

## Chapter 2

# From Real Opposition to the Problem of Change<sup>1</sup>

### 2.1 Logical Opposition and Real Opposition

As the preceding chapter has shown, the conception of phenomenal reality that Kant defends in the Anticipations of Perception finds its empirical application in the dynamism of the *Metaphysical Foundations of Natural Science*. In Kant's dynamism, agreement between "realities" is not constituted on the lines of a relation between non-contradictory concepts, but rather on the model of a relation between opposed forces that establish an equilibrium. The meaning of this concession and its philosophical implications cannot be understood without considering the central function that the evolution of Kantian thought assigned to the distinction between two forms of opposition: logical opposition (between concepts) and real opposition (between forces).<sup>2</sup>

Since the pre-critical period, and particularly since his 1763 essay, "Attempt to Introduce the Concept of Negative Magnitudes into Philosophy" (*Versuch, den Begriff der negativen Größen in eine Weltweisheit einzuführen*), Kant consistently insisted on the importance of this distinction: "Two things are opposed to each other if one thing cancels that which is posited by the other. This opposition [Entgegensetzung] is twofold: it is either *logical* through contradiction or it is *real*, that is to say, without contradiction" (AA 2:171).<sup>3</sup> The first form of opposition generally occurs when two predicates are related as *A* and not-*A*, in which case the

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<sup>1</sup> Kant's term, *Veränderung* is normally translated either as "change" or as "alteration." I have used both terms interchangeably throughout the text.

<sup>2</sup> Paul Guyer affirms the relation between the Anticipations of Perception and the distinction between logical opposition and real opposition: "Indeed, the whole argument of anticipations might be viewed as an illustration of a distinction between logical and real opposition with which Kant had been concerned since his 1763 essay, *Negative Quantities*. Precisely because reality and negation in objects, are not themselves logical contradictions but rather real states which may be in physical opposition, the differences between them may admit degrees" (Guyer. *Kant and the Claims of Knowledge*, 199).

<sup>3</sup> English translation from Kant. "Attempt to Introduce the Concept of Negative Magnitudes into Philosophy." 211.

position of the one necessarily entails the logical cancellation of the other: “A body which is in motion is something; a body which is not in motion is also something (*cogitabile*); but a body which is both in motion and also, in the very same sense, not in motion, is nothing at all” (AA 2:171).<sup>4</sup> Attempting to think a body as moving and not moving at the same time results in a vacuous and impossible thought; that is, a contradiction.

The second form of opposition, real opposition, is characterized by the opposition of two determinations (i.e., two predicates) of a thing, but not through the principal of non-contradiction: “Here, too, one thing cancels that which is posited by the other; but the consequence is *something* (*cogitabile*). The motive force [Bewegkraft] of a body in one direction and an equal tendency [Bestrebung] of the same body in the opposite direction do not contradict each other; as predicates, they are simultaneously possible in one body. The consequence of such an opposition is rest, which is something (*repraesentabile*)” (AA 2:171).<sup>5</sup> Whereas the result of a logical contradiction is a concept that negates itself, destroying precisely that which makes it a concept, real opposition leads to a clearly determined physical state called “rest” or “equilibrium”: “rest is, indubitably, possible. From this it is also apparent that real opposition [Realrepugnanz] is something quite different from logical opposition or contradiction, for the result of the latter is absolutely impossible” (AA 2:86).<sup>6</sup>

Logical opposition is expressed by the conflict between *A* and not-*A*. In contrast, “[m]athematicians make use of the concepts of this real opposition in the case of mathematical magnitudes. In order to indicate them, the mathematicians designate them by means of the signs ‘+’ and ‘-’” (AA 2:172).<sup>7</sup> These signs can represent how “one of these magnitudes cancels an amount which is equal to that which is posited by the other, and the consequence is zero” (AA 2:174).<sup>8</sup>

In the first form of contrariety, the attempt to establish a logical connection between *A* and not-*A* leads to a nonsensical result, *nihil negativum, irrepraesentabile*. In the case of real opposition, the result of the conflict between *A* and *-A* is a perfectly determined magnitude, 0, which is no less definite than a positive or negative number; it is a *nihil privativum, repraesentabile*:

Suppose that there are +8 units of capital and -8 units of passive debt; no contradiction is involved in attributing them to the same person. However, one of these magnitudes cancels an amount which is equal to that which is posited by the other, and the consequence is zero (AA 2:174).<sup>9</sup>

In this case, the opposites are not set against each other according to the rules of formal logic, which does not allow them to coexist in a single subject, but rather on

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<sup>4</sup>Ibid.

<sup>5</sup>Ibid.

<sup>6</sup>English translation is from Ibid.

<sup>7</sup>English translation from Ibid., 212.

<sup>8</sup>Ibid., 214.

<sup>9</sup>Ibid.

the basis of an opposition between magnitudes: “for example, falling is not to be distinguished from rising merely in the way in which ‘not a’ is distinguished from ‘a’ . It is rather the case that falling is just as positive as rising. It is only when the former is combined with the latter that it contains the ground of a negation” (AA 2:175).<sup>10</sup>

Attempting to clarify the meaning of this form of opposition, Kant refers to various physical phenomena, the importance of which was already discussed above, introducing the difference between extensive and intensive magnitudes:

Now, my contention is this: whenever the temperature is raised or lowered, in other words, whenever the degree of heat or coldness is changed ... [t]here are always two poles, so to speak, of warmth to be found: one of them is positive, that is to say, its temperature is higher than the previous temperature of the body in question, while the other pole is negative, its temperature, namely, being lower than the previous temperature of the body, in other words, it is cold (AA 2:186).<sup>11</sup>

The difference between the two poles of heat, as I have shown, tends to diminish and cease when the heat is uniformly distributed and the difference in temperature vanishes and is = 0 . The concept of “temperature” reduces the difference between “heat” and “cold,” which appear to intuition as two different sensible “qualities,” to a mere difference in degree that is distinguished in respect to an intermediate point of indifference. Relative to this point of indifference, “positive heat” and “negative heat” can be defined as the tendency to cede or acquire heat, that is to say only by the opposite “senses,”<sup>12</sup> + and –: “Absolute coldness is unknown in nature, and if it is discussed, then it is understood only in a comparative sense” (AA 2:185).<sup>13</sup>

Even though the expressions “positive heat” and “negative heat” certainly have not found their place in the terminology of scientific knowledge, the opposition between positive magnitude and negative magnitude has acquired an essential function in other areas:

<sup>10</sup> Ibid., 215. On the concept of real opposition and on the mathematical debate in Kant’s time on negative magnitudes, see Wolff, Michael. *Der Begriff des Widerspruchs eine Studie zur Dialektik Kants und Hegels* (Königstein: Hain, 1981), 62–82.

<sup>11</sup> Kant. “Attempt to Introduce the Concept of Negative Magnitudes into Philosophy.” 224.

<sup>12</sup> In mathematics it is usual to distinguish between “magnitude” (or length), “direction,” and “sense” (i.e., orientation along a given direction) of a vector. Kant normally uses the term *Richtung* to indicate both direction and sense. He recognizes that this could be confusing, however. In the *Metaphysical Foundations of Natural Science*, he observes: “A body moving in a circle changes its *direction* continuously, ... yet one says that it moves always in the same *direction*” (AA 4:483; my emphasis; English translation from Kant. “Metaphysical Foundations of Natural Science.” 196.). The first use of the term “direction” is in accordance with the modern one. In the second case, Kant asks instead “what is ... the *side* towards which the motion is directed” (AA 4:483; English translation from Kant. “Metaphysical Foundations of Natural Science.” 196.), that is, in what *sense* the body is moving (dextrorotatory or levorotatory). In a passage of the *Danziger Physik*, Kant distinguishes more clearly between *Direktion* and *Gegend* (see AA 29: 113), that is to say, between “direction” and “sense.” The usual translation of “Gegend” by “regions,” especially in the title of Kant’s pre-critical writing, *Von dem ersten Grunde des Unterschiedes der Gegenden im Raume* [Concerning the Ultimate Foundation of the Differentiation of Regions in Space], is completely misleading.

<sup>13</sup> Kant. “Attempt to Introduce the Concept of Negative Magnitudes into Philosophy.” 223.

It has long been known that magnetic bodies have two extremities which are opposed to each other and which are called 'poles'. Of these two poles, the one repels the like-named pole in another such body, and attracts the other. However, the celebrated Professor Aepinus showed in his treatise on the similarity between electrical and magnetic energy that electrified bodies, when treated in a certain way, likewise display two poles, of which he called one the *positive* pole and the other the *negative*. (AA 2:185)<sup>14</sup>

In this case as well, a difference in degree is present and needs to be filled as in the phenomenon of heat. As when a hot and a cold body are put in contact, the first is hot compared to the other because it tends to cede heat; when a conductor connects a plate of copper with a plate of zinc, the potential of the copper is higher than that of the zinc in the sense that +2 is greater than -2, and the two charge each other, the one positively and the other negatively. Two different electricities, such as vitreous electricity opposed to resinous electricity, are not involved, but only one varying distribution of the quantity of electricity, a different degree of concentration of them. When a metallic wire joins the two conductors, the difference is rapidly nullified, according to a procedure similar to that of the passage of "heat" between two bodies with different temperatures, until the difference in potential is = 0. The "absolute quantity" of electricity or heat (that is, heat and electricity as substance) is meaningless here since their quantity is only determined through the difference in temperature or potential, the difference between the + and the - and the conservation of their algebraic sum.

Further below, I will address the extraordinary influence of this conception on Romantic *Naturphilosophie*. Here, it is important to emphasize that the dualism between logical opposition and real opposition is reaffirmed in the *Critique of Pure Reason* itself. In Kant's appendix "On the Amphiboly of Concepts of Reflection" [*Von der Amphibolie der Reflexionsbegriffe*],<sup>15</sup> the two types of opposition become the distinguishing mark between *realitas phaenomenon* and *realitas noumenon*, the focus of the previous chapter:

If reality is represented only through the pure understanding (*realitas noumenon*), then no opposition between realities can be thought ... Realities in appearance [das Reale in der Erscheinung], on the contrary, can certainly be in opposition with each other (B320–21).

<sup>14</sup> Ibid., 224. On Aepinus's doctrine in a philosophical context, see Moiso, Francesco. "Magnetismus, Elektrizität, Galvanismus" in Schelling, HKA 1 (Ergänzungsband zu Werke 5 bis 9. Wissenschaftshistorischer Bericht zu Schellings naturphilosophischen Schriften 1797–1800), 4:254–. For more about Aepinus in general, see: Home, Roderick Weir. "Aepinus, the Tourmaline Crystal, and the Theory of Electricity and Magnetism," *Isis* 67, no. 1 (1976): 21–30.

<sup>15</sup> Among contributions dedicated specifically to the *Amphiboliekapitel*, see Broeken, Renate. *Das Amphiboliekapitel der "Kritik der reinen Vernunft": Der Übergang der Reflexion von der Ontologie zur Transzendentalphilosophie* (Köln: Mosebach, 1970); Parkinson, George Henry R. "Kant as a Critic of Leibniz: the Amphiboly of Concepts of Reflection," *Revue Internationale de Philosophie* 35 (1981): 302–14; Hessbrüggen-Walter, Stefan. "Topik, Reflexion und Vorurteilskritik: Kants 'Amphibolie der Reflexionsbegriffe' im Kontext," *Archiv für Geschichte der Philosophie* 86, no. 2 (2004): 146–75; Hess, Heinz-Jürgen. "Zu Kants Leibniz-Kritik in der 'Amphibolie der Reflexionsbegriffe'." In *Beiträge zur Kritik der reinen Vernunft: 1781–1981*. eds. Ingeborg Heidemann and Wolfgang Ritzel, 201–32. (Berlin: de Gruyter, 1981); Funke, Gerhard. "Systematische Voraussetzungen der Leibniz-Kritik Kants im 'Amphibolie-Kapitel.'" In *Akten des 4. Internationalen Kant-Kongresses*. ed. Gerhard Funke. (Berlin: de Gruyter, 1974).

The understanding only knows conflict as the conflict between concepts and is thus constrained by the form of contradiction. If reality, as I have shown, defines something by distinguishing it from something else ( $A$  is  $A$  and thus is not not- $A$ ), then the negation that sets them against each other ( $A$  is not- $A$ ) is a meaningless assertion, signifying “the removal [Aufhebung] of everything” (B603). The assertion does not simply mean that a certain thing is not, but that it is not a thing at all because “the contradiction entirely annihilates and cancels them” (B190): “That of which the thought contradicts itself is absolutely impossible, that is the negative nothing <*nihil negativum*>. Reality is something; negation is nothing” (AA 28:543).<sup>16</sup> Logical nothingness does not only indicate the absence of something. It annihilates all content of thought. Consequently, “the impossible is not a negative concept. It is not even a concept” (AA 17:532; Refl. 4399):

Contradiction [Widerspruch] is the connection of two opposed predicates in a contradictory manner [*contradictorie*], that is to say, logically opposed [*logice*] in a subject. Contradiction results in a *nihil negativum*:  $a$  and not- $a$  together. Real opposition [der reale Widerstreit] is the uniting of two real elements in a subject [die Verbindung zweyer realgründe in einem Subjekt]. One element removes [aufhebt] the consequence of the other, and the result, which is not a *nihil negativum*. (AA 17:267; Refl. 3720)

In this way, the difference between *realitas phaenomenon* and *realitas noumenon* can be established not only, as in the Anticipations of Perception, from a “subjective” point of view, that is to say, referring to sensation, to the action that phenomenal reality can exert on the subject (the effect of which is precisely sensation [see B34]). Instead, the difference can be established “objectively,” in a manner of speaking, by considering the difference between the reciprocal relation that exists between phenomenal realities and the relations that can be established between noumenal realities. The latter, which can be thought through pure understanding, do not admit any opposition since logical opposition equals annihilation of the thought itself and of its contents: “to no subject does there belong a predicate opposed to it <*nulli subjecto competit praedicatum ipsi oppositum*>. The negative thing <*nihil negativum*> is that which cannot even be thought” (AA 28:543).<sup>17</sup> In conflict, *realitates phaenomena* admit a conflict that produces something perfectly determinate = 0: “Only the reality found in phenomena can be opposed to another reality and the negation can concord with a reality” (AA 18:63; Refl. 5823). While the first case involves an opposition between concepts, here the conflict is constituted on the model of an opposition between forces:

the relation of opposition between these forces is, like  $+a$  in confrontation with  $-a$ , a relation of real opposition [der realen Entgegensetzung], not one of logical opposition [nicht der logischen Opposition] like that between  $A$  and not- $A$ . Otherwise it would not be a relationship between forces (AA 21:190.2).

Consequently, “logic” does not offer any sufficient instrument for mastering phenomenal reality, or, as one could say, “physical” reality. The principle that “realities (as mere affirmations) never logically oppose each other is an entirely true

<sup>16</sup> English translation from Kant. Lectures on Metaphysics, 310.

<sup>17</sup> Ibid.

proposition about the relations of concepts, but signifies nothing at all ... in regard to nature" (B328-9). In physical reality, the agreement between realities is not based on non-contradiction (the possibility of placing two concepts together without their contradicting each other), but on the model of equilibrium (the possibility of placing two forces together without one prevailing over the other):

Real opposition always obtains  $A - B$ , i.e., where one reality, if combined in one subject with another, cancels out the effect of the latter, which is unceasingly placed before our eyes by all hindrances and countereffects in nature, which, since they rest on forces, must be called *realitates phaenomena* (B329).

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A passage from the *Lectures on Metaphysics* (*Vorlesungen über die Methaphysik*) effectively summarizes what has been said until now:

In all that of which one is conscious, one distinguishes something real and something negative. Negation is opposed to reality. An opposite is either logical or real. When someone denies something, then this is a logical opposite <oppositum>. Reality and negation cannot be posited in one and the very same thing. *Real* opposition consists in the connection of two real grounds, of which one ground cancels the consequence of the other. Among realities there can be an opposition. A reality is opposed not only to negation, but rather also to another reality that cancels the consequence of the other. (AA 28:559–)<sup>18</sup>

The importance of this formulation of the problem is most evident in Kant's own recognition of his radical departure from the Leibnizian-Wolffian tradition: "Leibniz took the appearances for things in themselves, thus for *intelligibilia*, i.e., objects of the pure understanding" (B320). Consequently, he "compared the objects of the senses with each other as things in general, merely in the understanding" (B327), that is, only by means of concepts. As is typical of dogmatic philosophy, Leibniz presupposes that this connection can be translated into objective reality such that "if a certain distinction is not to be found in the concept of a thing in general, then it is also not to be found in the things themselves" (B337).

Considering the relation between reality and negation from this point of view, "merely affirmative concepts cannot, in combination, effect any cancellation" (B338). Two concepts in which one is the negation of the other cannot coexist. In the unity of a concept, that which makes it something, a "reality", rather than nothing, a "negation," is its non-contradictoriness. According to the metaphysical tradition, a "negative thing," implying that it should be and not-be at the same time, is a simple contradiction since "an object *must* have *something* positive, and *can* have many positives or perfections" thus a "merely negative thing <*ens mere negativum*>, i.e., something which would have nothing positive at all, is a direct contradiction, for even the being of the thing already involves something positive" (AA 29:1001).<sup>19</sup>

The possibility of no longer conceiving the relation between reality and negation on the model of the relation between  $A$  and not- $A$ , but on that of  $+A$  and  $-A$ , radically

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<sup>18</sup> Ibid., 324.

<sup>19</sup> Ibid., 469.

changes this perspective. “Things” are no longer at stake, but rather “the relationship between certain things” (AA 2:175). From this point of view, a “negative relation” is simply the consequence of the notion itself of “relation,” which implies the ability of following two opposite directions: “What is pain? Reality or negation? It is just as real as pleasure ... The two realities are in a relation of simple opposition [Widerspiel]” (AA 18:502). For this reason, one can say that “pain is not ... a negation, but rather a reality that is opposed as the contrary to another reality” (AA 28:420–).

A “negative reality” is a logical contradiction if reality is conceived through pure understanding because “a concept that contains only affirmations [lauter Bejahungen] does not contain anything negative [nichts Verneinendes]: a proposition that we have never doubted” (B338n). However, “[w]e do not always require true reality [wahre realitaet], in which no negation (*non esse*) can be thought; but from the beginning we are dealing with *realitatibus phaenomenis*” (AA 18:361; Refl. 5814); that is to say, with those realities characterized by real opposition. “Reality is not merely opposed to negation, which is logically impossible, but also to another reality” (AA 28:421). They are considered positive or negative in respect to each other, but both should be subsumed under the same title as “realities”:

in the sensible *intuition* in which reality (e.g., motion) is given, there are conditions (opposed directions), from which one had abstracted in the *concept* of motion in general, that make possible a conflict [Widerstreit], which is certainly not a logical one, that produces a zero = 0 out of that which is entirely positive; and one could not say that all reality is in agreement just because no conflict is to be found among its concepts. (B338, emphasis mine)

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The idea that an entity is something “whose concept involves something positive or that which can be conceived by us provided what we conceive is possible and involves no contradiction” (GP 7:319),<sup>20</sup> represents at least one aspect of the Leibnizian tradition. The question whether this point of view can exhaust Leibniz’s conception must of course be left aside here. One can anyway surely affirm that Kant recognizes in this tendency to eliminate all oppositions the characteristic trait of Leibniz’s thought. In Leibnizian metaphysics “being is apparently thought as constituted by infinite ‘perfections’ or ‘realities’ that do not imply anything negative and that are composed without creating any contradiction. No entity, as such, can admit any negation without annihilating its own possibility based on non-contradiction. As I have shown, from the perspective of dogmatic metaphysics, ‘reality’ should be understood as “that which is simply positive in things” (AA 20:415), as a certain degree of being and perfection. From critical philosophy’s point of view, however, “it is always a serious mistake to conflate the sum of reality with the magnitude of perfection ... [D]ispleasure is just as positive as pleasure, but who would call it a perfection?” (AA 2:198).<sup>21</sup>

<sup>20</sup> English translation from Leibniz, Gottfried Wilhelm. *Philosophical Papers and Letters*. ed. Leroy E. Loemker (Chicago: University of Chicago Press, 1956), 2:602.

<sup>21</sup> English translation from Kant. “Attempt to Introduce the Concept of Negative Magnitudes into Philosophy.” 2366.



The opposition between positive and negative magnitudes unequivocally distinguishes transcendental idealism from Leibnizian-style metaphysics.<sup>22</sup> According to Kant, from Leibniz's point of view:

all things metaphysically considered, would be compounded of reality and negation, of being and nonbeing, as in Democritus everything in the universe is made up of atoms and void; ... and thus out of all so-called metaphysical evil, in combination with good of that kind, he created a world of mere light and shadows, without considering that, in order to put a space in shadow, a body must be present, and hence something real that prevents the light from penetrating into the space. According to him, pain would be grounded merely on lack of pleasure, vice merely on the want of virtuous motives, and the rest of a moving body merely on the absence of moving force, since by mere concepts reality = a can be contrasted, not to reality = b, but only to privation = 0 – there being no consideration of the fact that in intuition, e.g. of the outer, *a priori*, namely in space, an opposition of the real (the moving force) to another real, namely a moving force in the opposite direction, can be combined in one subject, ... and that the *a priori* knowable result of this conflict of realities might be negation. But for this purpose he would assuredly have had to assume mutually opposing directions, which can be represented only in *intuition* and not in mere *concepts*. (AA 20:282–, emphasis mine)<sup>23</sup>

This long passage from “What Real Progress Has Metaphysics Made in Germany since the Time of Leibniz and Wolff” effectively summarizes Kant's image of Leibniz's philosophy<sup>24</sup> and how the relation between reality and negation can be considered the distinctive feature of critical thought as opposed to dogmatic metaphysics.

The allusion to problems related with theodicy, which cannot be exhaustively treated here, highlights the novelty of Kantian philosophy in respect to a long tradition that dates back to Augustine<sup>25</sup> at least and that stretches to Leibniz.<sup>26</sup> Evils for

<sup>22</sup> See Gueroult, Martial. *Leibniz. Dynamique et Metaphysique* (Paris: Aubier-Montaigne, 1967), 169n.

<sup>23</sup> English translation from Kant. “What Real Progress Has Metaphysics Made in Germany since the Time of Leibniz and Wolff?”, 373.

<sup>24</sup> This also shows that Kant's thought is based on a simplification. Kant's depiction of Leibniz seems to be employed as a typical-ideal model considering that in the *Critique of Pure Reason* itself, Kant cautiously notes, “Herr von Leibniz did not exactly announce this proposition [the reduction of the principle of sufficient reason to that of identity] with the pomp of a new principle,” but rather, “his successors expressly incorporated it into their Leibnizian-Wolffian doctrine” (B329). In fact, Leibniz is far from wanting to reduce the principle of sufficient reason to that of identity, a position that should be attributed to Christian Wolff and his successors instead.

<sup>25</sup> “[W]hatever is, is good. ... [E]vil ... is not any substance.” Augustine. *The Confessions of Saint Augustine*, tr. Edward Bouverie Pusey (New York, NY: P. F. Coillier and Son Company, 1909), 115.

<sup>26</sup> Leibniz himself admits the idea of “real opposition,” giving evil its own reality, in an early letter to Arnold Eckhard from 1677: “In our discussion, when you seemed to have said that what is perfect is that which is purely positive, I countered with the example of pain, which is no more the privation of pleasure than pleasure is the privation of pain” (GP I, 221); on the importance of this point, see Poma, Andrea. *Impossibilità e necessità della teodicea: gli “Essais” di Leibniz* (Milan: Mursia, 1995), 183. However, Leibniz seems to abandon this framework in later years, affirming the position well expressed by the ancient motto *bonum ex causa integra, malum ex quolibet defectu* that he cites in his *Essais de Théodicée* (see GP 6:122). Thus, one can accurately say that, for



Kant are not just “consequences of the limits of created beings” (B329) that merely result from the absence of positivity. Rather, evil is just as “positive” reality as the good and is actively opposed to the latter: “Evil can have originated only from moral evil (not just from the limitations of our nature)” (AA 6:43).<sup>27</sup>

Kant breaks the traditional connection between *ens* and *bonum* (*ens et bonum convertuntur*). “Being” is not the same as the “good,” because even evils have, in a manner of speaking, their ontological consistency, and “the not good can also be called positive evil” (AA 6:23n).<sup>28</sup> Schelling’s *Of Human Freedom* (*Untersuchungen über das Wesen der menschlichen Freiheit*) is a particularly significant example of this change of perspective in post-Kantian philosophy. Schelling simply adopts and radicalizes this fundamental achievement of Kant, criticizing the Leibnizian idea (see SW 6:369) that evil consists of “limitation, lack, privation,” that is, that it can be reduced to “a *malum metaphysicum* or the negative concept of creaturely imperfection” (SW 6:367). Kant replaces Leibniz’s conception of evil with a “real opposition [reellen Gegensatz]” (SW 6:370) to the good that is founded “on a positive inversion or overturning of the principles” (SW 6:366).<sup>29</sup>

These few comments clearly show how the relation between reality and negation represents a central aspect of Kantian-inspired philosophy in respect to Leibnizian metaphysics. For Kant, and the idealist tradition indebted to him, the conflict between opposed forces that establish an equilibrium, and are thus both real, is the adequate model for representing the agreement between phenomenal realities in contrast to simple non-contradictoriness, which excludes every conflict and opposition. Opposites do not simply exclude each other, avoiding any reciprocal contamination that would introduce contradiction in them and threaten their very being. Rather, opposites can cohabit, like two weights that, despite moving the arms of a balance in opposite directions, create an equilibrium at the same point. Post-Kantian philosophy, as I will show in more detail, insistently resorts to precisely this metaphor of equilibrium, and to the lever in particular, to indicate the unity of opposed elements that cohabit, reciprocally limiting each other.

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Leibniz, “*bonum metaphysicum* always consists of a positive, however limited this may be, whilst *malum metaphysicum* can consist of a lack, a deprivation, a limitation” (Martin, Gottfried. *Leibniz: Logik und Metaphysik* (Köln: Kölner Universitätsverlag, 1960), 135). Martin, Gottfried. *Leibniz, Logic and Metaphysics*, The Philosophy of Leibniz (New York: Garland, 1985), 108. For more details on this point, see Heinekamp, Albert. “Zu den Begriffen realitas, perfectio und bonum metaphysicum bei Leibniz.” In *Akten des ersten Internationalen Leibniz-Kongresses: Hannover, 14–19. November 1966*. (Wiesbaden: Steiner, 1968), 207–22.

<sup>27</sup> English translation from Kant, Immanuel. *Religion within the Boundaries of Mere Reason and Other Writings* (Cambridge: Cambridge U. Press, 1998), 48.

<sup>28</sup> *Ibid.*, 64.

<sup>29</sup> For more details on the evolution of Schelling’s thought concerning the problem of evil, see Riconda, Giuseppe. “Filosofia moderna e problematica del male nelle *Untersuchungen über das Wesen der menschlichen Freiheit* di Schelling,” *Paradosso* (1993): 9–28.

## 2.2 Quantitative and Qualitative Opposition

One of Kant's reflections serves as a good summary of what has been said to this point: "The reality in phenomena (experience) can conflict with each other, but not *in noumenis* because in these the *oppositum* of reality [realitaet] must be thought *a priori*. For this reason, the opposition can only be logical, that is, negation" (AA 18:238; Refl. 5578). If realities are distinguished as *A* and not-*A*, thinking of something that is both *A* and not-*A* is impossible. For any two contradictorily opposed predicates in a given concept, "only one can apply to it" (B599). That something is neither *A* nor not-*A* is also inadmissible since "among all possible predicates of things, insofar as they are compared with their opposites, one must apply to it" (B599–600). In real opposition, however, a third that is indifferent to the opposition can be thought; a third that is neither  $+A$  nor  $-A$ , or equally, both  $+A$  and  $-A$ : "Between two logical opposites <logice opposites> there is no third (<tertium non datur; G: *gibt's kein Drittes*>); but between two real opposites <realiter opposites> there is a third (<tertium datur; G: *gibt es ein Drittes*>) (AA 28:549).<sup>30</sup> Whereas from a logical point of view, "[r]eality and negation cannot be posited in one and the very same thing" (AA 28:559–);<sup>31</sup> in real opposition, reality and negation, positive and negative, can be thought together: "there is no third between two *logice opposites*, but between *realiter opposites* ... there is the neutral point = 0" (AA 18:105; Refl. 5164).

The sharp alternative, *A* or not-*A*, is valid for *noumena*. In phenomena, however, one can think of the difference between two opposites as that between  $-A, 0, +A$ . Between  $+A$  and  $-A$ , one can always think of a difference that, no matter how small, allows one to choose a point to signify zero: "*inter realitates phaenomena datur tertium*" (AA 17:447; Refl. 4182). *Noumenal* reality, that is to say, the logical possibility of something, its non-contradictoriness, "has no degree, for we can cognize it only according to the principle of contradiction <*principio contradictionis*>" (AA 28:562).<sup>32</sup> As I have shown, no mediation between reality and negation is possible from a logical point of view. Either something is possible, that is, free of contradiction and negativity; or it is impossible, contradictory, negative: *tertium non datur*. The Anticipations of Perception intend to demonstrate that phenomena, in contrast, can admit different degrees between reality and negation that can "increase or decrease to infinity or also disappear through  $a - a$ " (AA 22:533.11).<sup>33</sup> Reality and negation, conceived through pure understanding, "are distinguished

<sup>30</sup> Schelling, Friedrich Wilhelm Joseph von. *Philosophical Investigations into the Essence of Human Freedom*, SUNY Series in Contemporary Continental Philosophy (Albany: SUNY, 2006), 315–6.

<sup>31</sup> *Ibid.*, 324.

<sup>32</sup> *Ibid.*, 327.

<sup>33</sup> "In as much as the real is present as intensive, a continuous connection between reality and negation necessarily exists, such that negation is not opposed logically but really" (Haas. "Kants Qualitätsschematismus." 163).

from each other in terms of quality or they are *disparate*” (AA 17:630s.; Refl. 4666), excluding each other. In contrast, reality and negation given in intuition limit each other reciprocally, which is only possible because negation is only distinguished from reality by degree: “limitation [limitation] has degrees up to zero, thus reality as well” (AA 18:363; Refl. 5821).

Consequently, logical opposition is *qualitate* whereas real opposition is simply *quantitate*: “*oppositum* can be a qualitative or a quantitative *oppositum*. The first is contradiction; the second is the *quantum* = 0 or the limitation [Einschränkung]. Thus, in the formula, rest can be regarded as a movement = 0; pure <extension in space> as an extension = 0, unchanging duration [Unveränderte Dauer] as an alteration = 0” (AA 18:365; Refl. 5831). Negation in phenomena, far from contradicting the concept of reality, should only be thought as a reality that disappears, as the limit of a process of diminution: “negation ... is in respect to quantity or in respect to quality. In the first case, it is a disappearing *quantum* and nothing other than a mere limitation that is not opposed to reality in a contradictory fashion ... [I]n the second case, it is *negatio oppositionis*” (AA 18:362s; Refl. 5816). Distinguished through quantity alone, the opposites conserve their reciprocal affinity as opposed within a greater qualitative unity that contains both of them: “a point is the limit [Grenze] of a line, yet is nonetheless a locus in space” (AA 4:354)<sup>34</sup> because in the point “one finds the same quality of presence [Gegenwart], and the point is a disappearing space” (AA 18:362; Refl. 5816). Therefore, the vanishing of the quantity does not threaten the unity of the quality, “every *negatio* is merely *limitatio* – that is, quantitative *oppositum* or rather *negatio repugnantiae* – or qualitative *oppositum*” (AA 18:360; Refl. 5815).

In contrast to the absolute opposition of contradictory concepts in which they have nothing to do with each other, real opposition always presupposes a *tertium comparationis*, something that associates the opposites and in respect to which they can be compared in terms of more or less: “Now nothing can be combined with a motion, which diminishes it or destroys it, except another motion of precisely the same movable in the opposite direction” (AA 4:497).<sup>35</sup> A real opposition between movement and heat, for example, is meaningless because “the difference is not yet an opposition if not in a subject. Two different things are not necessarily opposed, but two things are opposed if they make a unity out of that which makes them different. For example, two bodies that move towards each other” (AA 15:189; Refl. 458).

A body launched upwards that is moving at a uniformly slow rate, upon reaching the vertex of its course, will move at a uniformly fast rate, and vice versa. The two motions are identical (a typical example of a reversible phenomenon), that is, they are described according to the same law. The only difference is that which

<sup>34</sup> English translation from Kant. “Prolegomena to Any Future Metaphysics that Will be Able to Come Forward as Science.” 144.

<sup>35</sup> English translation from Kant. “Metaphysical Foundations of Natural Science.” 209.

is expressed through a difference in sign: “ $+a$  and  $-a$  are not qualitatively opposed to each other, but only in terms of their sense [Richtung]” (AA 22:177.8). Only a point of inversion separates the two opposites, the point where an ascending motion passes into its opposite. The third, which is neither an ascending nor a descending movement, is the point where the difference between the two motions is  $= 0$ , and thus at rest since “a point does not move immediately from one direction into another without an intermediate rest” (AA 28:203–).<sup>36</sup> The third between two opposites has an eminently paradoxical nature. It is the point where contraries determine each other as such since “the cessation of positive magnitudes marks the start of negative magnitudes” (AA 2:169).<sup>37</sup> At the same time, this point where they remove each other (because the point  $= 0$  is neither positive nor negative) is “the middle between two (opposed in terms of degree)” (AA 18:625; Refl. 6317). One of the fundamental problems in post-Kantian philosophy is precisely how to grasp the ambiguous nature of this intermediate point in respect to which the opposites are defined as such while also removing each other, the one passing into the other.

## 2.3 The Problem of Change

Understanding the meaning of the distinction in Kantian thought between logical and real opposition, and thus between qualitative and quantitative opposition, requires the further step of showing how this distinction is connected to the broader problem of the possibility of change and becoming. The latter problem is not only one of the most persistent questions in the history of Western thought, but also one of the central problems of critical philosophy, perhaps even the most fundamental.

The simple logical connection between concepts merely confirms their identity or ratifies their irreducible difference: movement is movement, rest is rest, and the two determinations remain completely external to one another. The transition from rest to movement cannot be comprehended by through the logic of pure understanding. Trying to establish the instant in which a process undergoes a qualitative transformation, such as the transition from rest to movement, leads to an insurmountable difficulty. The last moment in which a body is *still* at rest is also the first moment that it is *already* moving, forcing one to regard the body as at rest and in motion at the same time and thus to attribute contradictory determinations to it. Holding to a firm logical opposition between being and not-being, reality and negation, does not allow a third where both opposites can exist together and where the one can pass into the other (*principium exclusi medii inter duo contradictoria*).

<sup>36</sup> English translation from Kant. *Lectures on Metaphysics*, 26.

<sup>37</sup> English translation from Kant. “Attempt to Introduce the Concept of Negative Magnitudes into Philosophy.” 209.

Nevertheless, change involves precisely this contradictory mixture of irreconcilable predicates, or in Kant's words, "the combination of contradictorily opposed determinations in the existence of one and the same thing" (B291).<sup>38</sup> For Kant, change is:

the succession of opposite determinations of the same thing <*successio determinationum oppositarum in eodem ente*>, E.g., a body is altered externally if it is set out of rest into motion ... What matters most here is, how is alteration possible? I.e., how can opposed determinations be in one thing? One must *not* at all times believe that one comprehends what one understands; for comprehending is: cognizing something *a priori* through reason (AA 28:558–).<sup>39</sup>

According to the logic of the *concept*, a subject can only contend for one of two opposed predicates, and two contradictory predicates cannot coexist simultaneously in the same subject without the two competing: "Now how it is possible that from a given state an opposed state of the same thing should follow not only cannot be made understandable by reason without an example, but cannot even be made understandable without *intuition*" (B291–92, emphasis mine).

The possibility of becoming is incomprehensible to the understanding, which cannot master its intrinsic contradictoriness, is unable to think two opposed states together in the moment of transition. Only through intuition's testimony of the transition of one thing from one state to another can it be admitted that a substance that is *first* in one state A can *then* transmute into a completely different state B. Temporal intuition defuses the logical contradictoriness of becoming that the concept cannot grasp in any manner, "the concept of motion ... is only possible through and in the representation of time – that if this presentation were not *a priori* ... *intuition*, then no *concept*, whatever it might be, could make comprehensible the possibility of an alteration, i.e., of a combination of contradictory opposed predicates ... in one and the same object" (B48, emphasis mine).

However, time is merely the expression of separation, that an object was first in one state and then was taken over by an opposite state. The two states always remain separate whereas to "conceive" the transition from A to not-A means that contradictory determinations do not occur in different instants, but meet in a single point. Such a transition could not occur in a determinate time because in no temporal point can one "think" the simultaneous presence of contradictory conditions. However, if the two opposed states did not meet, remaining separate for a period of time no matter how small, no alteration could be verified, but only a succession of states that have nothing to do with each other.

An unusual but effective example to help understand this difficulty is the transition of an object's ownership from *Ego* to *Alter*, which Kant describes as occurring through a business contract in the *Metaphysic of Morals* [*Methaphysik der Sitten*]. Trying to follow the transition step by step, it is difficult to establish when the

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<sup>38</sup> Kant writes: "Now how in general anything can be altered, how it is possible that upon a state in one point of time an opposite one could follow in the next – of these we have *a priori* not the least concept. For this acquaintance with actual forces is required, which can only be given empirically, e.g., acquaintance with moving forces, or, what comes to the same thing, with certain successive appearances (as motions) which indicate such forces" (B252).

<sup>39</sup> English translation from Kant. *Lectures on Metaphysics*, 323.

*promittens* ceases to be the possessor of the object in question and begins to be the *acceptans*: “what belongs to the promisor does not pass to the promisee (as acceptant) by the separate will of either but only by the *united will* of both, and consequently only insofar as both wills are declared *simultaneously*” (AA 6:272).<sup>40</sup> To understand the not simply theoretical nature of this difficulty, one should consider “external formalities (*solemnia*) in concluding a contract (shaking hands, or breaking a straw, *stipula*, held by both persons),” gestures that “manifest the perplexity [*Verlegenheit*] of the contracting parties as to how and in what way they are going to represent their declarations as existing *simultaneously*, at the same moment, although they can only be successive” (AA 6:272).<sup>41</sup> However, the transaction (*translatio*) cannot admit a continuous solution either and the possessor of the object should never be “interrupted for a moment during this act; for otherwise I acquire, in this condition, an object as something that has no possessor (*res vacua*)” (AA 6:274).<sup>42</sup>

Thus, one is confronted with two demands, both of which seem impossible to satisfy. On the one hand, one affirms that becoming is possible only if the two states, the point of departure and the point of arrival of the process, remain separate no matter how much they approximate each other because only in this manner can the logical contradiction of the concept be avoided. On the other hand, this concession by no means guarantees the transition of ownership, because “if I have promised and the other now wants to accept, I can still during the interval (however short it may be) regret having promised, since I am still free before he accepts; and because of this, the one who accepts it, for his part, can consider himself as not bound to his counter-declaration after the promise” (AA 6:272).<sup>43</sup> Either, the object never passes from the possessor to the acquirer because the two acts always remain separate. Or, the process could be interrupted at some point and the latter could acquire a *res nullius*, lacking a guarantee for the upholding of the terms of the contract, if one maintains that the object is first the property of one contractor and then that of the counterparty. In order for such a transition to be possible, one must admit that a “[t]ransfer is therefore an act in which an object belongs, for a moment, to both together” (AA 6:274).<sup>44</sup> This is something contradictory for the understanding, but at the same time necessary to make transfer of property possible.

## 2.4 Change and Real Opposition

The example of the contract demonstrates that, from a “logical” point of view, a thing would destroy its identity if it alternated between being and non-being because, during the intervals of time in which it was not, it would lose its connection with

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<sup>40</sup> English translation from Kant, Immanuel. *The Metaphysics of Morals*, tr. Mary Gregor (Cambridge: Cambridge University Press, 1991), 91.

<sup>41</sup> *Ibid.*, 92. Brackets mine.

<sup>42</sup> *Ibid.*, 93.

<sup>43</sup> *Ibid.*, 91–.

<sup>44</sup> *Ibid.*, 93.

itself. The second period of its existence would be completely alien to the first and it could not be distinguished from an entirely new object in respect to which it could be very similar, but not identical. However, if the temporal distance that separates them were removed, then being and non-being, no longer separated by any period of time, would contradictorily coincide in the same instant.

The possibility of change therefore requires the possibility of a form of opposition in which two opposites can coexist without creating a contradiction, and in which reality and negation limit each other in a point of indifference. Such an opposition is not logical, but real: “the entire series of alterations seems to arise [herzürühren] from real oppositions” (AA 17:502; Refl. 4309). Kant thus explicitly states that “[T]he opposition of real grounds makes all alteration possible.” (AA 28:560).<sup>45</sup>

The process of change presupposes the possibility of thinking the co-presence of two contradictory opposites, “just as when a stone that has been thrown reaches the apex of its parabolic path is to be regarded as, for just a moment, simultaneously rising and falling, and so first passing from its rising motion to its falling” (AA 6:274).<sup>46</sup> In the process of changing from one state to another, there is always a point in which the opposites must be able to coexist, such as in the point of inversion, which is neither an ascending nor a descending movement and in which velocity has neither a positive nor a negative sign. “There should be a *Punctum flexus contrarii* in the progression, there where direction ends and the other begins” (AA 16:767; Refl. 3305), where the acceleration is neither positive nor negative. The transition from one opposite to another occurs at a point in which the two opposites coexist: “*lex continuitatis* means that two states that follow each other always have something in common [etwas gemeinschaftliches], that is, they share a limit [Grenze]” (AA 17:631; Refl. 4666). What the two opposites have in common is the point of indifference = 0 where they disappear as such since that which defined them as opposites was precisely their quantitative difference: “the law of continuity: between *a* and  $-a$  (for example, attraction and repulsion in a bar magnet), there is a point where the predicate of the thing disappears, becoming = 0” (AA 18:624; Refl. 6317).<sup>47</sup>

The indifferent third between the opposites is = 0 and perfectly comprehensible as such: “*negatio* cannot be precisely distinguished from reality [von Realität nicht spezifisch unterschieden]. This is the middle between two opposed realities <and

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<sup>45</sup> English translation from Kant. *Lectures on Metaphysics*, 324. The same idea underlies the text about negative magnitude: “All change consists in this: either something positive, which was not, is posited; or something positive, which was, is cancelled ... I maintain, however, that if *A* arises, then, in a natural change occurring in the world,  $-A$  must also arise” (AA II, 194). English translation from Kant. “Attempt to Introduce the Concept of Negative Magnitudes into Philosophy.” 232.

<sup>46</sup> English translation from Kant. *The Metaphysics of Morals*, 93.

<sup>47</sup> The Dutch physicist Anton Brugmans arrives at this conclusion, regarding the magnet in particular, in his *Tentamina Philosophica de materia magnetica* (1765). In showing how a magnetic bar must pass through an intermediate point of indifference in the transition from one pole to the other, Brugmans claims to have deduced “this proposition *a priori* applying the law of continuity.” The citation is drawn from the German edition of Brugmans, Antonius. *Philosophische Versuche über die magnetische Materie, und deren Wirkung in Eisen und Magnet*, tr. Christian Gotthold Eschenbach (Leipzig: S. L. Crusius, 1784), 76.



the transition<sup>48</sup> >, which is related to both” (AA 18:363; Refl. 5824). The point = 0 is neither positive nor negative, but rather the point in which the difference between the two opposites, distinguished only through their sign, vanishes. “Princip: continui transſc: Non datur progreſſus a ratione data ad realiter oppositam ſecundum regulam niſi per intermedium determinationis quae aequivalet ziphoni s. *nullitati vtriusque h.e. indifferens*, e.g. in oscillatione – in magnete – (in transitu a vitio ad virtutem –) in transitu a voluptate ad taedium (Transcendental principle of continuity: There is no progress from a given state to a real opposite one according to a rule if not per intermediate determinations, that which is equivalent to a siphon, i.e. to the nothing of both or indifference, for example – in oscillation – in a magnet [in the transition between vice and virtue], in the transition from pleasure to tedium)” (AA 21:461.4; emphasis mine). Thus, real opposition eliminates the contradictoriness of becoming by admitting a point where the two states can coexist.

In the case of real opposition, negation and reality are not distinguished by some “quality,” but only by “degree” or “quantity”; that is, only by the fact of occupying a determinate “position” within an ordered series. They are not opposed like two contradictory concepts, but only because one can establish that the *n*th “degree” is found between the (*n* – 1) th and (*n* + 1) th degree and that the distance between these is as small as one likes. For example: “if virtue and vice were distinct only in terms of degree, then a certain degree at the limit of the two would be equally virtue and vice” (AA 17:630; Refl. 4666). This limit would be the “state of indifference” in which the opposites can simultaneously exist because it is neither of the two while, at the same time, the two together.

For pure understanding, there is no mediation between reality and negation, which cannot be thought together because “[t]wo opposites <*opposita*> cannot be in one concept” (AA 28:552)<sup>49</sup> without annihilating its identity. In phenomena, however, reality and negation can coexist in the point of indifference, which is neither positive nor negative: “rest is not a *nihil negativum*, but only a *privativum*. The state of indifference is zero” (AA 28:635). The quantitative and logical opposition that characterizes noumenal realities is substituted with a real and quantitative opposition. The latter is characterized by a simple difference in degree to which the “being” of phenomenal realities is reduced, such that a third = 0 can always be found between two opposed states of change without implying any contradiction. The opposition between “things in themselves,” which can be thought by pure understanding, does not make any process of transformation possible: “Alteration is not an intellectual predicate at all. Hence it is not the things but their *phenomena* that are altered” (AA 17:425; Refl. 4122).<sup>50</sup> Only in phenomena can one think another form of opposition that makes becoming possible: “the possibility of alteration is based on the contrariety of certain *realitatum phaenomenorum*” (AA 18:363; Refl. 5825).

<sup>48</sup> This is a likely interpretation of the insertion “und der Ub” that appears in the original German.

<sup>49</sup> English translation from Kant. *Lectures on Metaphysics*, 318.

<sup>50</sup> English translation from Kant. *Notes and Fragments: Logic, Metaphysics, Moral Philosophy, Aesthetics*, 115.

## 2.5 Change as Quantitative Variation

A tight connection exists between the new conceptions that the Anticipations of Perception attribute to reality and negation in phenomena, in which a certain finite difference in degree is distinguished from the indifference  $= 0$ , and the problem of change and becoming. In order for alteration to be possible, a quantitative consideration of variation must occur. The alteration must be understood as the transition in time from a greater to a lesser degree, the first representing positive reality and the second its extreme opposite. In the proof of the second of the “Analogies of experience” in the *Critique of Pure Reason*, Kant is able to describe the process of change in the following manner:

If a substance passes out of a state  $a$  into another state  $b$ , then the point in time of the latter is different from the point in time of the first state and follows it. Likewise the second state as a *reality* (in the appearance) is also distinguished from the first, in which it did not yet exist, as  $b$  is distinguished from zero; i.e., if the state  $b$  differs from the state  $a$  even *only in magnitude* [nur der Größe nach], then the alteration would be an arising of  $b - a$ , which did not exist in the prior state, and with regard to which the latter  $= 0$ . (B253, emphasis mine)

If the two states are only distinguished by degree of reality, becoming is the emerging of a difference in degree  $b - a$ . What is essential is not the *absolute values* of  $a$  and  $b$ , but only their *relative difference* to which their opposition should be reduced.

However, the problem does not seem to be resolved in this manner at all, but simply deferred: “The question therefore arises, how a thing passes from one state  $= a$  into another one  $= b$ . Between two instants there is always a difference that has a magnitude” (B253). No matter how small the difference in degree that separates two opposed states and the difference in duration that separates two instants, the states and instants remain separated. An alteration, as much as it approaches the temporal points that can be thought as *terminus a quo* and *ad quem*, “takes place continuously throughout a time, and thus equally through an infinite series of moments” (AA 4:531).<sup>51</sup> A quantitative value corresponds to each of these instants, that is, a determinate “degree of reality” that should be effectively passed through at least once in the course of the process. But this representation of the alteration “is to be attributed to the inconceivability of dividing any such continuum in general to infinity” (AA 4:531),<sup>52</sup> the impossibility of thinking of finite change as passing through infinite variations.

Kant seems to note this difficulty in the proof of the Anticipations of Perception. In fact, he defines the continuity that pertains to magnitude, extensive as well as intensive, as that “quality of magnitudes” according to which “no part of them is the smallest” (B211). Just as space and time are *quanta continua* because each of their parts is always a space and a time in turn, one can also affirm that “every reality in appearance, however small it may be, has a degree, i.e., an intensive

<sup>51</sup> English translation from Kant. “Metaphysical Foundations of Natural Science.” 240.

<sup>52</sup> Ibid.

magnitude, which can always be diminished, and between reality and negation there is a continuous nexus of *possible* realities” (B211, emphasis mine). Thus, one can infer that “all appearances whatsoever are ... continuous magnitudes, either in their intuition, as extensive magnitudes, or in their mere perception ... as intensive ones” (B212).

An apparently cogent consequence can be drawn from the above considerations: “Now if all appearances, considered extensively as well as intensively, are continuous magnitudes, then the proposition that all alteration (transition of a thing from one state into another) is also continuous could be proved here easily and with mathematical self-evidence” (B212–13). However, Kant refuses to draw this conclusion in order to not threaten the unity of his system and to not “anticipate general natural science” (B213). No reference to the concept of change in general is possible, a concept that is “entirely beyond the boundaries of a transcendental philosophy,” presupposing “empirical principles” (B213): “the understanding gives us no inkling *a priori* that a cause is possible which alters the state of things, i.e., determines them to the opposite of a given state” because alteration is a concept “about which experience alone can teach us” (B213).

Consequently, a smaller difference can be thought in any difference in degree without implying that the variation in degree is continuous, that it passes from one degree to another through all of the infinite intermediate degrees. However, Kant does not seem to remain faithful to this simply negative definition of continuity. In the proof of the second of the “Analogies,” he writes, “No difference of the real in appearances is the *smallest*, just as no difference in the magnitude of times is, and thus the new state of reality grows out of the first, in which it did not exist, *through all the infinite degrees of reality*, the differences between which are all smaller than that between zero and *a*” (B254, emphasis mine). In reality, it is false to maintain that, just because it is *possible* to subdivide alteration into ever-smaller portions, this should pass de facto through all of its infinite degrees, in the same way that a totality is not constituted of infinite parts just because it is infinitely divisible. Explicitly alluding to the Anticipations of Perception, Kant writes, “[w]e *anticipate* only our own apprehension, the formal condition of which, since it is present in us prior to all given appearance, must surely be able to be cognized *a priori*” (B256, emphasis mine).

Here the connection, as well as the difficult conciliation, between the problem of change and that of Anticipations of Perception<sup>53</sup> is most evident. The Anticipations of Perception make change possible by reducing the opposition between reality and negation to a quantitative opposition, in which the state *a* and the state *b* are only distinguished in degree, by the difference  $b - a$ . However, the transformation contains no privileged point in which the alteration can be verified. A time always

<sup>53</sup> A reflection from the late 1870s also testifies to this connection: “*Principium* of the mathematical cognition of appearances: All appearance has as intuition its extensive magnitude and as sensation its degree. For (as far as the latter is concerned) every sensation arises from non-being, since it is a modification. Thus through alteration. All alteration, however, proceeds from 0 to *a* through infinitely small steps” (AA 18:241; Refl. 5585) English translation from Kant. *Notes and Fragments: Logic, Metaphysics, Moral Philosophy, Aesthetics*, 247.

exists between the two instants and a difference in degree between the two states that, no matter how small, are never the smallest possible. Thus, they always remain separate and never pass into one another whereas the transition can only occur where they can coexist together, that is to say, where the quantitative difference between the two opposed states has vanished and is  $= 0$ .

The point where the two opposed states should pass into one another is, at the same time, the point where their difference vanishes, and thus that which defines them as opposites as well. In other words, precisely where change should take over the rigid immobility of being, in a moment without duration, no difference in degree can be admitted, and thus no change can occur. In the same way that Xenon's arrow is at rest in every instant, paradoxically, in each instant of a change, where the difference between the opposites is  $= 0$ , no change occurs. Again, the possibility of alteration cannot be "comprehended" by the concept; only intuition can guarantee such a possibility by furnishing a concrete example, given directly through experience.

## 2.6 Maimon's Theory of Differentials

Modern thought, however, discovered a *concept* capable of determining the unity of opposed predicates that, for Kant, can only be given in intuition.<sup>54</sup> This difference is thought as neither finite nor equal to zero but as an infinitely small difference like a "differential." In the "haze of the infinitely small" [Nebel des Unendlichkleinen]

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<sup>54</sup> Leibniz's philosophy offers the most philosophically pregnant expression of this solution to the problem. Leibniz himself defines alteration (*mutatio*) as "aggregatum duorum statuum contradictoriorum," something that is impossible at first sight "quia non datur tertium inter contradictoria" (Leibniz, Gottfried Wilhelm. *Textes inédits d'après les manuscrits de la Bibliothèque provinciale de Hanovre*. ed. Gaston Grua (Paris: Presses universitaires de France, 1948), 1:323). If no mediation is presupposed, something whose course of change can be thought as a simple "more or less", thus allowing one to conserve the relation between that which is found at the beginning of the process of transformation and that which is found at its conclusion: "If a thing alters so much that it exhausts itself (i.e., becomes nothing), and if that which is produced during the change is always *alike*, that which comes before will *bigger* and that which comes after will be *smaller* if it returns from nothing through the same alteration. If the result is always *alike*, that which comes first will be *smaller*, and that which comes after will be *bigger*. This is clear from what was stated before. And this can continue to infinity since, because of likeness, there is always the same relation" (Leibniz, Gottfried Wilhelm. *Die Leibniz-Handschriften der Königlichen Öffentlichen Bibliothek zu Hannover*. ed. Eduard Bodemann (Hildesheim: Olms, 1966). Reprint, Hannover, 1989, 35 I 12, n11). To master becoming means to find a conceptual tool with which it is possible to "think" that restricted zone where opposite states seem to be able to coexist precisely where they should annihilate each other. On Leibniz's framing of the problem, see Pasini, Enrico. *Il reale e l'immaginario: la fondazione del calcolo infinitesimale nel pensiero di Leibniz* (Turin: Sonda, 1993), 24–28. Thus, if one admits that opposites "only differ in terms of more and less" (GM 2:119), then one can conceive of the possibility that "they always pass from the small to the big and vice versa through the middle, in degrees as in parts" (GM 5:30).

(HW 5:319),<sup>55</sup> to use Hegel's expression, opposites confuse themselves in the contradictory concept of a "momentary" change. Kant himself actually cleared the way for this type of solution, for instance in this Note: "the meaning of the principle of continuity is simply this: all *different* things are *remota*, that is they are connected only *per intermedia*, between which the difference [Unterschied] can be even smaller. That is to say, no difference is the smallest because no transition is elementary and is the smallest, but it always has a magnitude [...] the smallest difference would be called a *differential*" (AA 18:167; Refl. 5382).

The possibility of proceeding in this direction should not be understood as an abstract theoretical alternative. The writings of Salomon Maimon (1753–1800) provide an historical example of the possibility of following this line of thought. In his 1790 *Versuch über die Tranzendentalphilosophie* (Essay on Transcendental Philosophy, which Kant himself, receiving the work from his friend Marcus Herz,<sup>56</sup> recognized as excellent) as well as in some later publications, in particular his 1797 *Kritische Untersuchungen über den menschlichen Geist oder das höhere Erkenntniss- und Willensvermögen* (Critical Investigation of Human Spirit or Higher Faculties of Knowledge and of Will). Maimon clearly poses the problem of becoming, as it emerged from the folds of Kant's thought, as well as a possible solution through infinitesimal calculus.

Maimon conceives change, according to the traditional definition, as a "succession [Wechsel] of modifications in one and the same subject" (MGW 2:308). For this reason, "a determinable (substance) can have two determinations in a succession of time that exclude each other (predicates), one of which is reality [Realität] and the other its negation [Negation]" (MGW 2:142):

[A] determination should be something positive (if it is to be perceived in intuition because a negative determination is only logical) and the successive determination should be opposed [entgegengesetzt] to the preceding one; but that which is opposed to something positive cannot be negative, rather both opposed qualities are necessary for experience. To resolve [heben] this contradiction, and thus make experience possible, these [the opposed determinations] should be unified in the object such that they conflict with each other as little as possible [am wenigsten Abbruch thun]; that is to say, their opposition [Gegensetzung] should be a *minimum*. (MGW 2:139)

As I have shown, in order for becoming to maintain its unity and to be referred to a single subject, succession cannot be interrupted at any point: "if something

<sup>55</sup> English translation from Hegel. *Hegel's Science of Logic*, 273. Translation slightly altered by the author.

<sup>56</sup> On April 7, 1789, Marcus Herz notified Kant of receiving by mail a "manuscript" from "Herr Salomon Maimon ... containing penetrating reflections on the Kantian system" (AA 11:14). Kant, overburdened with the writing of the *Critique of Judgment*, wrote a letter on May 24, 1789 to Herz in which he states, "I had half decided to send the manuscript back immediately, with the aforementioned, totally adequate apology. But one glance at the work made me realize its excellence and that not only had none of my critics understood me and the main questions as well as Herr Maimon does but also very few men possess so much acumen for such deep investigations as he" (AA 11:49; see AA 11:48 for Kant's letter to Maimon himself on May 26, 1789) English translation from Kant. *Correspondence*, 291, 311–12.

suddenly emerges (without continuity) ... then we will not be able to believe that we are dealing with the same thing that alters, but rather that we are dealing with two different things" (MGW 2:139). In contrast, becoming should be able to unfold in the variation of states of the same substance:

[I]n this case we have experience, that is, perception [Wahrnehmung], of the same permanent something [Beharrlichen] connected with different determinations that succeed each other in time [mit verschiedenen in der Zeit wechselnden Bestimmungen verknüpft]. These determinations are also at the same time positive because the opposition that is noticed [die darin bemerkte Gegensatzung] (that is necessary for experience) is *the smallest possible*. And this is the so-called law of continuity (MGW 2:139-, emphasis mine).

Thus, for Maimon as well, opposition should be conceived as a simple difference in degree, not of nature, because "one cannot say that cold water has become sweet, but that it has become hot" (MGW 2:137). Only if opposites are distinguished in terms of more or less can the difference between these be thought as "the smallest possible":

the perception of an alteration, again requires unity in multiplicity; that is to say, the reciprocal relation of two states in one thing. If these were completely different, ... only a simple manifold would be possible. If, on the contrary, they were completely identical, there would not be any manifold; that is, there would no longer be two states, but one and the same state. (MGW 2:216).

In order that an alteration can be thought as a unitary process, "the states should be partly identical and partly different ... such a difference should thus be an *infinitely small difference* through which the thing obtains only a *differential* of a state that is different from the preceding one" (MGW 2:216-, emphasis mine). The transition of a determination into an opposite one (e.g., a movement in one direction into a movement in a different direction) can occur, not because they coexist at the same time, but because the difference in time is assumed to be infinitely small (see MGW 4:555-).<sup>57</sup>

As I have shown, the difference between two successive states of a change is, in every instant,  $= 0$ . However, the vanishing of the quantitative difference should not compromise the unitary meaning of the process. Maimon states, "the differential of every object in itself, in respect to intuition, is  $= 0$ ,  $dx = 0$ ,  $dy = 0$ , etc.; but their relations are not  $= 0$ " (MGW 2:32). In fact, " $dx$  and  $dy$ , considered in themselves as magnitudes, are  $= 0$ . However it is possible that  $dx = 2dy$ " (MGW 7:211); that is, it is possible that their relation has a determinate value.

Maimon discusses the philosophical significance of this resorting to infinitesimal analysis in particular detail in the remarks and clarifications appended to the *Versuch über die Transzendentalphilosophie*. He distinguishes between the "symbolic" and the "metaphysical" meaning of the infinitely small:

If one affirms that  $dx : dy = a : b$ , this does not signify that abstract  $x$  of every magnitude is related to abstract  $y$  of every magnitude, etc., because nothingness cannot have any

<sup>57</sup> On the difference between Kant and Maimon on this point, see Freudenthal, Gideon. "Maimon's Subversion of Kant's Critique of Pure Reason. There are non Synthetic *a priori* Judgements in Physics." In *Salomon Maimon: rational dogmatist, empirical skeptic critical assessments*. ed. Gideon Freudenthal, 144–75. (Dordrecht: Kluwer Academic, 2003).

quantitative relation to nothingness. Rather, the meaning is the following: for any  $x$ , no matter how large or small ... it always follows from the equation between these two magnitudes that  $x:y$  [is =  $a:b$ ] (MGW 2:355).

The “symbolic infinitely small,” according to Maimon, “is only an invention [Erfindung] by mathematicians that gives generality to their own affirmations” (MGW 2:355). Alongside this strictly mathematical sense of the infinitely small, another sense can be found that is loaded with philosophical implications. For example, the extensive magnitudes of the sides of a triangle can be thought as vanishing completely in respect to their extensions while, nevertheless, conserving their reciprocal relations: “The extensive magnitude of the sides is completely annihilated [hört alsdann gänzlich auf] and is reduced to its differential. In contrast, the relation between the sides always remains the same (MGW 2:395–). Here, the issue is no longer quantity, but the “quality of the quantum” (MGW 2:395–): “the metaphysical infinitely small is real because the quality can be considered as abstracted from all quantity” (MGW 2:395).<sup>58</sup>

This is precisely the point of support that can be used to move beyond what Kant seems to be willing to admit. For Kant, as I have shown, the unity of quality (“if I say for example: red is different than green” [MGW 2:32]) is always a posteriori and cannot receive any rigorous determination. In contrast, Maimon claims that, “in differential calculus, space is considered a concept abstracted from all quantity in intuition and determined nevertheless by different types of qualities” (MGW 2:22–). This is the achievement of the “great Leibniz” through his “discovery of infinitesimal calculus”: that a “magnitude (*quantitas*) is not regarded as something large (*quantum*), or rather, it is a quality abstracted from quantity” (MGW 2:28n).

Maimon’s conception is nearly incomprehensible according to today’s standard conception of analysis. However, the idea that the “character” of the magnitude is conserved in the disappearing of the quantitative difference is not only explicitly present in Leibniz,<sup>59</sup> as Maimon correctly observes, but Kant himself also refers to this conception. In a very significant “note,” Kant writes: “that which holds for a *quantum*, also holds for the *limite quanti*, because the quality remains” (AA 18:360;

<sup>58</sup>On this point, see Thielke, Peter. “Intuition and Diversity: Kant and Maimon on Space and Time.” In *Salomon Maimon: Rational Dogmatist, Empirical Skeptic: Critical Assessments*. ed. Gideon Freudenthal. (Dordrecht: Kluwer Academic, 2003), 312–; Atlas, Samuel H. *From Critical to Speculative Idealism; the Philosophy of Solomon Maimon* (The Hague: Nijhoff, 1964), 109–23; Bergman, Samuel Hugo. *The Philosophy of Solomon Maimon*, tr. Noah J. Jacobs (Jerusalem: Magnes Press, Hebrew University, 1967), 262–3.

<sup>59</sup>Leibniz himself, in a letter to Guido Grandi (1713), indicates that this is the characteristic feature of infinitely small magnitudes: “interea infinite parva concipimus non ut nihila simpliciter et absolute, se ut nihila respectiva ... id est ut evanescencia quidem in nihilum, retinentia tamen characterem ejus quod evanescit [We consider infinitely small quantities not as an absolute nothing, but as respective nothing: the quantities that vanish into nothing maintain the character of what is vanishing]” (GM 4:128).



Refl. 5815). The becoming  $= 0$  of a quantitative difference is not absolute nothingness: "the general mathematical law of continuity," according to Kant, only affirms that "what can be the predicate of the relationship between two unequal magnitudes, also holds if these are equal, that is, in as much as their inequality has vanished" (AA 15:243; Refl. 560), that is to say, has become  $= 0$ . Only from this point of view is change comprehensible. It should not be thought as a *metábasi*  $\epsilon\lambda\upsilon$   $\text{\AA}\lambda\lambda\omicron$   $\gamma\epsilon\alpha\upsilon\upsilon$  (a crossing over to another genus), but rather as a purely quantitative transformation of the same quality: "Every difference (in appearance) is a *quantum* ...; thus 0 must be regarded as homogenous with A, only as vanishingly or infinitely small; thus there is no *progressus* in the determination of a thing to another state except by means of an increase of the *same quality* from the infinitely small" (AA 18:410; Refl. 5973; last emphasis mine).<sup>60</sup>

This sort of interpretation of infinitesimal analysis was probably common in Kant's time. Lazarus Bendavid's 1789 *Versuch einer logischen Auseinandersetzung des mathematischen Unendlichen* [Essay on a Logical Confrontation of the Mathematical Infinite]<sup>61</sup> is another significant example. Bendavid was not only, together with Herz and Maimon, one of the Jewish philosophers who helped spread Kantian philosophy at the end of the eighteenth century,<sup>62</sup> but he also had a good knowledge of mathematics (his earliest published work was on a geometrical subject).<sup>63</sup>

According to Bendavid, infinitesimal calculus offers the possibility of thinking zero in a different way than the zero that emerges "from the opposition of two equal magnitudes."<sup>64</sup> For infinitesimal calculus namely treats that which in general cannot have a "more or less," that which makes the very concept of magnitude meaningless, that is to say, not quantity but quality: "A magnitude is no longer measurable when its value is eliminated [aufgehoben] through an opposite one and becomes 0. In contrast, a magnitude is infinite if one considers it as a simple quality"<sup>65</sup> For instance, to be tangent of a circle is a quality. It makes no sense to speak of something that is more or less "tangent" to a "circle." On the contrary, the tangent of a circle, "when

<sup>60</sup> English translation from Kant. *Notes and Fragments: Logic, Metaphysics, Moral Philosophy, Aesthetics*, 319.

<sup>61</sup> Bendavid, Lazarus. *Versuch einer logischen Auseinandersetzung des mathematischen Unendlichen* (Berlin: Petit und Schöne, 1789).

<sup>62</sup> On Bendavid, see Rosenkranz, Karl. "Geschichte der Kantischen Philosophie." In *Kants Werke*. eds. Karl Rosenkranz and Friedrich Wilhelm Schubert. (Leipzig: Voss, 1842), 315. According to Rosenkranz (see Rosenkranz. "Geschichte der Kantischen Philosophie." 315), Bendavid tried to disseminate Kantian Philosophy in Vienna (without much success) where, in 1795, he had already published his Bendavid, Lazarus. *Vorlesungen über die Kritik der reinen Vernunft*. Fotomechan. Nachdr. ed (Brussels: Culture et Civilisation, 1968). Many other commentaries on Kant's books followed, such as Bendavid, Lazarus. *Vorlesungen über die Kritik der Urtheilskraft*. 2nd ed (Brussels: Culture et Civilisation, 1968).

<sup>63</sup> Bendavid, Lazarus. *Über die Parallellinien. In einem Schreiben an Herrn Hofrath Karsten* (Berlin: Voss, 1786).

<sup>64</sup> Bendavid. *Versuch einer logischen Auseinandersetzung des mathematischen Unendlichen*, 39.

<sup>65</sup> *Ibid.*, 44.

it ceases to be a magnitude, nevertheless remains the tangent of a circle and conserves the property [Eigenschaft] of having a determinate position in respect to the circle.”<sup>66</sup> One can take a secant that cuts the curve in two points and make the two points coincide so that the difference between them vanishes. The relation between the tangent and the circle remains perfectly determined nevertheless. Such a relation thus has no magnitude. It pertains to a completely different domain: it is “a simple quality” by which “the concept ‘magnitude’ has no meaning.”<sup>67</sup>

Significantly Bendavid tries to explain this transition from quantity to quality by referring to the concept of intensive magnitude (a fact that Hermann Cohen did not fail to notice; see CW 5:1, 112–), emphasizing its character as a non-additive magnitude. As one cannot make lemon more sour by putting many lemons together, similarly, “as soon as a tangent has become infinite, it is simply a contact line,” and “it has no more contact because one adds a magnitude to it.”<sup>68</sup> Considering the infinitely small quantity  $dx$  as the expression of the transition from quantity to quality, the equation  $x + dx = x$ , according to Bendavid, loses its paradoxical character. For, in reality, it only shows how adding a “property” to a “magnitude” is senseless.<sup>69</sup>

Referring to Kant’s concept of “alteration” in his *Vorlesungen über die Kritik der reinen Vernunft*,<sup>70</sup> Bendavid explicitly resorts to this solution to the problem. Bendavid shows that “the transition from the state  $a$  to the state  $x$  does not happen suddenly [plötzlich], but in such a way [dergestalt] that, in the state that flows between these two, no part is the smallest, but rather should always [stets] be preceded by a smaller one.”<sup>71</sup> Thus, “first the substance was in the state  $=x$  and then in the state  $x + dx = x$ ” in such a way that it is clear, however, that, “the newly arisen state  $=dx$  ... as a magnitude, is to be considered  $=0$ .”<sup>72</sup>

Maimon seems to respond rather polemically to Bendavid’s interpretation of the concept, “differential”:

Mr. Bendavid says then that  $dx + a = a$  because a simple property cannot be added to a magnitude ... The real reason is not the one provided by Mr. Bendavid ... [the real reason is] because different types of magnitude cannot be added. One can say that a  $dx$  cannot be added to  $a$ , just as a pound cannot be added to a cubit [Elle]. (MGW 2:290)

Maimon thus does not seem to agree with Bendavid’s complete identification of the infinitely small with zero, understood as the quality abstracted of all quantity. This gives Maimon the occasion to further clarify his conception of the relations between quantity and quality. “Is a certain velocity the simple quality of velocity in general?” (MGW 2:291), Maimon asks rhetorically against Bendavid. On the contrary, the concept of “infinitely small movement” serves precisely to

<sup>66</sup> Ibid., 41.

<sup>67</sup> Ibid., 77.

<sup>68</sup> Ibid., 48.

<sup>69</sup> Ibid.

<sup>70</sup> Bendavid. *Vorlesungen über die Kritik der reinen Vernunft*, 48.

<sup>71</sup> Ibid., 93.

<sup>72</sup> Ibid.

compare different velocities in every instant, that is to say, where apparently there are no quantities that could be compared. Therefore, according to Maimon, "the relations of these differentials are the relations of these velocities to one another" (MGW 2:291).

For this reason too, Maimon resorts to the idea of the differential as something with a zero for extension, but not for intension.<sup>73</sup> However, he emphasizes, as opposed to Bendavid, that the intensive magnitude is also a magnitude, even if of a different kind. Through the notion of "degree," "the velocity of a movement in a point can be compared with the velocity of the same in another point and in this way can be determined as a magnitude" (MGW 2:290). Thus, in every instant, one can think that the moving thing has a determined "degree of velocity," even if in fact the movement in the instant has vanished: "the velocity in every temporal point is a real object [ein reelles Objekt] (a determinate intensive magnitude), a how much of a determined quantity" (MGW 2:290–).

However, Maimon also seems to emphasize that the transition from quantity to quality should be understood as a transition from *magnitude* to the *relation* between magnitudes:

this determined quantity cannot be recognized through this velocity in itself, but only by means of its effects; that is, by means of the space that the body with this velocity (if it remains unvaried) travels. However, the duration of the movement and the space that is traveled does not belong to the essence of velocity. The latter should be thought as abstracted from these; that is, it should be reduced to an infinitely small space and an infinitely small time, which are no less real as a result (MGW 2:291–).

The degree of velocity can be expressed by a relation between finite extensive magnitudes if the velocity remains constant in time. If it changes from instant to instant, such a relation must also be represented as variable and should ultimately be defined as a relation between infinitely small differences: "when an extensive magnitude is reduced to its differential, this can be expressed, as a result of its intensive magnitude, as a relation between two differentials" (MGW 2:395).

However, one should be careful not to be misled by Maimon's attempt to distance himself from Bendavid's work. Both seem to refer to a common Kantian framework and attempt to solve the problems that Kantian philosophy raised by means of similar conceptual tools. Reading the work of Bendavid and Maimon clearly shows that philosophy seems to have found in infinitesimal calculus the possibility of determining the "quality" of magnitude independently of its intuitive being. This is a conception that, as I will show in the next chapters, continually reappears in different forms in post-Kantian debate. According to Maimon, infinitesimal calculus shows that "fluctuations and differentials," despite having no finite extension, "are ... distinct through their manner of emerging [Entstehungsart]" (MGW 7:210).

Moreover, and particularly significant for the present work, Maimon explicitly relates this proposal to the Anticipations of Perception (see. MGW 7:210–11, 214–15). "[A]ll objects presentable *a priori*," Maimon writes, reformulating Kant's

<sup>73</sup> "Intensive magnitude is the differential of extensive magnitude and this in turn is the integral of the first" (MGW 2:122).

principle, “[that is] all *quanta* (since we have no other *a priori* objects),” are, “according to their manner of emerging, intensive magnitudes” and “can be regarded as velocities in a certain point or as first and last relations” (MGW 7:215). In the same way, all “*a posteriori* appearances ... are in their emerging and vanishing intensive magnitudes” because sensation, “which corresponds to the matter of sensible perception ... does not have any extensive magnitude,” but rather, allowing different degrees, “has an intensive magnitude” (MGW 7:215–).

The possibility of determining the quality of magnitude through infinitesimal calculus allows mediation between these two points of views, between sensible qualities and intelligible qualities. Here, Maimon seems to offer a solution to the fundamental problem that critical philosophy had left unresolved: “[H]ow can the agreement between *a priori* forms and *a posteriori* things be conceived? ... How can the understanding actually submit to its power (the rules) something that is not in its power (the given objects)? According to Kant’s system, for which sensibility and understanding are two completely different sources of knowledge, this question, as I have shown, is irresolvable” (MGW 2:32). Only if “empirical” multiplicity is substituted with a “rational” multiplicity; only if the different qualities (heat, color, sound, etc.), which according to Kant<sup>74</sup> are simply “given” intuitively, can themselves be determined conceptually; does it seem possible to heal the apparently overwhelming fracture between the two sources of knowledge: “this manner of consideration also serves in the solution to the problem: *Quid juris?* Since the concepts of the understanding or the categories never refer directly to intuitions ... but rather to the way of emerging [Entstehungsart] of intuitions” (MGW 2:355).

## 2.7 Change and Synthetic Unity

My aim is not to reconstruct Maimon’s views in detail or to enter into the specific philosophical questions that they raise. Rather, the above section aims to highlight several important results for the present investigation. Up to this point, I have attempted to demonstrate that the meaning of the Anticipations of Perception ultimately consists in the idea that the opposition between reality and negation (in phenomena) is not logical and qualitative, but should be thought as real and quantitative instead. Whereas no third exists between two contradictory opposites, between two real opposites, as close as they may be to one another, there is always an intermediate point, a point of indifference in which their reciprocal quantitative difference is  $= 0$ . As Kant notes in a reflection that seems to adequately summarize what has been said until now, “the direct connection of opposites in the same subject is only possible in as much as [ausser so fern] I take zero to be the infinitely small of the property of A. For example, the emergence of pain from indifference [Gleichgültigkeit] is possible only if the latter is considered an infinitely small

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<sup>74</sup> See above 14.

pain" (AA 18:410; Refl 5971.). When the quantitative difference between the two opposites diminishes to the point that they coincide, vanishing into each other, the absolute nothingness of contradiction is not found since "the negation of the lack can be considered as the infinitely small, but not as the negation of the contradiction of the concepts (qualitative opposition)" (AA 18:378; Refl. 5894).

To grasp the theoretical significance of this solution to the problem and the way in which it can overcome the conflict between intuition and concepts, one first needs to acknowledge that the problem of change and becoming is not merely a marginal problem in Kant's philosophy. The characteristic of alterations consists in the fact that by means of them, completely new contents are constituted, contents that emerge from the unknown depths of "being" and oppose themselves to "knowledge" as something autonomous and independent. Becoming is the irruption of the absolutely unexpected, of that which confronts the subject as something entirely strange in respect to the knowledge it possesses. In every change, the new state opposes the preceding one as something that cannot be taken apart analytically. The concept of change reveals, in the most intuitive form, the fundamental problem of critical philosophy: How is it possible to "go beyond the concept *A* in order to cognize another *B* as combined with it" (A9)? How is it possible to admit that "if *A* is posited ... something altogether different from it, *B*, must necessarily also exist" (AA 5:51)?

Kant solves this problem, as is well-known, through the concept of synthetic unity and a *a priori* synthesis. Overcoming mere analytic identity between concepts, he shows how the possibility of knowledge is not based on the homogeneity of the identical, but on the necessary connection of the different. If the concept *B* that should be connected with *A* cannot be considered immediately or mediately as identical to *A*, this signifies that it is not-*A*, that it is radically opposed to *A* as its contradictory opposite. Thus, no mediation is possible between the concept *A* and the concept *B* because everything that begins to be, before beginning, is not something, but "nothing," and as "nothing," *B* can be anything provided that it is not *A*.

However, if one concedes with Kant the possibility of "anticipating" not only the form of the connection but also its very content, one admits the possibility of establishing completely *a priori* that the concepts *A* and *B* to be connected are not distinguished *qualitate*, but only *quantitate*. *B* is certainly different from *A* and is not contained in *A*, but *B* is not simply the logical negation of *A* (i.e., not-*A*) since *alterum contradictorium dicitur de quolibet* [the contradictory other can be said of everything]. One must affirm that concept *A* is distinguished from *B* not by "nature," but only by "degree".

The Anticipations of Perception seem to provide the basis for such a solution to the problem. The theoretical import of the principle is its establishing *a priori* that the opposition between reality and negation in phenomena only involves quantity. It is the difference between  $+A$  and  $-A$  in respect to the point of indifference = 0, rather than the qualitative opposition of *A* and its contradictory opposite not-*A*. However, as I will attempt to demonstrate in the following chapters, this theoretical import is only fully clarified in post-Kantian philosophy's appropriation and development of the principle. Only by moving beyond Kant can one appreciate the

fruitfulness of this specific form of opposition between reality and negation that Kant indicates as characteristic of *realitas phaenomenon*.

“That all opposition is only quantitative was for some time a cardinal thesis of recent philosophy” (HW 5:269).<sup>75</sup> Hegel’s words effectively summarize what can be considered to be one of the fundamental postulates of post-Kantian philosophy; an idea that, as I have shown, flows from the heart of critical philosophy itself and, as I will discuss in further detail, seems to have irresistibly spread throughout later philosophy. As Fichte writes in “Foundations of the Entire Science of Knowledge” (*Grundlage der gesamten Wissenschaftslehre*) (1794–95), “Just as, previously, a not-I was opposed to the not-I in general, as an opposite *quality*, so here, an objective is opposed to the subjective [...] simply by and by means of *quantity* [...] and this procedure is a quantitative antithesis, just as the earlier procedure was a qualitative one” (FGA 1:2:351).<sup>76</sup> In *Darstellung meines Systems der Philosophie* (Presentation of my System of Philosophy), Schelling explicitly reaffirms this conception, providing a particularly effective formulation: “between the subject and object a difference is not possible unless it is quantitative ... that is, a difference that involves quantity of being” (SW 3:19).

The logical opposition between reality and negation, being and non-being, seems somehow to bring with it all the others. Dogmatic metaphysic merely translates the opposition between “concepts” into an objective opposition between “things” such that an unbridgeable ravine seems to prevent any mediation between knowing and being, between the subject and the object, between the known and the unknown. This *impasse* can only be overcome by thinking these oppositions in such a way that the two opposites are from the beginning thought within a common horizon, being distinguished only in terms of more and less. Logical opposition between concepts must be substituted with real opposition: “the opposition of subject and object is a real opposition [eine reelle Entgegensetzung]” (HW 2:97)<sup>77</sup> and “if the opposition is real it is merely quantitative” (HW 2:99).<sup>78</sup>

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<sup>75</sup> English translation from Hegel, *Hegel’s Science of Logic*, 233.

<sup>76</sup> English translation from Fichte, Johann Gottlieb. “Foundations of the Entire Science of Knowledge.” In *Science of Knowledge*. eds. Peter Lauchlan Heath and John Lachs. (Cambridge: Cambridge University Press, 1982), 186.

<sup>77</sup> English translation from Hegel, Georg Wilhelm Friedrich. *The Difference between Fichte’s and Schelling’s System of Philosophy*, tr. Henry S. Harris and Walter Cerf (Albany: State University of New York Press, 1977), 157.

<sup>78</sup> English translation from Ibid.

This, as Hegel attempts to demonstrate in *The Difference Between Fichte's and Schelling's System of Philosophy* (the so-called *Differenzschrift*), is where Fichte's and Schelling's philosophies converge. Referring particularly to Fichte in *Faith and Knowledge* (*Glauben und Wissen*), Hegel explicitly characterizes the two opposites as a positive and negative magnitude like  $+1$  and  $-1$ , affirming that the limit that separates the one from the other and the point in which they touch is  $= 0$ : "empty thought [das leere Denken], 0, which is the middle between  $+1$  and  $-1$  wherein  $+1$  and  $-1$  disappear" (HW 2:2:413).<sup>79</sup> The reality of this empty thought "consists in the  $+1-1$ , and the standing of this antithesis provides the content of this idealism [...] But at the same time these opposites are ideal ( $= 0$ ) and their true truth is [...] in their being nothing" (HW 3:413).<sup>80</sup>

Finding a *concept* that is capable of establishing the third that, for Kant, is only given in *intuition*, a third in which the opposites ( $+$  and  $-$ ) can be distinguished from each other while coexisting at the same time, would also resolve the problem concerning the opposition of the two sources of knowledge. In as much as post-Kantian philosophy, up to neo-Kantianism, has attempted to overcome this conflict, it has necessarily resorted to such a conceptual tool. Thus, Maimon's thesis has not remained an isolated hypothesis. The infinitesimal method, or rather the speculative and philosophical interpretation of it, seems to be precisely one such conceptual tool for thinking the "affinity" of elements that, despite being quantitatively different, can be considered under a common conceptual point of view.

If a firm logical opposition between  $A$  and not- $A$  is maintained, then any "third" between the opposites is excluded and knowledge of one's own ignorance is merely contradictory since "[t]he ignorant person has no concept of his ignorance, because he has none of science" (B603). Only by admitting another form of opposition, not logical but real, can one think something intermediate between knowledge and ignorance. Only "real" negation can represent the positive affirmation of something new opposed to that which is already known, and that which nevertheless has an intimate correspondence to the latter: "if the subject and object are completely identical, then there is no knowledge at all; if they are completely heterogeneous, then there is no *a priori* knowledge. Only the intermediate route between the two extremes is accessible and only by means of it can one resolve the problem."

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<sup>79</sup> English translation from Hegel, Georg Wilhelm Friedrich. *Faith and Knowledge: An English Translation of G. W. F. Hegel's Glauben und Wissen*, tr. Henry S. Harris (Albany, NY: SUNY Press, 1996), 172.

<sup>80</sup> *Ibid.*:



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