

The relation of perception and action based on a heterarchy of final purposes

Patrick GRÜNEBERG (Kanazawa University)

Introduction

Opposed to the modular view that perception and action are two separate capacities, recent approaches in cognitive science propose the view that perception and action depend on each other.¹ Opposed to these approaches that conceive both capacities separately and then consider their relationship, Fichte explains the unity of perception and action in the *Facts of Consciousness 1810/11*. His genetic approach allows developing this unity out of the basic practical capacity. Based on a priori-functional analysis, Fichte considers a particular type of image that unites perception and action. These images constitute perceptual reality. They do not depict a given reality, but form the medium by which human subjects create perceptual reality through action. In this sense, he proposes a constitutive or, as I shall explain, a projective type of image. The problem of judging these images comes up in Fichte's a priori-functional exposition of these projective images. He is in need of some criteria to explain whether an image is a meaningful image in terms of a successful guidance of action. Fichte's answer consists in his well-known insistence on morality and the moral law. Thus, in order to give meaning to the functional play of images, all image production has to follow the moral law as the final purpose of all human action and being.

Through an analysis of Fichte's concept of a projective image, I will try to show that his exclusive determination of the final purpose in terms of the moral law is not mandatory. For this purpose, I will first analyze the functional nexus between perception and action: images as the basis of outer perception originate as the practical design of reality according to the intentions of an agent and the external resistance against these intentions. In this sense, outer perception does not depict a given reality, but forms the product of practical decision-making and real-world action. This functional conception of projective images allows Fichte to explain the unity of perception and action. Second, I will point out the functional need for a criterion to determine these images, and explain the arbitrariness of Fichte's solution. Third, I will introduce the concept of the heterarchy that allows for a complex of final purposes. In functional terms, there are further candidates for judging images that are not founded rationally, such as aesthetic or ecological criteria. The concept of a heterarchy of final purposes allows securing the functional validity of projection while appreciating the complex and manifold reality of the human lifeworld.

¹ Cf. Bishop, J. M. and Martin, A. O. (eds.): *Contemporary Sensorimotor Theory*, New York 2014, and Engel, A. K., Friston, K. J. and Kragic, D. (eds.): *The pragmatic turn: toward action-oriented views in cognitive science*, Cambridge, Massachusetts 2015.

1 The image of resistance as the nexus between perception and action

The concept of the image, alternatively the scheme, is present in Fichte's entire later works. It forms the basic constituent of the transcendental capacity underlying any production of consciousness, or as Fichte says, knowledge. In the course of the *Facts of consciousness 1810/11*, he develops the "image of the resistance"² in order to explain the relation between perception and action in the "objective image of the world"³ that breaks down into four moments: 1) A system of individual I's corresponds to 2) a numerically same system of organized "bodies"⁴. 3) The I's view themselves in the sensory world of outer perception. Moreover, the sensory world contains the products of the individual efficacy of every I. 4) These products are intersubjectively perceivable. The relation between perception and action originates in an inhibition of the most fundamental activity underlying any consciousness. Fichte calls this activity "life" and explains consciousness as the workings of the capacities of this life.⁵ The causality of the absolute life becomes inhibited so that there results "a causality which is no causality"⁶, or a drive. Based on this inhibition, consciousness emerges in terms of "self-awareness"⁷ and an inner sense. Moreover, a consciousness of the capacity to be efficient emerges, i.e. "an intuition of the real capacity for the sake of causality in the sphere of being"⁸. The individual I intuits its possible efficacy ideally.

The ideal intuition of the real capacity forms the starting point for real efficacy in that the I imagines state *d* that it cannot directly cause. Nevertheless, the I can also imagine state *a* that it can realize and that serves as a starting point of a causal chain to *d* and as an immediate cause of *b*. The same causal relation holds between *b* and *c*, and *c* and *d* so that the I posits a concept of purpose⁹ with this ideal sequence of a causality to be realized. In order to form this concept of an action, or as Fichte expresses himself, in order to "calculate"¹⁰ real action, a further condition for the material realization of action is required: the *image of the resistance*. This image connects the different I's in terms of the individuality and historicity of the products of their actions.

In the intersubjective context of the I's, Fichte distinguishes two spheres of sensory intu-

² "Bild des Widerstandes": Fichte, J. G.: Die Thatsachen des Bewußtseyns 18010/1811, in: H. G. von Manz, E. Fuchs, R. Lauth and I. Radrizzani (eds.): *J. G. Fichte. Die späten wissenschaftlichen Vorlesungen I. 1809-1811* (frommann-holzboog Studententexte 1). Stuttgart-Bad Cannstatt 2000 = TB10/11, p. 327 (transl. P.G.).

³ "objektive Weltvorstellung": *ibid.*

⁴ "Leiber": *ibid.*

⁵ Cf. *ibid.*, p. 275ff.

⁶ "eine Kausalität, die keine Kausalität hat": *ibid.*, p. 275.

⁷ "Selbstgefühl": *ibid.*, p. 276.

⁸ "Anschauung des realen Vermögens [...] zur Kausalität in der Sphäre des Seyns": *ibid.*, p. 277.

⁹ Cf. *ibid.*, p. 277f.

¹⁰ "berechnen": *ibid.*, p. 290.

¹¹ Cf. *ibid.*, p. 331.

tion in relation to individual actions and their products.¹¹ First, the sphere of natural development that comes as a process and not as contingent actions. Historic contingency assumes that an object or event could have individualized in another way. However, natural events do not imply this variability of intentional initiation that lies at the ground of human action. Correspondingly, the second sphere of intended action is variable through freedom. In the course of realizing an action, in which an I individualizes itself in a certain concept of an action or its product, in this, as Fichte expresses, “actus individuationis”¹², the I posits a concept of action without any law and with freedom (spontaneity). The I determines itself materially so that the product of this lawless action becomes individual and contingent. With this, only the initiation (inducement) of the product is contingent, not its material realization in the imagination that works according to the general laws of thought and intuition.¹³

Because all action comes down to manipulation of matter, an I has to deal with its surrounding material world in the course of calculating the concept of an action. An action will never start from the scratch, but builds on the existing material situation that comprises the results of all previous actions and natural processes. If the I projects its concept of purpose (the causal series of intended action), this projection is determined by the actual material condition of the world and becomes the image of the resistance - resistance of the material world against the ideal concept of purpose. In particular, it can happen to an individual I that an action is not possible because the corresponding matter has already been manipulated in a way that a manipulation according to its own concept is not any more possible: “What has been done, is done, and cannot be done again neither by the initiator nor by someone else.”¹⁴ It is “this immediate consciousness of not-being-able-to according to a factual expression of freedom, the necessary recognition of factual being”¹⁵ through which individual and contingent contents become perceivable. An action proves unfeasible through individual and contingent facts so that such facts determine the I and come up as perceivable contents in the image of the resistance, i.e. through the specific kind how they inhibit the capacity for action (causality). The meaning of individuality and historicity consists in how they restrict the plan of a concept for action. Accordingly, they own relevance for the genesis of action, i.e. they own epistemic relevance in terms of imparting knowledge about impossible actions in the course of calculating a concept of action. This does not imply knowledge of the outer world in terms of a representational relation to reality, but rather knowledge about the products of other I’s insofar these are relevant for its own acting.¹⁶

¹² Ibid., p. 340.

¹³ Cf. *ibid.*, p. 290ff.

¹⁴ “Was gethan ist, ist gethan, und kann nicht wieder gethan werden weder von dem Urheber, noch von irgend einem andern.”: *ibid.*, p. 345.

¹⁵ “dieses unmittelbare Bewußtseyn des Nichtkönnens zufolge einer faktischen Freiheitsäußerung, die nothwendige Anerkennung des faktischen Seyns”: *ibid.*, p. 346.

¹⁶ Fichte primarily discusses the relevance of products of other I’s, but the relevance of the (natural) environment of the acting I could be added to the constraints of action.

The image of the resistance solely fulfills the function that the I calculates the concept of a possible action and acts causally through the realization of this concept. Thus, the outer sense and perception result from a projection of the inner sense onto the outer material environment that becomes the perceived outer world as resistance to the original causality of the I. The image of the resistance establishes this relation between perception and the realization of action. In sum, following the concept of projection, we depend on intuitive (perceivable) contents and refer to a given material world in order to act. At the same time, these intuitive contents are the result of our individual purposes because our acting (our initiation to act) generates outer perception. In this sense, the unity of perception and action consists in the image of the resistance as a product of practical decision-making.

2 Final purposes and material criteria

According to Fichte, consciousness depends on a drive for action. The projective relation between perception and action appeared in that perception is the consciousness of not-being-able-to, thus in the end action consciousness. The concept of projection clarifies this foundation in terms of an intended realization of purposes, whereby the world is covered with intentions and in this way gets meaning as world. Regarding this projection of the world in perception and action, Fichte posits the important question of giving meaning. If consciousness should not only be “a play of free activity and expression of power”¹⁷, what should an I use its capacity for? Which purpose does it follow? For the sake of which concept of purpose, which causal chain is the image of the resistance formed? These questions are important because criteria are necessary in order to determine actions and their products within a functional architecture which Fichte develops in transcendental terms.¹⁸ Such an architecture can only be realized if a final purpose is known so that can be stated under which conditions a projection or an action could be counted as meaningful.¹⁹

Fichte’s answer to the question of the normative determinant of consciousness is well known: The final purpose of free action consists in morality. In this perspective, the sensory world and nature as well as the individual person provide the media of a moral world-order.

¹⁷ “Schauspiel [...] von freier Thätigkeit und Kraftäußerung”: *ibid.*, p. 357; cf. Jacobs, W. G.: Der Gottesbegriff in den ‚Thatsachen des Bewußtseyns von 1810/11‘ als Übergang zur Wissenschaftslehre in specie, in: *Fichte-Studien* 29 (2006), pp. 211-224, here p. 214f.

¹⁸ The deductive method that Manz shows up in the TB 10/11 regarding the “conditions of the possibility of a moment of knowledge” or the proof “that they [the moments of knowledge] are to be understood only as conditions of possibility of a ‘higher’ moment of knowledge” (Manz, H. G. von: Die Funktion der ‚Tatsachen des Bewußtseins‘ im Blick auf die Wissenschaftslehre, in: *Fichte-Studien* 31 (2007), pp. 205-217, here p. 211; transl. P.G.) can be characterized functionally in that Fichte analyzes the immanent functions of capacities of knowledge.

¹⁹ The same problem comes up in present naturalistic approaches to consciousness where teleofunctionalism proposes evolutionist criteria (cf. Sober, E.: “Putting the Function back into Functionalism”, in: Lycan, W. G. (ed.): *Mind and Cognition. A Reader*. 1990, pp. 97-106).

Even if this final purpose never realizes entirely, the individual should aim on it “to the best of one’s knowledge and belief”²⁰. Ideally, there is no demand to the drive, but the will is the moral law, is a “holy will”²¹. Methodologically speaking, Fichte makes use of a *material* criterion for determining the validity of action insofar the concept of morality or the moral law limit the transcendental capacity to specific actions. Thereby, he goes in line with Kant’s concept of the final purpose and the human as a moral being.²² At the same time, Fichte specifies the regulative function of the moral law in terms of his “doctrine of duties”.²³ In the end, the moral law “becomes a Must for the individual”²⁴ that spells out dutiful action for the individual. With regard to Fichte’s intellectual horizon, this material moment rests on the a priori conditions of knowledge and goes back to his historic-cultural roots, i.e. Christian ideas²⁵ - which final purpose one chooses, also depends on the person.

Considering Fichte’s genetic approach, the necessity of a material criterion for judging action is obvious. Another question is whether consciousness amounts to nothing more than the moral law and a morality independent of any sensual drive. Alternatively, it might be asked whether other functional parts of consciousness should be considered. Surely, moral criteria are of particular importance for action. Nevertheless, from a genetic viewpoint, there is no a priori necessity to adhere to rationality-based morality as the *exclusive* criterion for judging actions. Rather, there may be several criteria possible.

3 Heterarchy of final purposes

Consequently understood, the genetic imperative implies a fundamental openness. On the one hand, the transcendental analysis clarifies the a priori-functional structure, the laws of consciousness. On the other hand, this focus on laws and principles opens the transcendental analysis for material criteria when it comes to explain the realization of consciousness. This openness can be seen as the final dialectics where transcendental analysis and reality meet - a dialectics that Fichte tried to avoid by means of his moral rigorism, but which is inevitable if the genetic imperative keeps valid because the a priori-functional analysis does not provide exclusive material criteria for determining action.

Except Fichte’s historic contingency and his choice for morality, there is also a methodological reason for Fichte escaping this final dialectics. His entire architecture rests on a hierarchical setup with the moral law and finally God closing the system. However, this setup surprises all the more as Fichte proposes a relational method with the relation constituting the

²⁰ “bestem Wissen und Gewissen”: TB10/11, p. 382.

²¹ “heiliger Wille”: *ibid*; cf. Jacobs 2006, p. 217f.

²² Cf. Jacobs 2006, p. 214 and Ivaldo, M.: “Sittlicher ‘Begriff’ als wirklichkeitsbildendes Prinzip in der späten Sittenlehre”, in: *Fichte-Studien* 32 (2009), pp. 189-201, here p. 197.

²³ “Pflichtenlehre”: Fichte, J. G.: “Sittenlehre 1812”, in: Lauth, R. et al. (eds.): *Fichte-Gesamtausgabe der Bayerischen Akademie der Wissenschaften*. Bd. II, 13, Bad Cannstatt 2002, pp. 301-392, here p. 380.

²⁴ “wird zum Müssen für das Individuum”: TB10/11, p. 374.

²⁵ Cf. Pecina, B.: *Fichtes Gott*, Tübingen 2007.

relata. Accordingly, the relation as the genetic ground of knowledge comes first. Within the relation, any determination of knowledge, including the material determination of action, comes as one relatum that depends on other relata and is thus not exclusive or absolute.²⁶ Taken together, the following problem arises: Material criteria are needed to determine actions. At the same time, the genetic method does not provide one highest element that governs all other elements *exclusively*. Rather, there exist several candidates for the material determination of action whereby a final decision has to be made in case of conflicting criteria. A hierarchy circumvents this problem, as a hierarchy is a fixed order of elements - as in the case of the moral law governing the projection of action and the genesis of the image of the resistance (perception), thereby a priori prioritizing one specific type of material determination of action. However, the a priori-functional approach can only justify this subordination under one material criterion when it neglects the genetic imperative at the same time.

The alternative is a heterarchy. McCulloch first introduced the term in 1945 in the context of describing the neural behavior of reflexes. He concluded that an organism has a “heterarchy of values, and is thus internectively too rich to submit to a *summum bonum*.”²⁷ In 1971, Günther elaborated the logical foundations of the heterarchy in order to explain the relation of cognition and volition. He proposed that cognition and volition are not opposed capacities where one governs the other exclusively, but that human consciousness builds on an interrelation of both faculties with varying degrees of prevalence of the one or the other.²⁸ Günther’s approach corresponds to the findings of Fichte’s transcendental analysis of consciousness where the interrelation of perception and action constitutes a conscious experience. More recently, the concept of the heterarchy has become popular in the social sciences, and “may be defined as the relation of elements to one another when they are unranked or when they possess the potential for being ranked in a number of different ways.”²⁹ Thus, any element possesses a degree of autonomy so that the overall order can vary according to the autonomous behavior of every single element and their interplay.

The relevant point is that heterarchy and hierarchy are not mutually exclusive. Rather, a heterarchy can contain hierarchies or form a part of a hierarchy. On the one hand, the ele-

²⁶ Cf. Zöller, G.: *Fichte lesen*, Stuttgart-Bad Cannstatt, 2013, pp. 47-64 for Fichte’s relational approach.

²⁷ McCulloch, W. S.: “A heterarchy of values determined by the topology of nervous nets”, in: *The bulletin of mathematical biophysics* 7/2 (1945), pp. 89-93, here p. 92.

²⁸ Cf. Günther, G.: “Cognition and Volition. A Contribution to a Cybernetic Theory of Subjectivity”, in: American Society for Cybernetics (ed.): *Cybernetics Technique in Brain Research and the Educational Process*, Washington D.C. 1971, pp. 119-135. Grüneberg et al. proposed a heterarchic organization of action control (cf. Grüneberg, P., Kadone, H. and Suzuki, K.: “Voluntary initiation of movement: multifunctional integration of subjective agency”, in: *Frontiers Psychology* 6 (2015), pp. 688, and Grüneberg, P. et al.: “Robot-assisted voluntary initiation reduces control-related difficulties of initiating joint movement: A phenomenal questionnaire study on shaping and compensation of forward gait”, in: *PLOS ONE* 13/3 (2018), pp. e0194214).

²⁹ Crumley, C. L.: “Heterarchy and the Analysis of Complex Societies”, in: *Archeological Papers of the American Anthropological Association* 6/1 (2008), pp. 1-5, here p. 3.

ments of a heterarchy, in our case possible candidates for final purposes, are ordered equally or horizontally, i.e. there is not one *predetermined* element governing the others. This openness implies several candidates for guiding the projection. On the other hand, decisions have to be made so that some hierarchical (vertical) preference of one element over the other is needed. A heterarchy combines the need for horizontal and vertical order: all elements are equal while one element governs the other. The hierarchical element is not determined definitely, but can change. It is just required that there is one governing element in order to come to a decision.

Coming back to the discussion of the projective image of the resistance in light of the genetic imperative, a heterarchy allows for projection based on varying final purposes or, more precisely, a complex of different final purposes with each exerting a different valence in the course of an action. In terms of the categorical imperative, Fichte made use of the moral law as a regular function according to which the heterarchy of values includes one hierarchic moment for decision. Whereas this normative moment is formally necessary for decision-making, the specific kind of rational normativity that Fichte proposes is rather not exclusive. Beside the rational foundation of the moral law, the required normativity could also be spelled out in criteria such as *aesthetic* design principles³⁰, *pragmatic* criteria for arranging things according to situative needs, criteria of *complexity* for elucidating the hidden structure of things or processes as in the sciences, or *ecological* criteria for establishing sustainable interaction between humans and the environment.

Thus, in a heterarchic complex, the criteria to determine a projective image (i.e. the value of perception for action) are not necessarily of rational nature. Instead, several criteria can join in a complex of final purposes with different preferences. While the heterarchic *form* of a complex of final purposes is determined a priori, the heterarchic *content* of such a complex can only be determined *in actu*; i.e. the acting subject decides about the kind of normativity and the resulting order of final purposes in the course of decision-making and acting.

Conclusion

Considering the need for a criterion to determine the “mere play of capacities”, is the proposed “openness”, the heterarchy question begging? Does it avoid the question for the final criterion? Will it end into relativism when relativizing the absolute valence of rational morality? Surely not. While, from a heterarchic viewpoint, only negotiations of all involved parties can lead to the actual choice of a material criterion for determining action, there would apply standards of accepting and rejecting criteria. In rational and legal terms, it is at least required that a determination is explainable and open to justification so that the discourse about criteria for action is not arbitrary, whereas this explicability does not imply that the normative determination itself builds on rational criteria. In sum, the a priori-functional analysis of consciousness

³⁰ Cf. formal design principles as suggested by Riegel, A.: *Historische Grammatik der bildenden Künste*, ed. by Karl Maria Swoboda and Otto Pächt, Köln 1966.

can state the functional need for a final purpose and demand a material answer. At the same time (due to the genetic imperative), it cannot provide one exclusive material answer because the teleofunctional³¹ determination of action allows for different solutions. It is rather the final relational dialectics that decides about the normative ground for action in continuous interaction between agents and their environment.

As Fichte said: the *Doctrine of Scientific Knowledge* is “a vivid, always new and freshly produced thought that speaks out itself under every condition of time and communication in different ways”³²; it is “an experiment that has to be repeated steadily”³³ - in contrast to Fichte, as should be added - an experiment with the material world. In line with Fichte, the formal outcome will remain the same, i.e. the need for a normative criterion for action, but the contents, the material distinctions (here final purposes), or more precisely, the order and ranking of material prevalence will vary over time and in respect to the demands and constraints of actual situations. In this sense, the heterarchic organization of perception and action could spell out the necessary plasticity (historicity and contingency) of human action that every a priori-functional analysis faces.

³¹ From a heterarchic viewpoint, teleofunctionalism is not limited to evolutionist criteria (cf. note 19).

³² “ein lebendiger, ewig neu, u. frisch zu producirender Gedanke, der unter jeder anderen Bedingung der Zeit, u. der Mittheilung sich anders ausspricht”: Fichte, J. G.: “Wissenschaftslehre Erlangen 1805”, in: R. Lauth, and H. Jacob (eds.): *Fichte-Gesamtausgabe der Bayerischen Akademie der Wissenschaften. Bd. II, 9*. Stuttgart-Bad Cannstatt 1993, pp. 179-311, hier: p. 181f.

³³ “stets zu wiederholende[s] Experiment”: *ibid.*