'we will not be in a position' to determine anything about the *cognition* of truths (e.g. 'how new truths can be cognized out of given ones and how to test the truth of a present proposition') without 'making acquaintance first' with the properties of that which is to be cognized – that is, the *truths* in themselves and 'the manifold relations of deducibility and consequence that obtain between propositions' – along with knowing something, more generally, about the broader class of propositions in themselves and their constituents (representations in themselves) (WL, Section 15 #4, I.58).

In Bolzano's own 'doctrine of elements [Elementarlehre]', therefore, 'a very essential difference will obtain between [his] own plan and the plan of others': not only will the relevant distinctions (between the subjective and the in itself) be brought to the fore, but 'from the very start' Bolzano himself will also 'undertake to speak about representations, propositions, and truths *in themselves*' and only later take up the nature of their 'appearance' in the mind in acts of thinking, grasping, judging, inferring, knowing, and so on (WL, Section 16 #2, I.61; cf. WL, Section 115 #1, I.537 and WL, Section 185, II.245–246). This is, of course, simply to put into practice Bolzano's claim that logicians must investigate this content first if they are to ever come to a proper estimation of the nature of putatively 'logical' activity itself.

3. Bolzano's neglect of Kant's own reconception of logic

As Bolzano sees it, Kant's approach to logic places him squarely in the target range of Bolzano's criticism. This emerges quite early on in the Introduction to the *Wissenschaftslehre*. In fact, as noted above, in the section in which Bolzano aims to provide an 'examination of other definitions' of logic (WL, Section 7), the very first alternative definition that he considers is that of Kant's. In particular, Bolzano takes up the definition provided in Section I of Jäsche's edition of Kant's notes for his lectures on logic:[17] 'what we call logic is the science of the necessary laws of understanding and of reason in general – or, what is the same – the science of the mere form of thinking in general' (9:13). In **Q3** the sections of the *Wissenschaftslehre* that follow, this conception of logic is criticized on several grounds, first and foremost because '[it] assume[s] that the entirety of the objects [Gegenstände] that constitute the topic [Object] of logical enquiry belong under the concept of a *thought* [Gedanke]', where 'thought' means an act of thinking (WL, Section 12 #2, I.47). As we have seen already, Bolzano thinks that this assumption is false and that, because of this, Kant's definition leaves the topic of logic 'too narrowly delimited': for Bolzano, 'not only propositions that are *thought* [gedachte Sätze] (thoughts [Gedanken]), but also propositions *in themselves* [an sich] – whether or not they are thought by anyone – are objects over which the validity of logical laws must extend' (WL, Section 12 #2, I.47; my italics).[18]

To be sure, in addition to the passage from Jäsche's *Logic* that Bolzano himself cites, there are a good number of other texts that would seem to vindicate Bolzano's interpretation. For example, in the first *Critique*, Kant characterizes 'elementary logic [Elementarlogik]' as a science that 'contains the absolutely necessary rules of *thinking* [Denken], without which no use of the *understanding* [Verstand] takes place' and characterizes logic more

[17] This is the text that is often simply referred to as Kant's *Logic*, even though Kant had no hand in its compilation or editing. For more on the problematic status of the text within Kant's corpus, see *Boswell 1988*.

[18] The same follows for truths: 'the proper task of logic [is] not just to discover the laws that are valid for truths *thought* [gedachte Wahrheiten] (or, as one might also call them, true *thoughts* [wahre Gedanken]), but rather the laws that hold for truths *as such* [überhaupt]' (WL, Section 12 #2, I.47; my italics).

generally as 'the sciences of the rules of understanding in general' (B76; my italics). This would appear to support Bolzano's estimation, since thinking, for Kant, is an *activity* – it is 'the act [Handlung] of relating [beziehen] a given intuition to an object' (B304) – and the understanding is a *capacity* for engaging in this activity (the 'capacity [Vermögen] for thinking', B94). Indeed, it is hard to see how Kant could be clearer in his characterization of the traditional, or 'common [gemeine]', logic of his day as focused on mental activity – and so is focused upon what Bolzano would call 'subjective representations', 'judgments', and so on. As Kant writes in the A-edition Preface, 'common logic gives me an example of how the simple acts [Handlungen] of reason may be fully and systematically enumerated' (Axiv).

Kant's account of the details of the traditional logic would only seem to further justify Bolzano's criticism. Kant thinks that the simple acts of understanding and reason can be put into a system only once the pre-eminence of 'judging [urteilen]' is recognized, going so far to claim that 'we can trace back all acts of understanding', such that 'the understanding *in general* can be represented as a capacity for judging' (B94; my italics). For Kant, what is distinctive of judging is the kind of synthesis or 'combination [Verbindung]' that is involved in this activity, insofar as it brings about a certain kind of 'unity [Einheit]' (cf. B104–B105).[19] Combination or synthesis 'in the most general sense', in this context, is 'the act of putting different representations together with each other and comprehending [begreifen] their manifoldness in one cognition' (B103). The kind of unity that comes about from any one such act of 'putting together and comprehending' is something that Kant thinks is determined by which 'function' of understanding is involved in the activity, with a function itself being defined as 'the unity of the act of ordering different representations under a common one' (B93). In Kant's eyes, then, the preliminary task of the traditional logic could be redescribed as that of finding the basic set of functions that are present whenever there is synthesis of the kind that is distinctive of judging and then showing how all other acts of understanding can be understood by reference to these functions.[20] Famously (or perhaps: infamously), Kant thinks that this task has been completed by the time of the first *Critique*, with the results being encapsulated in the well-known 'Table' (B95).[21]

Now, if these were the *only* things that Kant said about logic as a science, there would be little reason to criticize Bolzano's portrayal of Kant's views. Where Bolzano goes wrong, however, is in portraying the foregoing characterization of the *traditional* approach to logic as if it does in fact present us with everything essential about Kant's *own* conception of logic as a science. The problem with this portrayal is that in many of the texts that Bolzano draws upon, Kant is *not* presenting us with the summation of his own views about logic but is instead simply trying to give a perspicuous description of what he thinks is ultimately at issue in the logic *of his day* – a description, that is, of what is distinctive of the approach to logic by his predecessors. Yet, as I will show now, Kant's main goal in presenting this picture of logic is not to *embrace* it, but rather to point out why it must be *revised*, by bringing to light a key omission on its part.

[19] Kant appears to identify the act of synthesis with that of combination in Section 15 of the B-Deduction: 'all combination [Verbindung]…is an act [Handlung] of understanding, which we would designate with the general title synthesis' (B130).

[20] In Kant's words, 'the functions of understanding can therefore be all found together if one can exhaustively exhibit the functions of unity in judgments' (B94).

[21] This Table, and the subsequent elucidations of its contents, also finally provides us with concrete examples of what Kant means by 'functions'. Two of the more well-known functions of judgment are the *categorical* function, in which two acts of conceiving are unified by one being predicated of another without any further condition, and the *hypothetical* function, in which two different acts of predicatively unifying acts of conceiving are themselves unified in a relation of 'consequence [Consequenz]' or 'entailment [Abfolge]' (B98).

That Kant does not mean to remain satisfied with the traditional approach to logic is something that is already suggested from the table of contents of the first *Critique*. What is by far the largest part of the *Critique* itself bears a title that would have suggested to his readers that it will contain a different and novel sort of logic – namely, a 'transcendental logic'. This suspicion is not disappointed, as we will see below. What is more, it is in just these sections that serve to introduce his new logic (B74–B88) that Kant takes the time to provide the characterization of the subject matter of the traditional logic that we reviewed above. But then when placed in its proper context, it becomes evident that Kant's description of the traditional logic is not meant to provide his final word on logic as such. Rather, Kant's account of the traditional logic is wholly in the service of setting up his argument for the necessity of providing a *supplement* to this logic, as well as setting out the nature of this supplementary investigation.

What is more, if we look at what Kant takes to distinguish his new 'transcendental' logic, we find him using a language that closely anticipates Bolzano's own: *unlike* the traditional logic, transcendental logic will not treat thinking as just a kind of mental *activity* but will focus on the fact that it is a mental activity that has a '*content* [Inhalt]', in the sense of having a distinctive representational 'relation [Beziehung] to an object' (cf. B79 and B83). As Kant puts it in Section II of the 'Introduction' to his new logic: while the traditional logic 'abstracts … from all content [Inhalt] of cognition' (B79), transcendental logic will be different because it will be 'a logic in which one did *not* abstract from all content of cognition' (B80; my italics).

Kant takes the necessity of such a science of the contents of thought to follow from the fact that, for Kant, thinking is a kind of 'representation [Vorstellung]'. More specifically, thinking is a kind of 'cognition [Erkenntnis]' – namely, a 'cognition through concepts' (B94). A cognition – in the broadest sense of this term[22] – is what Kant calls an 'objective perception', by which he means a 'representation with consciousness' that 'relates to an object' and 'not merely to the subject' (B376). Thinking is thus representationally relating to objects through concepts. Now, since Kant takes the representational 'relation to an object' that a representation includes to constitute its *content* (recall once again B79 and B83), it follows from Kant's definition of thinking itself that it is an activity that includes a content. In other words, having some sort of content ('relation to an object') forms part of the *essence* of thinking.[23] Yet since it is the task of logic as such to provide the analysis of the essence of thinking 'in general', logic's task will remain deeply incomplete so long as it restricts

[22] This is the sense in which both intuitions and concepts are themselves already species of cognitions (cf. B376–B377), and the sense in which cognitions can be either true or false (cf. B83, B737, and Jäsche's *Logic*, Section VII, 9:51), and so the sense in which having cognition is not equivalent to 'knowing'. Bolzano himself notes Kant's use of 'cognition' in this broad sense, though he does not approve of it; cf. WL, Section 38, I.165–166.

[23] Indeed, Kant appears to think that the possession of content (intentionality) is definitive of *all* representations: 'all representations, as representations, have their object' (A108). To be sure, thinking cannot enjoy the *same* kind of content that pertains to other forms of representing. Most importantly, it does not possess the same content as intuiting, since thinking is a representing 'mediated' through concepts, while intuiting involves instead an 'immediate' relation to its object (B377). What is more, thinking can relate us to objects that do not exist, while intuitions possess a kind of content that is dependent on the presence and existence of the object to which it relates us (cf. *Prolegomena*, Sections 8–9). (I will return to this point below in Section 5.)

This should help soften the appearance of a conflict between the foregoing account and Kant's oft cited dictum that 'thoughts without content [Inhalt] are empty' (B75), since this seems to imply that entirely empty thoughts are possible. When taken in context, however, it is clear that Kant has a particular *kind* of content in mind – namely, the kind of content that pertains to intuitions and so the kind of content that relates us immediately to existent individuals. What is more, as several of his commentators have noted, it is crucial to Kant's account of thinking about the objects of morality that it be possible that thinking on its own can possess at least some – perhaps purely intellectual content – even without any corresponding intuitions. This possibility is also what underwrites Kant's doctrine of the pure (unschematized) categories (cf. B186–B187). For more discussion, see *Ameriks 2003* (pp. 27–29).

itself to the approach delineated by the traditional logic, since this has abstracted entirely from the content of thinking. The task of logic can only be completed, therefore, by the introduction of a science of the content of thought – that is, by Kant's new transcendental logic.

Not only, then, does Kant appear to agree with Bolzano on the failure of previous logicians to deal with something essential about thinking, he even appears to agree with Bolzano on which feature in particular has gone missing. Why does Bolzano not see this? It is telling, I think, that there is an almost complete neglect of Kant's account of the ambition of transcendental logic itself in Bolzano's writings on Kant. A striking example is provided by the otherwise quite perceptive, if sharply critical, commentary on the first *Critique* that Bolzano and his collaborator Franz Prihonsky (František Příhonský) were preparing at the time of Bolzano's death, eventually published by Prihonsky alone as *Neuer Anti-Kant* ('The New Anti-Kant'). In this text, there is no discussion whatsoever of the nature or intent of Kant's proposal for a new logic.[24] Things are no better when we turn to Bolzano's masterwork itself, the *Wissenschaftslehre*. The only reference to transcendental logic contained therein is a very misleading one which occurs in a brief 'note [Anmerkung]' in Section 14. Here, Bolzano claims that the difference that Kant means to be getting at between the traditional 'common [gemeine]' logic and a transcendental one is a difference that does *not* 'pertain to the science [of logic] in itself', but rather 'to its *mere* presentation [Darstellung]' (I.56; my italics). As the foregoing account has hopefully made it clear, this radically underestimates the intent of Kant's proposal.

4. Bolzano and Kant on the nature of the content in focus in logic

In the previous section, I argued that Kant's insistence on the need for a new transcendental logic shows that he, like Bolzano, is not satisfied with the traditional or 'common' approach to logic – despite Bolzano himself not recognizing or acknowledging this in his own depiction of Kant's views. More importantly, I argued that, like Bolzano, Kant thinks that this approach must be revised due to its failure to recognize that the *content* of thinking is an equally essential topic for logic. What I would like to show now is that this agreement extends even further, into the details of the accounts of the science of the contents of thinking that both offer. In this and the following two sections, I will aim to establish what I take to be the three most important points of further agreement. In this section, I will focus on their agreement concerning the nature of the *content* that is at issue. In Section 5, I will turn to their agreement on the kind of *generality* as well as the *formality* that pertains to the doctrine of such content.

4.1. Bolzano on content

For Bolzano, the content at issue in the *Elementarlehre* consists in representations, propositions, and truths 'in themselves'. As we have seen in Section 2, the items in Bolzano's realm of the 'in itself' do not exist in time and do not have 'effects' – in Bolzano's words, 'they are not to be found in the realm of the actual [Reich der Wirklichkeit]' – nor are they dependent upon the mental activity of thinking subjects for the kind of being that they do have (they 'subsist [bestehen]'; for these points, cf. again WL, Section 48 #3, I.217–218). These are some of the key reasons behind Bolzano's other label for such content: 'objective' representations, propositions, and so on. As has been pointed out by many of his interpreters,

[24] Though Prihonsky notes that, in the 'Introduction' to the 'Transcendental Logic' of the *Critique*, Kant 'obviously intends to ground an entirely new science' (*Prihonsky 1850*, p. 78), Prihonsky tells us nothing about its standing as a *logic* in particular, or what Kant means to denote by calling it 'transcendental', limiting himself only to an expression of skepticism about whether the formulation of a new science is necessary for the goals that Kant has in mind.

these features of Bolzano's account of such items bring them quite close to the members of what Frege would later call the 'third realm' of 'sense [Sinn]'.[25]

Nevertheless, though Bolzano uses the label 'objective' here, he takes pains to emphasize that what he means to pick out here by 'content' and 'representation (etc) in itself' is *not* to be confused with the *object* represented by such content:

> This [use of 'objective'] could be interpreted as if I understood by representation in itself nothing other than the *object* to which a (thought) representation is related [sich bezieht]. I do not mean this, however, but rather I know to distinguish the *object of a representation* (as it may be abbreviated) from both the thought representation but also from the representation in itself that lies as its ground. (WL, Section 49 #1, I.219; cf. WL, Section 280, III.31)

This helps to bring out the respect in which the 'in itself' is still *representational* after all; it is a timeless (standing) way of being representationally 'related' to an object (even if it is, of course, nothing like an inner 'image').[26]

4.2. Kant on content

If we now turn to Kant, it must be admitted up front that he does not thematize either the objectivity of contents or their distinctness from the objects of representation in precisely the same way, or to nearly the same extent, as Bolzano does. Nevertheless, Kant does clearly intend the content at issue in transcendental logic to be both objective and distinct from the objects to which we can be related through such contents, as I will show now.[27]

The distinctness of the content of a thought from its object can already be seen from Kant's account of content presented above. There we saw Kant identify 'content' with the '*relation* [Beziehung] to an object' and not with the object itself (cf. B79 and B83). What is more, as Bolzano himself notes, this distinction is also required for Kant's account of true synthetic judgments.[28] Like true analytical judgments, the subject and predicate of certain synthetic judgments pick out the same object. In the judgment expressed by '$7 + 5$ is 12', for example, it is one and the same number that is referred to by the subject and the predicate. Yet despite the same object being though *of* through both terms, Kant thinks **Q2** that what is thought *in* the predicate – what is contained in it, its 'content [Inhalt]' – is not 'already thought *in* the concept of the subject'; in this way, the synthetic judgment

[25] For very helpful comparison and contrast of the two thinkers, see *Künne 1997*, reprinted in *Künne 2008*.

[26] Compare *Sebestik 1992* (pp. 134, 144–145). Though this way of construing such content does characterize many objective representations, it cannot be the whole story, since Bolzano accepts that there are representations that do not 'have' *any* object and so cannot ultimately 'relate us to an object'; these he calls 'objectless [gegenstandlos]', as opposed to those which do have objects, which are called 'objectual [gegenständlich]' (WL, Section 66 #2, I.297). Bolzano's primary example of an objectless representation is that of <nothing> (*Nichts*); others include <round square> and <green virtue>; cf. WL, Section 67, I.304. (I will use angle brackets to refer directly to the contents typically expressed by the enclosed expressions.) Bolzano thinks that such representations can clearly still serve as contents for thoughts since, in such cases, we are thinking or grasping *something*, despite not being 'related' to any object by what we grasp. The sense in which such representations are still 'representational', however, is less clear.

Kant's treatment of such cases is harder to discern. At the end of the Appendix to the Amphiboly in the *First Critique*, Kant presents a table of the various kinds of concepts of 'nothing [Nichts]', two of which he describes as being 'without object': *entia rationis* such as noumena and *entia imaginaria* such as pure space and time (B347–B348). Even so, it is arguable that Kant only means by this that such concepts do not have any 'empirically real' or 'sensibly intuitable' object – that is, they do not have an object of a certain *kind* – rather than meaning that these concepts do not have any kind of object *whatsoever*. In this regard, it is worth recalling the passage cited above from A108: '*all* representations, as representations, have objects'. Something like <round square>, by contrast, Kant would call a 'negative nothing [nihil negativum]' and would in fact take it ultimately *not* to be a concept at all: 'the concept is nothing' (B348).

[27] For a more sustained presentation of Kant's commitment to this understanding of content, see *Tolley 2011*.

[28] In fact, Bolzano explicitly identifies Kant's account of synthetic judgments as providing him with key inspiration for his (Bolzano's) own account of the distinction between content and object; cf. WL, Section 65 #8, I.288–289.

'enlarges [vergrößert] my cognition' – that is, it enlarges the initial concept of the object that I have, what functions as the subject term – by 'adding something to my concept' (*Prolegomena*, Section 2, 4:266–267). In such cases, the predicate is 'something entirely different' from 'what I think in' the subject (B10), but since the predicate's object is not ultimately different at all, this implies that the cognition's content cannot be identified with its object.

Yet not only does Kant join Bolzano in distinguishing such contents from their objects, but he also takes these contents to be 'objective' in something close to Bolzano's sense. For one thing, Kant takes the task of transcendental logic to be the identification of the basic contents of '*the* human understanding' (B91; my italics) and so not contents that belong only to any one single individual mind. The object of analysis in transcendental logic is the content that is constitutive of the '*common* [gemeine] understanding' that we *all* share *in concreto*, yet considered *in abstracto* from any single existing subject (cf. *Prolegomena* 4:369).

The objectivity of contents is also implied by Kant's account of truth. Kant thinks that truth 'pertains to' the content of representation; more specifically, it is a property that belongs to the content of a judgment when it stands in a relation of 'agreement' or 'correspondence' (*Übereinstimmung*) with its object (B83). For Kant, then, a 'truth' is a judgment whose content possesses this property. Now, Kant clearly holds that such truths (true contents) do not exist in time or belong to any one particular person. Kant makes the former point in his polemic against Eberhard, writing that truth is *not* 'a particular thing that exists in time' (cf. 'On a Discovery', 8:235). Kant makes both points in *Prolegomena*, Section 18, writing that 'if a judgment agrees with [übereinstimmt mit] an object', it is 'valid for [myself] at *all* times and *for everyone*' (4:298; my italics; cf. Section 19, 4:299). Such contents are, therefore, not the unique possession of any *individual* subject's 'empirical consciousness', but rather belong only 'in a consciousness *in general* [in einem Bewußtsein überhaupt]' (*Prolegomena*, Section 20, 4:300; my italics; cf. Section 22, 4:304).[29]

5. Bolzano and Kant on the generality and formality of logic

In addition to this overlap on the characterization of the nature of the content at issue in logic, Bolzano and Kant also share an understanding of the kind of *generality* that the logical investigation of contents possesses. As I will show in this section, for both thinkers, (pure) logic is *not* the most general or universal science of all, extending to *all* objects whatsoever. Rather, it is only the most general science of a certain domain – namely, the domain of thinkable *contents*. Hence, the domain of logic cannot be the most universal of all.

In this, both Kant and Bolzano would reject what Warren Goldfarb has called the 'universalist' conception of the domain of logic, associated most directly with Russell, according to which logic deals with the most general or 'formal' properties of *all* objects whatsoever.[30] Though both Kant and Bolzano do take logic to be concerned with general or formal features of the items that *are* in its domain, both take the relevant domain to be exhausted

[29] For further discussion of the ways in which Kant's account of logic, in general, and transcendental logic, in particular, swings free from being psychologistic, see *Hanna 2001* (pp. 73–76, 98–105). I will return to related questions in Section 6.

[30] As Goldfarb puts it, 'in the universalist conception logic sits squarely at the object level, issuing laws that are simply statements about the world. What logical laws describe are not phenomena of language or of representation' (*Goldfarb 2001*, p. 28). Goldfarb cites *Russell 1919* as exemplary in this regard, though at this point in his career, it is less clear that Russell thinks that logic is *solely* about facts (objects) and not at all about propositions or meanings in something like Bolzano's sense; see the opening remarks in the fourth of his 1918 lectures on logical atomism (cf. *Russell 1985*, pp. 79–80). Perhaps a more straightforward embrace of the view can be found in the so-called 1913 manuscript (*Russell 1984*, Chapter IX).

by representational contents. But then since not every object is itself a content of this sort, not every object will bear a 'logical form' in this sense.[31]

Finally, we will see that, as a consequence, neither Kant nor Bolzano affirms the familiar thesis that the logical modalities are the modalities with the widest scope, in the sense that if something is possible, then it is logically possible, or if something is logically impossible, then it is absolutely impossible. Since not every object is a logical object (a content), not every object is constrained by distinctly logical modalities.

5.1. Bolzano on generality and formality

As Bolzano sees it, if logic were to treat all objects 'in general', it would have to devote itself to assertions about objects that leave it undetermined which kind or species of object was at issue. Bolzano finds just this sort of view being put forward by of one of his contemporaries (Salomon Maimon), according to which, in logic, we have to think objects 'wholly indeterminate as to their inner characteristics' (cited in WL, Section 7 #5, I.27). Bolzano thinks that this view of things is clearly false, though he offers a diagnosis for why people might be drawn to this explanation of the domain of logic:

> This entire explanation likely rests on the fact that, in certain examples which are used in logic – as in the syllogism: All A are B, All B are C, therefore All A are C – it is typically said that the signs A, B, and C can signify [bedeuten] 'anything whatever [was immer]'. (WL, Section 7 #5, I.28)

Bolzano thinks that this way of putting things is not quite right:

> But this is to speak not entirely precisely enough. The signs A, B, and C can surely signify many different things, but not quite *anything* [Alles] that one wishes. They *must* designate [bezeichnen] representations, and moreover B and C must designate representations that allow themselves to be predicated of all A and B, respectively. And so we can see that the objects A, B, and C are not left *completely* undetermined,

[31] Recognizing this will also help point out an important difference between Bolzano and Tarski, though the two have often been seen as holding quite similar views of logic. In a 1966 lecture, Tarski presents an account not unlike Russell's, in that it is a distinctly object-oriented (rather than content-oriented) conception of the forms ('invariances') at issue in logic (*Tarski 1986*, especially Section 3), even if Tarski would insist on the relativization of the domain of objects in question to whatever given language is under consideration and so would not accept the idea of either a universal language or a universal domain (and so would not embrace Russell's 'universalism'). Tarski's later views on the formality of logic seem to have shifted from the earlier more syntactical orientation (one focused on the 'external structure of sentences') that is manifest Tarski's 1936 essay on logical consequence (*Tarski 1983*, pp. 409–410). But then though Bolzano's views are regularly associated with Tarski's **Q5** own, ultimately Bolzano's conception of logic departs from both vintages of Tarski's views. Concerning Bolzano's distance from the earlier more syntactically oriented Tarski, see *Rusnock and Burke 2010* (pp. 19–20), as well as *Siebel 2002*, Section 5.

A closer pair for Bolzano and Kant on this point is provided by the mature Frege. This is so, despite the fact that Goldfarb (and others) cites Frege as also embracing the universalist conception (cf. op. cit.). The description of Frege as 'universalist' **Q6** would seem to be most suitable, if at all, for the early Frege, before he makes the distinction between sense and reference. In Section 1 of *Frege 1879*, for example, Frege writes that he means to extend the algebraic strategies in mathematics to 'the more all-encompassing domain of pure thinking [das umfassendere Gebiet des reinen Denkens]'. A similar view is expressed in Section 14 of *Frege 1884*, where Frege writes that 'the most all-encompassing domain' is the one 'to which not only the actual, not only the intuitable, but rather everything thinkable [alles Denkbare] belongs'. Even so, already in 1884, we find Frege distinguishing arithmetical laws – and, given Frege's logicism, logical laws as well – from the laws of nature, due to the fact that the former laws (i) 'are not really [eigentlich] applicable to external things' but rather 'are applicable to judgments', (ii) 'do not assert a connection between natural phenomena, but rather one between judgments', and (iii) are, for these reasons 'not laws of nature', but are instead 'laws of laws of nature' (*Frege 1884*, Section 87). If we read these in light of his later writings, there is good reason to think that Frege would agree with Bolzano that logic is focused only on the abstract contents of thinking (what Frege calls 'thoughts'), their compositional structure, and their relations to truth values and so is not, in fact, 'about everything' whatsoever. For the beginnings of an argument to this effect, see *MacFarlane 2002* (pp. 33–34).

> but only with respect to some of their characteristics. (WL, Section 7, I.28; my italics)[32]

For Bolzano, then, within logic, what schematic expressions like 'A', 'B', and 'C' are intended to 'signify' or 'designate' are not the *objects* (or sets of objects) that would be *represented* by the contents substituted into the relevant propositional forms, but rather these *contents* themselves. In other words, the domain of 'objects' that are 'signified' or 'designated' by what we would now call the schematic parts of these expressions is *restricted* to those that possess the characteristic of being an objective representation.

For Bolzano, then, what elementary logic is about is the nature of a certain class of objects – namely, objective representations and propositions, their inner characteristics, and the relations into which they can enter. Propositions from logic will, therefore, be specifically *about* representations and propositions in particular – propositions like

> Representations in themselves do not have existence [Dasein]. (WL, Section 54, I.237)
> Representations in themselves are neither true nor false. (WL, Section 55, I.238)
> Every proposition necessarily contains [enthält] several representations. (WL, Section 123, II.4)
> Every proposition is either true or false. (WL, Section 125, II.7)
> Along with [the copula 'has'], two other components occur in every proposition, components that this *has* combine [verbindet] with one another in someway, as is indicated [angezeigt] in the expression: A has b. (WL, Section 127, II.9)

Note here again that what the expression 'A has b' is intended to indicate, within logic, is not anything like the general structure of something at the level of the *objects* being represented (something like a state of affairs or fact), but rather something at the level of the *contents*, something about the general structure of a proposition.[33]

This part of Bolzano's views comes out even more clearly when he takes up the question of whether logic is 'formal' and, if so, what its forms are the forms *of*. Bolzano recognizes that, after Kant, many have talked about the formality of logic in many ways, but Bolzano takes the notion of form that is the most important and the most perspicuous for logic to be one that is closely connected to the idea of a 'genus [Gattung]' or class. One of the most important tasks of logic, thinks Bolzano, is 'to describe procedures that would apply simultaneously to several truths or, what amounts to the same, to a whole *genus* [Gattung] of truths' (WL, Section 12 #2, I.48). Because of this, however, Bolzano thinks that 'at least in its theorems (though things can be different in its examples), logic never considers any *single* completely determinate proposition, that is, one whose subject, predicate, and copula have been completely fixed, but instead considers equally a whole *genus* of propositions' (WL, Section 12 #2, I.48; my italics). What Bolzano takes this to mean is that logic will instead 'consider at the same time all propositions that, if *some* of their components are held fixed, the remainder can be read in this or that way' (WL, Section 12 #2, I.48). Thus, a 'single proposition' like the one expressed by 'some humans have a white skin color' is one that 'can occur in logic only as an example but certainly not as the exclusive object of one of its own theorems' (WL, Section 12 #2, I.48). What Bolzano thinks *can* occur as 'the object' of one of its theorems, however, is 'the whole genus of propositions to which

[32] In fact, Bolzano takes the explanation to be in even worse shape: 'I do not understand [begreife] how it can be said that in logic we think objects 'wholly indeterminate as to their inner characteristics'. For if we think an object as totally indeterminate, we cannot assert *anything* about it' (WL, Section 7, I.28; my italics).

[33] On this point, compare *Danek 1975* (pp. 154, 252).

this one belongs – namely, the genus of propositions which the expression some A are B comprises [umfaßt]' (WL, Section 12 #2, I.48).

Now, the 'property [Beschaffenheit]' of having some component part or parts that organize the remainder of parts in one and the same way is, therefore, a property that Bolzano thinks 'many several propositions have in common [gemein] with each other', and he thinks that it is exactly this sort of property that most merits the name of 'the *form* common [gemeinsam] to these propositions' (WL, Section 186 #2, I.251–252; here Bolzano also calls it the common 'figure [Gestalt]').[34] What the schematic expressions like 'Some A are B' ultimately signify, for Bolzano, then, is a whole genus or class of propositions that share the same form, that is, share the property of having parts unified in a certain manner. It is this whole genus or class of propositions that is 'the object' of certain theorems of logic.

Crucially, for our purposes, in no case is 'the object' of the theorems of logic a genus or class that includes *more* than representations or propositions, let alone the universal class of *all* objects. Here, as above, the object in question – what a logical theorem is about – is rather a class of a very specific kind of object. Nor are objects *besides* representations or propositions said to 'have' or 'be contained under' this or that logical form.[35]

The same point emerges, finally, from Bolzano's discussion in the 'Note' of WL, Section 16, of Hegel's attempt to include the doctrine of 'being [Seyn]' within logic. While Bolzano applauds Hegel's attempt to broaden logic beyond its hitherto 'one-sided' concern with the doctrine of thought alone (in the 'subjective' sense of mental activity), he takes Hegel to go entirely too far in the other direction: 'instead of progressing from thinking to what is the next highest [Nächsthöhere], to propositions and truths in themselves … one is passed off to the *laws of things in general* [Dinge überhaupt]' (I.67–68). The implication again is

[34] This way of putting things allows us to see how Bolzano's conception of form in logic is supposed to be a species of the more generic notion of form identified by Bolzano as the 'manner' in which an object is composed: 'With objects that are composed of several parts, we can distinguish between two kinds of properties: those which if asserted would indicate only which parts the object is composed of, without determining the manner of this composition [Zusammensetzung] itself; and those which if asserted would treat this manner itself. We can call the parts out of which an object is comprised, taken together, its *matter*, and the manner of its combination [Art ihrer Verbinding] its *form*' (WL, Section 81 #1, I.389). As we have seen, in the case of distinctly logical objects, Bolzano points more frequently to a 'property' common to a set of representations or propositions and does not always say anything explicitly about this property needing to concern a common 'manner' in which each individual representation or proposition is composed. In practice, however, all the examples that Bolzano gives of logical forms do in fact highlight a manner of combination of certain parts by way of a designated part (usually at least the concept <has>, as in 'A has b') – a manner of combination, furthermore, that would be common to all of the concrete (determinate) representations that arise from the various possible ways of filling in the non-designated part(s).

[35] There are two complications that must be noted with respect to Bolzano's discussion of logical form. The first is the fact that at times Bolzano identifies forms, not with the relevant common properties, but instead with the *genera* or classes formed by the items having such properties: 'if we now call such genera [Gattungen] of propositions general *forms* of propositions' (WL, Section 12 #2, I.48). The second is that, at other times, Bolzano identifies the form at issue with the schematic *expression* itself, rather than with the property of having either a certain sort of composition or the genus or class formed by the items that share this property: 'I speak about representations, propositions, and inferences that are contained under this or that form; by form I understand a certain combination of words or signs [Zeichen] in general, through which a certain species [Art] of representations, propositions, or inferences, can be presented [dargestellt]. Hence for example when the letter A signifies [bedeutet] any representation of an object, and when the letter b signifies some representation of a property, I call the expression [Ausdruck]: 'A has b' the general form of such propositions, since all propositions can be presented under this combination of signs' (WL, Section 81 Anm 2, I.393). In fact, in the very same sentence cited above, in which Bolzano initially suggests that it is the genus that should be called the form, he then adds the following parenthetical correction: 'actually, only the sign [Bezeichnung], i.e., the oral or written *expression* [Ausdruck] itself – e.g., the expression: some A are B – should be called such a form' (WL, Section 12 #2, I.48). This ambivalence might stem from Bolzano's recognition that talk of 'holding fast' certain parts and 'varying' others, when applied to items in the realm of the representational 'in itself', can be figurative at best, since here the items that are being said to 'vary' do not exist in time; cf. WL, Section 69 Anm 2, I.314–315. For some discussion, see especially *Sebestik 1992* (pp. 195–200); compare *Rusnock 2000* (pp. 131–132).

clearly that logic does not treat 'things in general', of what is absolutely 'highest', but only the realm of the representational 'in itself'.

For Bolzano, the science of things or objects 'in general' and their 'forms' is not logic, but rather *ontology*. Examples of propositions from this discipline would be 'a property which an object has, this object has', and 'a property which an object has is not lacked by this object' (WL, Section 45, I.202).[36] To be sure, propositions of ontology might themselves use expressions that look very similar to those of logic, in the sense of involving signs for generality ('A', 'b', etc.), but ontology will use these signs with a different kind of signification, since it will use them to designate or signify classes of objects and properties *represented* by whatever representations fill in the schematic parts of such propositional forms, rather than using them (as Bolzano does in the quotes given above) to designate or signify the classes of *representations* (or resulting propositions) themselves.

Given the fact that the domain of ontology is wider than that of logic, it will be this science – and not logic – that Bolzano takes to treat modalities with the widest scope. To be sure, everything that is logically possible – everything that is a thinkable content – will be absolutely possible, since it will be something (an object in its own right). Though everything that *is* thinkable is itself an object (a 'something'), Bolzano takes there to be objects that are *not* 'thinkable'. This is because only objective representations and propositions are 'thinkable [denkbar]': the domain of 'the thinkable [das Denkbare]', or 'everything that can be thought [Alles, was gedacht werden kann]', consists in '*merely* representations and propositions (both true and false)'; '*no* other things belong to the thinkable' (WL, Section 99, I.461; my italics).[37] From this, Bolzano concludes that the 'domain [Gebiet] of the concept of the thinkable … contains far less than the domain of the representation something' (WL, Section 99, I.461).[38] But then the things that do not belong to this domain (which, incidentally, includes everything 'actual [wirklich]') should not be said to be 'logically' possible, since they are simply not of the right sort to be governed by the laws of logic itself.[39] Yet since not everything is a content, not everything is a proper subject of logical laws. Conversely, something's not being a possible content of a subjective representation (of course) in no way speaks against its absolute possibility or impossibility.

5.2. Kant on generality and formality

Turning now to Kant's transcendental logic, we find the very same commitments being embraced: only contents are the subject matter of this logic, not all objects; this logic only takes as its immediate object whole classes – what Bolzano called 'forms' – of contents,

[36] In fact, Bolzano takes these two propositions to express the true sense of the principles of identity and contradiction, respectively, and takes it, furthermore, to be 'necessary to situate them in ontology (as they have already been presented by Wolff)' because 'these propositions express a property that pertains to *things in themselves* [Dinge an sich selbst]' (WL, Section 45, I.202; my italics). This speaks against Edgar Morscher's claim that Bolzano takes the principles of identity and contradiction, as he conceives of them, to be distinctly 'logical' propositions; cf. *Morscher 2003* (pp. 158–159). This also requires that we qualify Sebestik's contention (in *Sebestik 1992*, p. 21 and *Sebestik 2007*, Section 3) that Bolzano 'never' applies the label 'in itself' to anything other than contents.

[37] Prihonsky notes a similar restriction by Bolzano of the immediate objects of 'cognition [Erkenntnis]' to be truths, rather than of the objects represented by truths: '[I]t should not be forgotten that the object of knowing [Kennen] is first of all *only truths* and not actual, existing objects. The latter are knowable [erkennbar] for us *only by means of* [mittels] *the truths* that we know' (*Prihonsky 1850*, p. 230; my italics). On this point, compare *Sebestik 1992* (p. 134) and *Laz 1993* (p. 119).

[38] Here, some care must be taken, since even though Bolzano does think that being thinkable is a *property* of every representation and proposition in itself, he does not take the concept <thinkability> to be *contained* in the concepts <representation in itself> and <proposition in itself>, cf. WL, Section 23 #1, I.92; for this reason, he rejects the idea that the concept of thinkability can be used as the *principle* for demarcating the domain of logic.

[39] This connects up with a further argument Bolzano gives in Section 99 for the restrictedness of the domain of the thinkable, on the basis of contents *not* being found in 'the realm of the actual', since anything that does belong to this realm *cannot* be a content (cf. WL, Section 49, I.219).

not any fully concrete content; and the laws that govern thinkable contents are not laws that govern all objects.

For Kant as for Bolzano, only representational relations to objects can function as contents of mental acts, not objects simpliciter or as they are 'in themselves'. This is true even of our most direct and 'immediate' cognitive relations to things in intuitions and perceptions (B377), as here what we immediately grasp is not the thing simpliciter, but rather the 'appearance [Erscheinung]' of the thing: 'appearances are the *only* objects that can be given to us immediately' (A108–109; my italics). This is all the more true in our acts of thinking, where we are 'related' to objects even more 'mediately', 'by means of [vermittelst]' of their bearing certain 'marks [Merkmale]' that can be 'common [gemein]' to several objects (B377). But this just further drives home the point that was made in the previous section: in neither case is what is 'contained in' the mental act the object itself. Rather, it is a way of being related to an object – that is, a 'content'. This also makes good sense of why, when Kant introduces the new 'transcendental' logic of the contents of thinking, he describes its subject matter as consisting of '*concepts* that are *related* to objects' and of 'the *understanding* and *reason* insofar as they are *related* to objects' (B81; my italics). Like Bolzano, then, Kant does not identify the subject matter of this logic with things or objects in general; rather, transcendental logic investigates our '*concepts* of an object in general' (B128; my italics).[40]

Kant also shares Bolzano's view that the proper object of the logical investigation of contents is not any concrete, fully individual content, but rather only features which are common to whole classes of concrete contents, that is, what Bolzano called 'forms'. This is obscured somewhat by the fact that Kant himself uses the term 'form' for decidedly different purposes within logic. More specifically, Kant uses it to pick out a feature of the activity of thinking, considered in abstraction from its content (objective representation) – that is, what serves as the focus of the traditional logic – and so something more closely connected to what Bolzano would call a subjective representation.[41] As we have seen (in Section 3), Kant thinks that the traditional logic has been concerned with a specific dimension of what is left after this abstraction – namely, the kind of unity that characterizes the thinking itself, qua mental activity of synthesis, or what was called above the 'function' of understanding at work in a given act of thinking. Kant then identifies these functions with what pertains to the 'form' of thinking, in light of their analytical separability from the content of thinking. In his words,

> [The traditional] logic abstracts … from all content [Inhalt] of cognition, i.e., from any relation [Beziehung] of it to the object, and considers only the logical form in the relation of cognitions to one another, i.e., the form of thinking in general. (B79)
> If we abstract from all content [Inhalt] of a judgment in general, and attend only to the mere form of understanding in it, we find … the function of thinking [Denken]. (B95)

In Kant's hands, then, what these functions are forms *of* is nothing other than mental activity; recall Kant's definition of 'function' given above: it is the 'unity of *an act* [Handlung]' (B93). Since the traditional logic restricts its focus to the functions of thinking, Kant thinks that it can be characterized as 'a merely formal logic' in this sense (B170). In Kant's

[40] Both Kant and Bolzano agree that any content of an act of thinking can itself become an object of a distinct act of thinking (with a distinct content, one that 'relates' us to the initial content). Bolzano's name for representations whose objects are further representations is 'symbolic representation'; cf. WL, Section 90, I.426–427. Compare this with Kant's claim that 'all representations … can themselves be objects of other representations in turn' (A108). Since every thinkable content is itself a kind of (abstract) object, it is itself the object of the most general science of all – namely, the science of objects (or being) as such, what traditionally has gone under the name of ontology – and so is beholden to ontological laws.

[41] On this compare *Danek 1975* (p. 154).

lexicon, 'form' is, therefore, used in contrast altogether with what both Kant and Bolzano call the 'content' of thought.

Despite this difference of terminology, however, when Kant turns away from the traditional logic to characterize the subject matter of transcendental logic, he shows that ultimately he means to pick out the same thing as Bolzano's 'forms' – namely, features which are common to whole classes of contents (objective representations). This is what lies behind Kant's designation of the specific contents at issue in transcendental logic by the Aristotelian label of the 'categories' of understanding. These contents deserve to be called the basic categories of understanding because they will be involved in *every* act of thinking: 'by these concepts *alone* can [we] understand something in the manifold of intuition, i.e., think an object for it' (B106). Kant takes the categories to be the 'pure *elementary* concepts [reine Elementarbegriffe] of understanding', as he calls them in *Prolegomena*, Section 39 (4:323; my italics), because they are concepts 'under which *every* other concept must be brought' (4:325; my italics).[42] Note that, as with Bolzano's logical forms, what fall under Kant's pure concepts are all further *concepts* (further contents), not all objects.

In fact, Kant too thinks that if we have a thought whose contents only include the pure concepts, without any additional content being specified – for example, without the provision of a corresponding intuition to determine which individual object (or objects) is at issue – then we are not having a thought that represents any single determinate object:

> [T]hrough a pure category, in which abstraction is made from any condition of sensible intuition as the only one that is possible for us, no object is determined [bestimmt], rather only the thought of an object in general [Object überhaupt] is expressed in accordance with different *modi*. (B304)

But then since we are not even determinately representing any single object, we are also not entertaining any fully determinate, individualized content. Rather, we are indeterminately considering what is common to a whole class of ways of relating to objects – namely, the relevant contents (pure concepts). Hence, when Kant says that 'transcendental logic … is limited [eingeschränkt] to a determinate content [Inhalt], namely that of pure apriori cognitions alone' (B170), we can see that he is actually expressing a commitment to the formality of transcendental logic, in Bolzano's sense of 'form': transcendental logic is limited to the indeterminate content constituted by the pure concepts or categories.

Finally, because transcendental logic focuses only on the contents of thought – and only ultimately on the most 'basic' or 'elementary' ones at that – rather than on all objects in general, Kant also agrees with Bolzano that we should take care not to confuse the laws of the contents of our thoughts with those that govern whatever other objects there might be. In particular, we should not take these laws to directly govern the objects represented via such contents as these objects are 'in themselves'. For this reason, Kant also agrees that we should not take the modalities that pertain to these contents to be the same modalities that circumscribe the possibility or impossibility of things in themselves. In fact, Kant is perhaps even more explicit than Bolzano on this point, insofar as Kant explicitly rejects the idea that the modalities at issue in transcendental logic should be understood in terms of some determination of objects in themselves, defining them instead in terms of modes of

[42] In the first *Critique*, Kant depicts the involvement of the categories ('pure concepts') in the contents of every other act of thinking (indeed, in every other concept) by describing them as 'the primary concepts [Urbegriffe]', the 'true ancestral or root concepts [Stammbegriffe]', and the 'original and primitive [ursprüngliche und primitive] concepts', such that the remainder of the concepts of understanding are 'derivative [abgeleitet]' from the categories, with all further concepts thereby forming a 'family tree [Stammbaum]' (B107–B108).

representational relations that objects can bear to us in thought – hence, defining them in terms of certain determinations of the *contents* of thinking:

> The categories of modality … do not augment the concept to which they are ascribed in the least, but rather express only the relation [Verhältniß] to the faculty of cognition. […] No further determinations in the object itself are hereby thought; rather, it is only asked: how is the object itself (together with all its determinations) related to the understanding [zum Verstande sich verhalte] …? (B266)

For Kant, then, the categorial modalities at issue in transcendental logic (being thinkable, and so standing in a possible relation to understanding) neither are intrinsic determinations of any object nor add to the content of the concept to which they are applied. Rather, they characterize the way in which such content (relation to an object) is itself related to our capacities for cognition.[43] Conversely, as with Bolzano, there is no claim that every object (thing) must be thinkable to be a thing. Instead, throughout transcendental logic, Kant takes us to be delimiting *only* the 'requisites and criteria of all *cognitions* of things in general', rather than the 'transcendental predicates of *things*' (B113–114).[44]

6. Recalibrating the distance between the two thinkers

In the previous sections, I have drawn out several points of agreement between Kant and Bolzano on the nature of logic. These points have gone unrecognized because they emerge only when we take into account – as Bolzano does not – the details of Kant's attempt to supplement the traditional logic's focus on the activity of thinking with a science that would focus instead on the contents of thought, the science that Kant calls 'transcendental logic'. My hope is that, once recognized, the significance of a common core for each individual thinker's overall system can be elaborated in more detail, though pursuing this will have to wait for future work.

Now, even if the foregoing account is correct as far as it goes, it would not, of course, establish that Bolzano and Kant agree on *all* points concerning logic. Nor has it been my intention to establish such a far-reaching claim. In conclusion, then, let me highlight what I take to be the two most important points of disagreement that will remain between the two thinkers. The first concerns Kant's attempt in the first *Critique* to provide what he calls a 'metaphysical deduction' of the basic contents of thought (pure concepts) from the basic forms of thinking, since this might be taken to suggest that Kant accords an important sort of priority or independence to the activity of thinking over its content – an order of priority or independence which Bolzano, by contrast, appears to invert. The second concerns Bolzano's rejection of Kant's commitment to there being clear limits to our knowledge, a rejection made on the grounds that, once formulated, the relevant propositions show the putative commitment to be ultimately incoherent.

[43] Compare *Wood 1978* (pp. 44–50), and *Hanna 2001* (pp. 85–86, 241–242).

[44] This can also be seen from Kant's treatment of the principle of contradiction, which, in effect, goes in the opposite direction from Bolzano's we have seen above. When Kant finally enunciates this principle in the Transcendental Logic, it initially sounds as if he, like Bolzano, will take it to be a principle governing things directly, presenting it as 'to no *thing* [keinem Dinge] pertains a predicate which contradicts it' (B190; my italics). Immediately before and after this, however, Kant identifies the contradiction at issue as one that pertains to '*cognitions* [Erkenntnisse]' and '*judgments* [Urteile]', with the result of contradiction being that a *cognition* 'annihilates itself [sich selbst vernichten]' (B191), not that the *thing* represented does so. (Compare as well *Prolegomena*, Section 52b (4:341).) Hence, the impossibility (annihilation) is one that governs attempted *acts of predicating* (thoughts) rather than *predicates of objects* directly. It is only with this interpretation in mind that Kant could say that this principle 'belongs merely to logic' (B190); otherwise he, too, should opt for Bolzano's classification of the principle as ontological.

6.1. The reason for the interrelation of act and content

At the outset of the transcendental logic, Kant sets out to provide what he later calls a 'metaphysical deduction' (B159) of the basic forms of contents of thinking (the pure concepts or categories) from the basic forms ('functions') of acts of thinking (cf. B91–B116). What Kant means by 'deduction' here is not altogether clear. Some of Kant's readers take this label to imply that he means for the nature of the contents of thinking to be ontologically or metaphysically dependent upon the nature of acts of thinking. Yet if we look more closely at what Kant says about the relation between the two elements, it is hard to see how he could mean to affirm any asymmetric dependence of the nature of contents upon the nature of acts. For one thing, what Kant actually says the metaphysical deduction shows is that there is a 'complete coincidence [Zusammentreffung]' between the two sets of elements, due to the fact that *both* have a common 'origin [Ursprung]' (B159). This does not fit well with the idea that Kant means for one to serve as an entirely independent ground for the other (or vice versa).[45] For another, it has been well documented that Kant himself actually had to do a good amount of rethinking and reorganizing of both the system of the traditional logical functions and his new system of transcendental logical categories, in order to arrive at the 'coincidence' he suspected there should be – Kant's own later reconstruction of this process notwithstanding (in, e.g. *Prolegomena*, Section 39).[46]

Now, it is worth noting that Bolzano, in fact, agrees with Kant that there will be a kind of correlation between the structures of subjective representations and judgments and those of objective representations and propositions.[47] Even so, it remains true that what Kant ultimately takes to be the common origin ('birthplace [Geburtsort]') of both the elements of the logic of acts and the elements of the logic of contents is our 'capacity for understanding [Verstandesvermögen]' (B90) and hence that Kant finds the roots for both elements in one of the capacities of mind we all share in common. What is more, in an oft cited passage, Kant does surely make it sound as if he takes the relevant contents to be 'introduced' into thinking *by way of* acts of understanding:

> The same understanding … and indeed *by means of* [durch] the very same *actions* [Handlungen] through which it brings the logical form of a judgment into concepts … also *brings* a transcendental content [Inhalt] into its representations … on account of which they are called pure concepts of the understanding that pertain to objects apriori. (B105; my italics)

It is at this point that Bolzano will demure. First of all, not only does Bolzano himself not identify a ground or origin for the aforementioned correlation between forms of subjective and objective representations, but he also does not ever identify any ground or origin for the

[45] Compare *Bird 1973* (pp. 103–109).

[46] Compare *Kemp Smith 1918* (pp. 186–201), and *De Vleeschauwer 1965* (pp. 75–82).

[47] Bolzano thinks that for every part of a complex objective representation or proposition that is 'had' by ('appears' to) a subject, there is a corresponding part of a complex subjective representation or judgment. Here, is Bolzano affirming this in the case of judgments: 'As every proposition is composed of parts, which resolve themselves [sich auflösen] as representations, so too must every judgment, as the appearance [Erscheinung] of a proposition, be composed of parts; moreover, however many objective representations can be distinguished within the proposition that serves as the matter of the judgment, the judgment itself must contain exactly this many subjective representations corresponding to them' (WL, Section 291 #3, III.109); the extension to sub-propositional complex representations follows readily enough. This is in addition to the other more generic correlations that Bolzano takes to obtain between items in each domain. We have already seen that Bolzano thinks that for every subjective representation, there is an objective representation which serves as its content (WL, Section 271, III.8). Bolzano thinks, furthermore, that for every species of objective representation, there is a species of subjective representation (WL, Section 276, III.18-19). Finally, Bolzano thinks that each subjective representation must have the same object as its objective representation (WL, Section 49 #1, I.219).

basic forms of objective representations and propositions themselves.[48] More importantly, there is every reason to think that Bolzano would reject any attempt to ground anything about these forms in any mental capacity whatsoever.[49]

Of course, the absence of any explanation here by Bolzano would, in turn, leave many inspired by Kant unsatisfied, insofar as it leaves unanswered questions not only about why the forms of such contents are the way they are but also about why there *is* such a realm of contents in the first place. Why should every object be represented through an infinite number of contents and – in particular – why should there be contents that represent nothing at all (no object), if not *because* of the possibility of there being minds to apprehend them? Is it really clear that the very concept of such content does not include within itself a reference to mental activity, such that the content is genuinely intelligible apart from this connection? In any case, this clearly marks a point on which the two thinkers go separate ways.

6.2. The absence of ontological knowledge

The second key point of continuing disagreement stems from Kant's more general commitment to transcendental idealism, with its restriction of our knowledge to mental contents – more specifically, appearances – and concurrent rejection of *any* knowledge of objects as they are in themselves. Here, Kant would seem to go much further than Bolzano. Though both Bolzano and Kant share the restriction of the subject matter of *logic* to the contents of thinking, Kant ultimately restricts the subject matter of *any and every* possible form of theoretical 'knowledge [Wissen]' to appearances rather than to things 'in themselves'; concerning the latter, there can only be 'belief or faith [Glaube]' (Bxxx). In fact, Kant seems to go further than Bolzano already with respect to logic itself, insofar as a crucial aspect of Kant's critique of rationalist metaphysics is his denial that any (ontological) knowledge of objects that *is entailed by* the (transcendental logical) knowledge we possess of our concepts of objects.[50]

Bolzano, by contrast, thinks that the sort of restriction asserted by Kant leads the entire position quite quickly into incoherence. Bolzano thinks that 'the Kantian doctrine contradicts itself' when it 'deprives us of all cognition of supersensible things, even of our own soul' (WL, Section 315 #5, III.247). This is because 'the proposition that supersensible objects may not be synthetically judged by us is itself a synthetic judgment about them' (WL, Section 315 #5, III.247–248).[51] More generally, Bolzano thinks that any 'determinations of limits' to our knowledge that take the form: 'every object that falls under the representation A is uncognizable [unerkennbar] for us' – along with any claim that 'we are able to cognize no truth of the form: A is X' – are all entirely 'absurd [ungereimt]' (WL, Section 314 #5, III.235). For one thing, Bolzano thinks that 'the assertion that we are not able to cognize anything about these objects is itself already a judgment about them', which means that 'it would therefore ultimately be a contradiction to say of some object that one cannot know it at all, i.e., not be able to make even a single judgment about in accord with the truth' (WL, Section 314 #5, III.235). For another, Bolzano takes it to be obvious that 'we know [wissen] something about each object, at least that which it, as an object as such [als Gegenstand überhaupt], has in common with every other object' (WL, Section 314 #5,

[48] In fact, Bolzano's best interpreters conclude that, for Bolzano, this realm of the semantical 'in itself' simply forms a separate, sui generis, 'autonomous' or 'independent' domain (for 'autonomy', see *Sebestik 1992*, p. 133; for 'independence', see *Rusnock 2000*, p. 93).

[49] Compare *Sebestik 1992* (p. 128).

[50] For example, in his own copy of the first edition of the *Critique*, Kant adds the following marginal note to the passage cited above in which he affirms the idea that no determinate contents are treated within transcendental logic, because no objects are 'determined [bestimmt]' through a 'pure category' (B304): 'no object determined; ergo: nothing *known* [nichts erkannt]' (23:48; my italics).

[51] Compare *Prihonsky 1850* (pp. 232–233).

III.235). As the latter counter-claim suggests, Bolzano believes us to be in possession of 'settled theorems [entschiedene Lehrsätze]' in ontology, even if he is willing to concede to Kant the fact that we have not similarly 'settled' the question of the 'correct grounds' for such theorems (WL, Section 315 #6, III.248).[52]

Yet despite this difference on the possibility of ontological knowledge in general, it is less clear that Bolzano would find problems with Kant's resistance to the idea that *logic*, by focusing on *its* object (content), by means of *its* principles and theorems, can somehow produce such ontological knowledge *out of itself*. In fact, there are reasons to think that Bolzano would be quite sympathetic here. For one thing, Bolzano does not think that there is any isomorphism between the parts of contents and the parts of objects represented by such contents (cf. WL, Sections 63–64). What is more, Bolzano thinks that the core feature of every proposition (and hence, of every truth) – namely, the concept of having (i.e. the copula) – is something that has *no* correlate in the realm of objects: in WL, Section 78, Bolzano claims explicitly that the concept of having belongs to the class of representations 'that have no object at all' and so are 'objectless [gegenstandlos]' (I.360).[53] Hence, more would need to be said to show that Bolzano's rejection of Kant's general restriction of our knowledge to contents actually entails any disagreement about the restriction of our knowledge *within logic*.

However they are resolved or adjudicated, what the discussion of these two points brings to the fore is that Bolzano and Kant will still remain at some distance from each other, even after the portions of Kant's views on logic that have been neglected are finally brought to light. What is more, there are many further, quite incisive criticisms that Bolzano makes of other details of Kant's doctrines – far more than the few general criticisms that we have reviewed above.[54] It must also be acknowledged that there are many further, quite brilliant advances that Bolzano makes over Kant in the logical investigation of the basic kinds of contents and of the core logical relations between contents – perhaps most notably, by providing a sharp definition of the concept of 'deducibility [Ableitbarkeit]' and as well as a much more fruitful reconstruction of what Kant seems to have had in mind by his doctrine of analytical judgments.[55]

My goal here has not at all been to obscure or deny the value of these advances or more focused criticisms. Rather, by challenging key assumptions about the adequacy of Bolzano's

[52] In addition to the examples provided at the passage cited here, we can also recall Bolzano's characterization of the principles of identity and contradiction (touched on above) as 'ontological' (cf. WL, Section 45, I.204–205).

[53] Compare *Künne 1997* (p. 217); *Künne 2008* (p. 172).

[54] In WL, Section 7, for example, Kant's definition of logic as 'the doctrine or science of thinking' is also criticized for being 'much too broad [weit]', since, among other things, it leaves out the fact that logic is only interested in those laws of thinking 'which accord with the goal [Zweck] of our capacity or cognition' – namely, 'the cognition of truth' (I.23–24). Nor does the criticism let up here, as throughout the text Bolzano takes Kant to task for failing to provide sufficient definitions of the elements of logic as well. In WL, Section 22 #4, for example, Bolzano criticizes Kant's own attempt to define 'proposition [Satz]' as a 'problematic judgment', since this ignores the fact that 'even a problematic judgment posits something [setze etwas]' which is not itself identical to the act of judging at issue (I.90–91). In WL, Section 23 #13, Bolzano criticizes this definition further on the grounds that while the concept of a judgment might be linked to the concepts of 'cognition [Erkenntnis]' and 'consciousness [Bewußtsein]', reference to such concepts in the definition of a proposition (in itself) is altogether out of place (I.102). Bolzano extends this criticism even to Kant's discussion of 'intuitions [Anschauungen]', insofar as Kant fails to distinguish between the conditions for subjective intuitions – that is, the 'having' in one's mind of an objective intuition – and the intuition 'in itself' that is 'had' ('grasped') in such cases; cf. WL, Section 77 #2, I.344–347. Finally, though (as we have noted above) Bolzano accepts that a correlation obtains between forms of acts (subjective representations) and forms of contents (objective representations), like many of Kant's readers, Bolzano is also quite critical of Kant's attempt in the metaphysical deduction to align the particular set of basic forms of acts of thinking ('functions') that Kant identifies with his preferred set of categories; cf. WL, Section 119 #2, I.561–564. See as well *Prihonsky 1850* (p. 80f).

[55] On Bolzano's reconception of deducibility, see *Siebel 1996*, 2002; *Rusnock 2000* (pp. 143–154); *Rusnock and Burke 2010*; and *Lapointe 2011* (Chapter 6). On Bolzano's advance on Kant concerning analyticity, see *Rusnock 2000* (pp. 132–140); and *Lapointe 2011* (Chapter 5).

engagement with Kant, my hope has been to help bring out the extent to which, when viewed from a somewhat abstract though still quite informative point of view, the positions of the two thinkers do come much closer to each other than Bolzano or his readers have suspected – and, in this way, bring new light to the views of both figures in the process.

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