

# Some Optical Motifs in Kantian Philosophy

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The connection between the study of optics and the progression of philosophy could be said to express itself in a mirroring of form between theories of vision, geometric description, and conceptions of subjectivity and knowledge. Euclid’s *Optics* marked the first mathematical work in a Hellenistic tradition extending through Ptolemy, Hero of Alexandria, and Theon, in which perception was depicted geometrically as rays emitted from their convergence at the eye; correspondingly, Neoplatonic philosophers embraced a theory of vision in which the eyes perceive via emitted rays, and propounded a theory of knowledge in which the movements of the soul both generate the phenomenal world and allow connection with the greater *nous*.<sup>1</sup> Developments in the manufacture of optical instruments led to an empirical science removed from tradition-based knowledge, whose experimental practices were reflected in both the corpuscularianism of Descartes and Locke and their methodological skepticism.<sup>2</sup> Given this apparent correspondence between abstractions in optics and theories of subjectivity and knowledge in philosophy, I wish to ask whether Kant’s critical philosophy—with its self-proclaimed Copernican chiasmic reversal—can also be said to display some optical characteristics. I will first describe Kant’s uses of illusion and projection in his diagnosis of metaphysical error. Secondly, I will offer a comparative example through Fichte’s 1804 version of the *Wissenschaftslehre* lectures, which give a treatment of light that accords with the development of German Idealism against Kant’s initial critical boundaries.

In “Kant’s Philosophy of Projection” Constantine Rauer addresses the character and origins of Kantian critical philosophy by following the development of Kant’s use of the concept of projection. This preoccupation with projection is clearest in the “pre-critical” *Inaugural Dissertation* (1770) and also in the earlier *Dreams of a Spirit-Seer* (1766). As Rauer argues, a more accurate understanding of Kant’s critical project can be yielded by connecting the allusions to projective mechanisms within these texts to the later claims of the *Critique of Pure Reason*.

In his *Dreams of a Spirit-Seer*, Kant draws a parallel between the mysticism of Emanuel Swedenborg and the metaphysics of his philosophical contemporaries, arguing that both

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<sup>1</sup>Eastwood, Bruce S. “Mediaeval Empiricism: The Case of Grosseteste’s Optics.” *Speculum* 43, no. 2 (1968): 306–21. doi:10.2307/2855937. P. 306.

<sup>2</sup>Young, Mark Thomas. “Nature as Spectacle; Experience and Empiricism in Early Modern Experimental Practice.” *Centaurus* 59, no. 1–2 (2017): 72–96. doi:10.1111/1600-0498.12155.

have mistaken their projections of the imagination for knowledge. A biting, satirical commentary on mystic visions, *Dreams* is said to be the result of Kant's exposure to Humean Skepticism and his turn against the rationalism of Leibniz and Wolff.<sup>3</sup> In his critiques of mystic divination of knowledge, Kant compares the supposed perception of spiritual visions to the phenomena of optical illusion. In both cases, the subject misperceives images from their own imagination as actual objective presences. Referring to these cases as *Hirngespenster*, or "brain phantoms," Kant describes their behavior through reference to the "optical deception" of visual media. According to Stefan Andriopoulos, Kant alludes in these arguments to spectacles such as the magic lantern of Paul Philidor, and the generation of illusory "phantasmagoria" through concave mirrors as described in 18th-century texts on optics.<sup>4</sup> These instruments were used in public performances in theaters where hidden lanterns, mirrors, and clouds of smoke floated ghostly images above an audience.

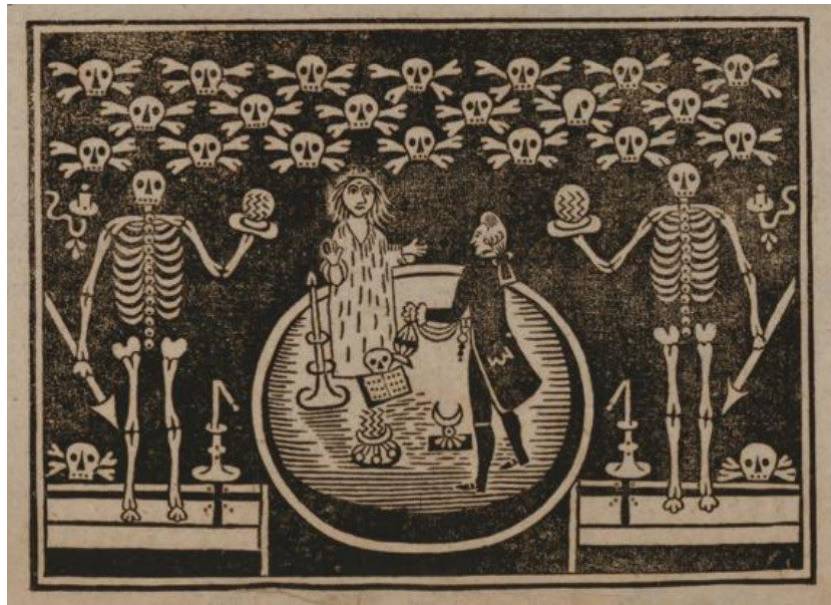


Figure 1: Illustration of a performance by Philidor, from a 1791 handbill. ("Phylidors natürliche Geistererscheinungen," Wikimedia Commons.)

Kant's invocation of optical phenomena goes beyond metaphor in *On the First Ground of the Distinction of Regions in Space* (1768), the beginning of Kant's transference of the concept of projection from analytic geometry into his work in philosophy. This transference was further developed through integration with Kant's work in logic when in the *Inaugural Dissertation*, Kant employs projection in logical judgments as a means of diagnosing errors in philosophical thought. Kant outlines three sorts of projection: "(1) the projection of the

<sup>3</sup>Kant, Immanuel, Gregory R. Johnson, and Glenn Alexander Magee. *Kant on Swedenborg: Dreams of a Spirit-Seer and Other Writings*. West Chester: Swedenborg Foundation Publishers, 2007. P. xii.

<sup>4</sup>Andriopoulos, Stefan. *Ghostly Apparitions: German Idealism, the Gothic Novel, and Optical Media*. Cambridge, MA: MIT Press, 2013. P. 29–30.

subjective onto the objective, (2) the projection of the intelligible onto the sensitive, and (3) the projection of predicates onto a grammatical subject.”<sup>5</sup> But what, exactly, does the form of optical projection describe about these errors in logical judgement?

As an aid in understanding, Rauer gives us an analysis of the idea of projection and its component parts through an image of the camera obscura, the oldest projective apparatus. Before projection can take place, a source of illumination is required. Rauer labels this  $S$ —for “subject”—and identifies it with the sun outside of the camera obscura, or the projective apparatus, which is labeled  $A$ . This apparatus is composed of an aperture, labeled  $B$ , and a projective screen, labeled  $O$  for “object.” An object of projection, labeled  $P$  for “predicate,” is placed between the light-source ( $S$ ) and the apparatus ( $A$ ). Through the mechanics of light, an image of the predicate ( $P$ ) is projected virtually onto the screen ( $O$ ) and becomes an image, labeled  $P'$ .

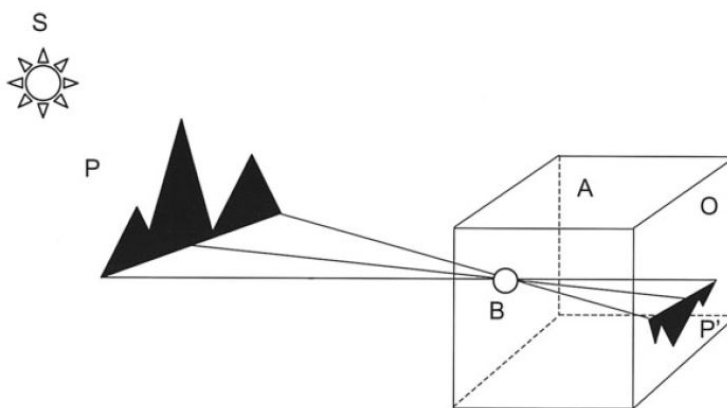


Figure 2: Rauer’s simplified model of the camera obscura.

Thus, a complete model of projection requires five distinct elements. As an example case, Rauer asks us to imagine that  $P$  is a pink light source. To the observer inside the apparatus, the representation  $P'$  will appear pink even though the actual observed object (the screen  $O$ ) is colorless. In a more explicit application of the model to philosophical judgements, Rauer identifies  $O$  with “... being... the world of objects as such.”<sup>6</sup>  $P$ , or that which is projected as  $P'$  onto  $O$ , are forms of intuition like space and time as well as rational concepts. The subject  $S$ , by virtue of providing the light of projection, is identified with the synthetic unity of apperception in the Transcendental Deduction of the *Critique of Pure Reason*, a concept absent from the *Dissertation*.

The model of the projection thus embodies one of the central claims of Kantian philosophy: that the appearances of objects are not properties of the objects themselves ( $O$ ), but instead result from the intuitive apparatus of ( $A$ ). Therefore, nothing can be said

<sup>5</sup>Constantine, Rauer, Douglas Moggach, and Marcelo Stamm. *Rethinking German Idealism*. Aurora, CO: Noesis Press, 2016. P. 22.

<sup>6</sup>*Ibid.* P. 33.

about objects as such beyond the forms they take as representations ( $P'$ ). The locus of philosophical investigation thus shifts from the supposed forms of objects themselves to our own projective apparatuses, giving rise to a critical philosophy which takes the constitution of sensibility and thought as its object. In the *Dissertation*, for instance, Kant's critique of Leibniz's assertion that space and time are predicates of substance aims to prove that Leibniz has mistaken properties of the projective apparatus for properties of its predicates. With this mode of critique, Rauer claims that Kant surpasses the "Neoplatonic-theosophical system of immediacy" for a critical system of representation which is aware of the limits of its own thought.<sup>7</sup>

In the last section of the *Dissertation*, Kant criticizes some axioms of academic philosophy—mostly from Leibniz—as the illusory results of philosophical projection. In all of these cases, the sensitive conditions of cognition are mistaken as the conditions of possibility of objects. Or, as Rauer puts it with his formula, the logical mistake occurs when the sensuous conditions of the subject (the  $P$  of  $S$ ) are assumed as predicates of being, the  $P$  of  $O$ . The first of these errors is the "projection of pure sensible intuition onto existence," which is embodied by the axiom that "whatever is, is somewhere and somewhen." Earlier in the *Dissertation*, Kant offers an argument anticipating his later Transcendental Aesthetic, in which time and space are shown to be pure intuitions presupposed in perception rather than objective and real substances, accidents, or relations. Neither concept can arise from the senses, but instead are presupposed in the possibility of sensation. This is demonstrated by the fact that representations of time and space are not universal, but singular; while universal representations may be divided into constituent parts through analysis, the concepts of time and space cannot be divided in the same manner.

The second error is the "projection of comparative concepts onto existence," which displays itself in the following principles: (a) "Every actual multiplicity can be given numerically, and thus every magnitude is finite," and (b) "Whatever is impossible, contradicts itself." In (a), the concept of countability is mistakenly projected onto multiplicity, and the concept of magnitude is projected onto the finite nature of human existence. Because the comprehension of an infinite series is limited by our temporal existence, (a) mistakenly projects such a limitation onto existence as such. Rauer points out that a similar projection occurs in the case of monads and simples, when the limits of our subjective judgements of division are taken as objective minimums of substance. In principle (b), the false projection occurs in the transference of a logical principle onto real possibility. While the principle of contradiction holds for predicates contradicting each other at the same time, the reality of causal events (in which an  $A$  replaces  $B$  in temporal succession) shows that one cannot always accord the impossibility of contradiction with real existence. An even more "wild projection," according to Kant, takes place when one assumes, by extension, that whatever does not involve a contradiction is possible.<sup>8</sup>

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<sup>7</sup> *Ibid.* P. 34.

<sup>8</sup> *Ibid.* P. 41.

The third error, entitled the “projection of the concept of the understanding of necessity onto existence,” displays itself in the fallacious axiom that “whatever exists contingently, at some time did not exist.” The heart of the error lies in the transposition of the necessities of thought into the contingency of existence, through the assumption that all real contingencies display the characteristic mark of contingency in thought. If one were to reformulate the proposition as “whatever at some point was not, is contingent,” it would avoid such an error. Kant attributes this sort of mistake to both philosophical sloth and the very nature of the understanding, which seeks to “deploy its own perspicacity” under conditions which are easy and practical.

Lastly, the fourth error of projection which Kant critiques in the *Dissertation* is entitled the “projection of subjective onto objective reasons.” Principles such as Leibniz’s pre-established harmony, like the earlier teleological axioms of Neoplatonism, claim that the universe is composed of parts in accordance with a natural order, whose material constituents neither come into being nor pass away but remain in a unity. The error in projection, according to Kant, occurs as the subjectively necessary order of experience is assumed to reflect a grander natural order rather than the ordering of sensation by the faculties. Similarly, the Leibnizian principle of sufficient reason is the result of the projection of subjective grounding into an actual causal unity.

Of the earlier-stated three types of mechanisms of projection in logical judgement, these four errors all embody the first mechanism—the projection of the subjective onto the objective—in that they take the subjective conditions and concepts of understanding and intuition as objective properties of nature. The second mechanism, the projection of the intelligible onto the sensitive, occurs in the fallacious “confusion of what belongs to the understanding with what is sensitive,” as in the assumption that all magnitudes must be finite. In the *Critique of Pure Reason*, this type of error is diagnosed as amphiboly, or the erroneous use of reason beyond the limits of possible experience. Thirdly, the projection of the predicate onto a grammatical subject corresponds to both the “paranoia of philosophy” in Kant’s *Maladies* and antinomy in the *Critique of Pure Reason*. This error manifests itself as a sort of mania in which one causally overextends a predicate into the position of subject, or, conversely, transposes a subject into the position of predicate, and thus mistakenly lends an omnipotence to thought.<sup>9</sup>

For Rauer, the taxonomy of projections in logical judgement given in the *Inaugural Dissertation* is the germ of Kant’s later concern with the critical limits of thought in his *Critique*. In the latter work, Kant describes his subject-matter as “...not the nature of things, which is inexhaustible, but the understanding which passes judgement upon the nature of things; and this understanding, again, only in respect of its a priori knowledge.”<sup>10</sup> Returning to the model of the camera obscura, it seems that the proper object of critical

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<sup>9</sup>*Ibid.* P. 47–48.

<sup>10</sup>Kant, Immanuel, and J. M. D. Meiklejohn. *Critique of Pure Reason*. Mineola, NY: Dover Publications, 2018. (A 13/B 26).

philosophy should be the structure of one's perceptual apparatus rather than the content of its projections, and the unknowable natures of their external sources. Earlier philosophy, in attempting to think beyond experience, succumbs easily to errors of projection. Rauer claims that this pathology manifests itself not only in the pre-Kantian metaphysics of Leibniz and Swedenborg, but also in the later works of German Idealists like Schelling and Hegel. Schelling's identity-philosophy, for instance, asserts a unity of the subjective and objective in its attempt to break with the problematic aspects of Kant's dualism of phenomena and noumena. This amounts, for Rauer, to the same theosophic error which Neoplatonic schools of thought indulged in centuries earlier.<sup>11</sup>

Is Rauer correct in his claim that German Idealism falls victim to illusory projection? I will now briefly examine another case of optical motif in Kantian thought: Fichte's concept of "the light" in his 1804 version of the Science of Knowledge, or *Wissenschaftslehre*. Fichte's attempt to systematize transcendental idealism and ground it with a first principle originated in the earlier work of Reinhold, whose principle of consciousness (in which a subject distinguishes and relates a representation from and towards both subject and object) was at the heart of his Elementary Philosophy. Although Fichte admired the spirit of Reinhold's work, he saw this principle of consciousness as problematic and replaced it with his own *tathandlung*, or fact-act of the self-positing "I." As with the role of Kant's synthetic unity of apperception in his transcendental deduction, the *tathandlung* operates as a fundamental self-consciousness which grounds the multiplicity of thought in its self-positing. The "not-I," or objective world, can exist only as the result of the subject's activity, because "...all that is not-I is for the I only."<sup>12</sup>

Fichte's initial doctrine, set forth in the 1794 edition of the *Wissenschaftslehre*, attracted criticism from Schelling and Hegel for its privileging of subjectivity. The *tathandlung* seemed to imply that the existence of objects was entirely reducible to the act of a positing subject, a critical overreaction against Kant's reliance on a noumenal mind-independent cause of sensation. In response to these concerns of one-sided subjectivism, Fichte's 1804 *Wissenschaftslehre* lectures repudiated the *tathandlung* as first-principle, favoring instead a new focus on oneness and unity, which Fichte illustrates through his optical concept of "the light." Because light—phenomenally speaking—is not an object that occupies space, but rather an immaterial and immediate being which exists in virtue of our affection by it, Fichte saw it as exemplary of the unity of objectivity and subjectivity proclaimed in his higher idealism. Absolute idealism, which loses the necessary opposition of not-I, and overzealous realism, which takes the content of knowledge as sole truth, could be escaped through the oneness of subject and object as complementary aspects of absolute being.<sup>13</sup>

<sup>11</sup>Constantine, Rauer, Douglas Moggach, and Marcelo Stamm. *Rethinking German Idealism*. Aurora, CO: Noesis Press, 2016. P. 49.

<sup>12</sup>Fichte, J. G., *Fichte: Early Philosophical Writings*, trans. and ed. Daniel Breazeale, Ithaca: Cornell U. P., 1988, P. 73.

<sup>13</sup>Altman, Matthew C. "The Science of Knowing: J. G. Fichte's 1804 Lectures on the *Wissenschaftslehre*." *Notre Dame Philosophical Reviews*, November 13, 2005. <https://ndpr.nd.edu/news/>

Fichte describes his use of “the light” as a “construction in sensory terms,” which is derived from the contemplation of the immediate nature of self-conscious knowledge. As with the *tathandlung*, the light is self-assuring in that it validates its own existence from the very act of contemplating it. The duality of propositions such as “from a–b” is permeated completely through the light; indeed any conceptual use of “from” necessarily posits the light, just as every “such” which appears in seeing relies on an absolute and immediate “from.”<sup>14</sup> Such necessity is apparent *a priori* and without any empirical presupposition.<sup>15</sup> This is because the light is prior to the distinction between being and thought.<sup>16</sup> Thus, even the contemplation of the light is in itself a projection of light.<sup>17</sup> In this final claim, one is reminded of the aforementioned Neoplatonic emission theory of vision and its reliance on directional rays.

The contrast between Fichtean idealism and Kant’s critical philosophy reveals itself, *pars pro toto*, in their differing treatment of optical themes. For Fichte, light is the source of a self-evident revealing which guides his philosophical system. For Kant, light is a fountain of illusion as often as it is a source of insight. The mistaken projections of metaphysical speculation occur when one fixates on the light instead of the perceptual apparati which shapes it, just as staring at the sun yields blindness. In Kant’s diagnoses of errors in logical judgement, the mechanics of projection operate through the distinctions between sensibility, the understanding, and reason, or between subject and predicate. These actors might transpose themselves upon each other in thought, as in when reason projects ontological axioms from the limits of sensibility, or when subjective reasons are projected onto objective ones. The possibility of reason reaches beyond the limits of experience, but like blind spots in a visual field, some possibilities are inevitably fruitless by design of the apparatus. While there exist transcendental ideas which can be said to be indispensable elements of the possibility of experience, there also exist indispensable elements of the possibility of reason which project various illusions.<sup>18</sup>

Kant’s claims of transcendental argumentation share Fichte’s supposition of a unity between thought and being, but Kant is hesitant to stake such claims beyond the focal point of the lens—so to speak—as when the transcendental deduction invokes synthetic unity to justify only the objective validity of a priori concepts as conditions for the possibility of experience, without drawing conclusions about the nature of noumenal existence beyond the bare metaphysical grounding of its presence. Fichte’s idealism, in contrast, allows its desire for systematicity to overrun such a limit when its extrapolation from a first principle continues into a full-fledged structure and law of the light. Such a desire stems from Kant’s appeal to the unities of reason, which arise when its ideas are put to “good and proper” use;

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<sup>14</sup>Fichte, Johann Gottlieb, and Walter E. Wright. *The Science of Knowing: J. G. Fichte’s 1804 Lectures on the Wissenschaftslehre*. Albany: State Univ. of New York Press, 2005. P. 145–146.

<sup>15</sup>*Ibid.* P. 151.

<sup>16</sup>*Ibid.* P. 70–71.

<sup>17</sup>*Ibid.* P. 62.

<sup>18</sup>Grier, Michelle. *Kant’s Doctrine of Transcendental Illusion*. Cambridge Univ. Press, 2007. P. 6–7.

however, it ignores the fact that Kant’s critique of metaphysics also describes a systematic order of illusion.

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