



Aspects of Hans Reichenbach's Philosophy: Freedom of the Will and Ethics

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1. Introduction

Hans Reichenbach (1891–1953) first studied engineering in Stuttgart in 1910. (He worked in 1917–1920 as a physicist in radio industry.) In 1911–1915, he studied philosophy, mathematics, physics, and pedagogy in Berlin, München, and Göttingen. He received his doctorate in 1915 at Göttingen, and his habilitation work was accepted in 1920 in Berlin. In 1926 the University of Berlin made him an Extraordinary Professor in natural philosophy. Reichenbach worked in that position until 1933 when he was expelled from the university. Soon later he fled Germany. These events were due to the terror of the National Socialist regime. He continued his career in exile; first in Istanbul from 1933 to 1938 and then in UCLA, Los Angeles from 1938 until his death in 1953. While in Istanbul he began to write mainly in English, occasionally in French, and published only a few articles in his native German (Siitonen 2008).

The Finnish philosopher Eino Kaila (1890–1958) was referring in his articles to Reichenbach already in 1923–1926 (Niiniluoto 1990) and called in his article in which he criticized Immanuel Kant Reichenbach a “nouseva tähti,” or in English “a rising star” (Kaila 1923). Kaila wrote reviews for the journal *Erkenntnis*, a scientific publication of the Vienna Circle, which was edited by Rudolf Carnap and Reichenbach (Niiniluoto 1990). Also, Kaila refers to Reichenbach in his books *Der Satz vom Ausgleich des Zufalls und das Kausalprinzip: Erkenntnislogische Studien*

(1924) and *Die Prinzipien der Wahrscheinlichkeitslogik* (1926). Kaila himself was a kind of external member of the Vienna Circle and brought the ideas of Logical Empiricism (or Logical Positivism or Neopositivism) to Finland. He is definitely the father figure of the new philosophy of science in Finland and also the teacher of George Henrik von Wright.

In this article I will concentrate on Reichenbach's two posthumous articles. Reichenbach died April the 9th, 1953; 62 years old. Among the manuscripts that he left behind were two unfinished books, *Nomological Statements and Admissible Operations* (published in 1954) and *The Direction of Time* (published in 1956) as well as two unfinished articles. The articles were concerned with the problem of freedom "On the Freedom of the Will" and with ethics "On the Explication of Ethical Utterances." They were read by Wesley C. Salmon and Adolf Grünbaum and edited and published by Maria Reichenbach in 1959. Incidentally, both Salmon and Grünbaum were later professors at the University of Pittsburgh. Salmon, who used to be his pupil in California, always pronounced "Reichenbach" as "Reikkenbak." Grünbaum was born in 1923 in Köln. Unlike Grünbaum, Salmon was a staunch follower of Reichenbach to the end; he died in a car crash in Pittsburgh in 2001. Although these texts were not intended to be Reichenbach's last works, circumstances and chance led him to express his philosophical testament, his will, as one might say, in terms of ethics, which is a kind of paradox if we think of the general attitude towards ethics in the positivist circles of the times – it was both negative and dismissive. I suppose Salmon and Grünbaum shared this negative attitude. What follows is an analysis of the main lines of thought in these seminal articles.

2. Freedom of the Will

The essay on the freedom of the will (Reichenbach 1959a) is based on an unfinished manuscript that contains several fragments and a separate section on the freedom of action. Thus, the basic issue concerns the twin problem of free will and free action. The free will problem is based on the firm conviction that human agents are free to decide what to do on the one hand and on the challenge created by strict causal determinism on the other. Some philosophers stress the latter to the extent of denying the very possibility of free will, while others think that free will can be defended even in the context of determinism. One possible defence claims that freedom presupposes strict causality because we are capable of doing what we want to do only if we are the causes of our actions.

Reichenbach severely criticises Kant's reconciliation attempt (cf. CPR, the third Antinomy, A444/B 472 - A452/B 480; Prol. 343 - 347):

The denial of freedom on deterministic grounds has sometimes been tempered by a compromise, as in the case of Kant whose pragmatic considerations can only be called a tour de force. Although he is persuaded that an epistemological analysis shows that the will is not free, he believes that this conclusion contradicts our conception of a meaningful ethics. Kant therefore makes the freedom of the will a postulate of Practical Reason in his attempt to rescue morality (Reichenbach 1959a, p. 152).

He compares this with Spinoza's view that "we have the feeling of freedom because we are aware of our volitions but often ignorant of the causes that have determined them" (ibid.). Due to these determining causes the feeling of freedom is illusory; it is "merely an epiphenomenon" (ibid.). His conclusion is thus: "Spinoza's presentation of the problem of free will is much more consistent with the rest of his system than are Kant's wishful postulates with his epistemological investigations" (ibid.).

In his own systematic treatment of the problem Reichenbach distinguishes between its practical and theoretical sides. He claims that its core lies in the practical dimension that requires empirical grounds for decision-making – rather than some postulates of reason à la Kant. Freedom can thus be determined by empirical evidence. However, theoretical investigation is also necessary in order to clarify the meaning of the concept of freedom. This requires precise epistemological, semantic, and logical analysis. Reichenbach challenges the view – in fact the customary presupposition of present-day compatibilists – that strict causal determinism would provide a possible framework for treating the problem of freedom, claiming that this would make it impossible to find a solution. The main idea in his analysis of the problem is to replace determinism by probability considerations concerning human volition.

Next, the standpoints of determinism and indeterminism are given their precise formulations. The causal hypothesis can be given both a conditional and a categorical form. According to the conditional hypothesis, if D describes the total physical state of the universe at time t_1 , then it is possible to predict from it with a certain probability the total physical state E of the universe at a later time t_2 . Categorically expressed, it is supposed that there exists such a description D. Classical physics assumes that the probability of E can be brought as close to 1 as we wish through a series of more and more exacting descriptions. The hypothesis of determinism goes further than classical physics by claiming that there exists an ultimate description that allows us to predict any future situation E with certainty. Indeterminism denies the existence of such an ultimate description: this is not to deny that the universe is at any given moment in a definite state, but it is to deny that from such a state any state of the

universe at a later moment follows with physical necessity. Indeterminism assumes the probability interpretation of causality. Both determinism and indeterminism are hypotheses that go beyond observables. Nevertheless, it is legitimate to wonder what kind of empirical evidence there is for each of these positions.

The problem of free or unfree will is accompanied by the problem of free or unfree action. In both cases the analysis can be carried through on the basis of a probabilistic as well as a deterministic conception of causality. It is important to be aware that an action may be predictable and yet free. For instance, in conventional behaviour, say, in answering the question "How are you?" one is expected to respond in the customary way: "I am fine, thank you!" This does not make one's action unfree.

Reichenbach introduces the following formalism for the analysis of the concepts of volition and action. "VB" means the volition to perform action B, "Vnon-B" the volition not to do it, and "IB" indifference with respect to action B. "C" denotes the goal, and "A" the situation (or a class of situations) in which a volition occurs or an action is performed. In changing goals, a person may change his/her planned action B into non-B. Free action implies that volition has causal influence on action. The following probabilistic relations define freedom, or more colloquially, an agent is able to act as he wants or his/her volitions determine the outcome with certain probability approaching 1:

$$P(A, VB, B) \sim 1; \quad P(A, Vnon-B, non-B) \sim 1.$$

Here, " ~ 1 " means probability value approaching 1. These relations are interpreted as conditionals contrary to fact. Reichenbach's claim is: "The use of conditionals contrary to fact is indeed the nucleus of the freedom problem" (p. 160). This is to say, one may ask what would have happened if the volitional decision had been in the opposite direction. The analysis of freedom thus involves the study of counterfactual conditionals.

One could schematise the above relations in terms of either formal or probability implications. Various requirements are needed in order to formulate the causal influence of volitions upon action. Thus, the correct analysis of the problem of the freedom of action presupposes a theory of the direction of time. Moreover, the volition has to be causally relevant to the action. Volition is called efficient in the case that it would have influenced the action if this volition had occurred. This is called the freedom conditional. It is supplemented by "the complete freedom condition" (p. 166), according to which an "action is free if it would have been influenced by a preceding volition." Correspondingly, an action is unfree if the volition has no causal influence on it. Finally, there are actions that are free to some degree. An example of such actions is given

by the theory of psychosomatic interdependence: a patient's will to recover has some influence on her/his improving condition.

The deterministic interpretation of causality leans on two-valued formal implication. This interpretation accounts for the freedom of action in that volition is considered part of its cause. This means that a deliberative decision is one of the links in the causal chain. A serious difficulty is that strict causal laws make it meaningless to speak of volitional efficiency. In that case, the combinations "A,VB" and "A,Vnon-B" become physically impossible, whereas efficient volition means that the action cannot be determined by a strict causal law that does not refer to volition.

Deterministic causality can be compared with probabilistic causality. The former postulates a complete description D0 of the state of the universe at the time t0 and a corresponding description D1 at some later time t1. Part of the description D0 refers to a situation A in which a volition towards an action, D, occurs; this is denoted by "A1,VB." Then D1 is physically necessary relative to any preceding state D0. In that case, one cannot say: "Instead of A1,VB the volition Vnon-B could have happened" (p. 179). If probabilistic causation holds, the relation between D0 and D1 cannot be expressed in terms of formal implication; it is rather the formula $P(D0, D1) < 1$ that makes the non-occurrence of D1 physically possible ("P" indicates probability.) Such a probability interpretation makes Vnon-B possible even in the case of A,not:Vnon-B. It is possible as a replacement rather than as an addition, which means that the volition not to perform B is possible in relation to some earlier situations and might have occurred instead of A. This interpretation is compatible only with indeterminism, and rules out a deterministic interpretation of the relation between the states D0 and D1.

Within the limits of the deterministic interpretation of causality, the predictability of actions was assumed to exclude their freedom. Thus, a determinist is confronted with the alternative of predictability versus freedom. The probability interpretation of causality shows its superiority here because it allows for combining predictability and freedom. For instance, even if there were a high probability that a person would vote for a given candidate in an election, that person could, in principle, nevertheless vote for some other candidate.

Our actual decisions are characterized by such repeated switching back and forth, a phenomenon that can be expressed only in terms of probability implications. That such wavering may have grounds in additional knowledge, and could be predicted if the changes in the situation were known, does not make the action less free. Predictability without reference to volition is compatible with the

assertion of freedom of action if the probability interpretation of causality is carried through (p. 182).

The main flaw in the deterministic position lies in combining situation A with volition VB, defined as A,VB. In such a case volition Vnon-B becomes impossible because VB excludes Vnon-B. This error can be avoided if we claim that the situation A should not overlap only with the volition VB, but both with volition VB and with volition Vnon-B.

The next step is to extend the analysis from the problem of free action to that of free will, which requires a definition of the freedom of the will. As mentioned earlier, Reichenbach defines "freedom of action" through the conditional that says an action is free if it is influenced by a preceding volition (cf. p. 166; cf. above). He also refers to this idea as follows, "If there were a volition towards B or non-B, then B or non-B, respectively, would occur" (p. 171). The free-will problem requires that the time order of events is properly indicated. This is accomplished by the numbers 0 and 1, and eventually by -1 (cf. the description states D0 and D1 above). The basic formulas are the following:

$$P(A_0, V_{0B1}, B_1) \sim 1; \quad P(A_0, V_{0non-B1}, non-B_1) \sim 1.$$

Again, "~ 1" indicates probability value approaching 1. Let us assume then that volition V_{0B1} is predictable at an earlier time t-1. This does not prevent it from being free. Freedom of the will means that a volition at time t-1 would have influenced the volition V_{0B1}, which takes place at the time t₀. Along the lines of reasoning like this in connection with the concept of free action, the concept of free volition is characterized by a conditional like "If there were a volition at the time t-1, it would be concerned with having a volition at t₀ towards B or towards non-B." This means that a person may, at an earlier time, have a volition to have a volition at a later time.

Any volition towards B may be both predictable and free. Volition is an event that may have a causal influence on other events, be they volitions or actions. The concept of free will can then be defined as follows: "A volition is free if it would have been influenced by a preceding volition" (p. 184). This definition iterates the freedom conditional: "Such a treatment is justified because a volition is an event that can have a causal influence on other events, be they volitions or actions" (ibid.).

A causal chain stretches from a given volition to its execution, interpreted as a continuous probability sequence. The longer the distance between volition and action is the lower is the probability that the intended action will occur because the opportunity for revising one's volition increases. A given volition, or an action, is completely free if it is an

element in a causal chain in which every element preceding it is free. The probability interpretation of causality allows for completely free actions and volitions.

The concepts of free action and free volition, as well as their opposites, are explicable as follows. An action is free if it could have been influenced by a preceding volition. Thus, in situation A it is possible for action B to have been preceded by a causally relevant volition. Volition V is free if it is possible for it to have been preceded by an earlier volition that is causally relevant to it. For instance, I may want today to have the will to study tomorrow. An action is unfree if a preceding volition is irrelevant to it. For instance, if I fall down a flight of stairs, my volition has no influence upon my falling. A volition is unfree if the preceding volition is causally irrelevant to it, or if the opposite volition is physically impossible. For instance, hypnotic suggestion excludes the freedom of the will. One could also mention drug addiction and the unconscious determination of volition studied in psychoanalysis. Free action combined with free volition means complete freedom, whereas other combinations yield freedom to a certain degree, or no freedom. The four possible combinations are: (i) free volition + free action, (ii) free volition + unfree action, (iii) unfree volition + free action, (iv) unfree volition + unfree action. Actions under duress or automatic actions are not free, whereas the moral actions of normal persons are free. According to Reichenbach, the deterministic interpretation of causality is incompatible with the freedom of the will in that it posits that a volition that can be predicted is not free. Thus a determinist faces a corresponding dilemma here concerning free actions. He/she has either to give up the claim that the volitions in question are free or to give up determinism.

Reichenbach's conclusion is that the deterministic interpretation of causality is incompatible with the freedom of the will. Which form of causality – deterministic or indeterministic – holds for the physical world, is an empirical question. It is important to note that the hypothesis of causality is inductively inferred – here Reichenbach differs from Kant – and this inference is inherent in both the deterministic and the indeterministic conceptions. However, there seems to be hardly any evidence for the former: "To assert that there exists an ultimate description which forecasts the future with certainty goes beyond what could ever be inferred from observation" (p. 191). Even classical physics does not require such an assertion, not to mention quantum mechanics: Heisenberg's Principle of Indeterminacy takes one step further in its rejection of determinism. Heisenberg's message here is that the probability values of predictions with respect to microcosm cannot be brought as close to 1 as one may wish because they must stop at a given lower boundary. Quantum mechanics thus sustains indeterminism by claiming that there exists a limit

to predictability. In physics, therefore, the deterministic conception of causality is abandoned in favour of the probabilistic conception, the claim being that there exists a limit to predictability. Reichenbach calls this form of indeterminism statisticalism. There is no direct connection between this result and human action, and thus the theory of free will is not dependent on the physical conception of causality. However, it is compatible with quantum mechanics. What he shows in the article is that "determinism excludes complete freedom of will and action while probabilistic causality does not" (p. 192).

Comments: The article, although never completed, shows Reichenbach's strengths in analysis and problem solving. He illustrates the basic steps of his reasoning by consecutively numbering schemata that run from (1) to (60). The manuscript is concerned with freedom of will, a theme that is pursued in the light of two problems, free will and free action, which are treated separately. Both have two sides, the practical and the theoretical. The former is concerned with freedom and the lack of freedom in various situations, to be decided on empirical grounds. The leading question here asks when a person is responsible for his/her actions, and when he/she is not. The latter side concerns the meaning of the concept of freedom. An impasse is identified in the customary treatment of the theoretical problem: presupposing strict causal determinism prevents any solution. The key to the solution, it is claimed, lies in probabilistic causality. Reichenbach does not let the opportunity slip to praise his definition of freedom and to criticise traditional philosophy for its vague notions such as internal causes and external causes. He closes his essay with the sentence: "It is astonishing to see that so old an issue as the freedom of the will admits of so simple a solution once the picture language of traditional philosophy is replaced by the precise language of the mathematical logician" (p. 192). This is a typical intuition by a logical empiricist in his own time.

Reichenbach connects the probabilistic interpretation of volition with the use of conditionals contrary to fact. The logical analysis of freedom starts with the question: What would have happened if the volitional decision had been in the opposite direction than it in fact was? Such a decision is physically possible relative to earlier situations and might have occurred. He claims that this interpretation is "compatible only with indeterminism" (p. 180). Indeterminism also permits another form of compatibility: that between predictability and freedom of action. Finally, he suggests that the theory of free will is compatible with causality as it is understood in quantum mechanics – and with conversational and scientific language in general.

It is to be noted that his use of the term "compatible" differs fundamentally from the interpretation given to it in current usage in modern philosophical textbooks, in which compatibilism is understood as

the position that unites determinism and free will. This is exactly the standpoint that he criticises in his article, insisting rather that indeterminism and free will are compatible. This position is as remarkable as it is rare: determinism is usually contrasted with libertarianism, or the idea that human persons are at liberty to perform or not to perform certain actions. It thus appears to be a form of indeterminism but it leaves open the question concerning the link between decision and action. Reichenbach's merit is to specify this link as a probability chain and to distinguish clearly between the two involved problems: that of free action and that of free will. A willed action is free, and a willed volition is free. Moreover, his treatment of the question of predictability in connection with these issues deserves mention.

Reichenbach's criticism of Kant can be understood in the context of his indeterministic solution. He says Kant defended freedom under the presupposition of strict causality – this is an untenable compromise. He was compelled to deny it, nevertheless he then postulates the freedom of the will. His epistemology and his ethics thus contradict each other: his idea of Practical Reason represents mere wishful thinking. It should be noted that this criticism does not concern Kant's rationalism and the theme of synthetic a priori; it rather concerns the proper interpretation of causality. The claim is that Kant's interpretation leads to a contradiction. Presumably, probabilistic causality would justify the postulate of free will. Reichenbach suggested already in his dissertation that the Kantian category of causality should be complemented with that of probability (Reichenbach 1915). Now, having rejected the whole Kantian framework some years after the publication of his dissertation, he was suggesting probabilistic causality as the key to a sound theory of ethics.

3. Explication of Ethical Utterances

The essay on ethics (Reichenbach 1959b) is based on extensive notes Reichenbach had dated December 31, 1952. It signifies a return to the themes of volition and cognition that he had studied two years earlier in his *The Rise of Scientific Philosophy* (RSP) and to the semantic considerations of value judgments presented in his *Elements of Symbolic Logic* (ESL). For some reason he felt the need to pursue further the non-cognitivist line of thought in ethics, perhaps in order to give it a firmer foundation. In his theory of logic he distinguishes between (i) fact-stating and synthetic or empirical statements on the one hand and (ii) analytic statements on the other. The latter are empty formulas, or mere logical tautologies that do not express facts or add anything substantial to facts. This distinction raises the question about the status of moral commands and evaluations as well as of ethical utterances. In *Experience and Prediction* (EP) he

distinguished four levels of verifiability and meaning: the technical, the physical, the logical, and the super-empirical. He rejects the basic positivist claim to the effect that statements that have super-empirical meaning are empty. The result of his analysis is as follows: "There is as much meaning in a proposition as can be utilized for action" (EP, p. 80). He gave a thorough analysis of conversational language in ESL. Language can be used cognitively or instrumentally, for informing the listener or for influencing him/her. Instrumental usage is divisible into three classes: communicative, suggestive, and promotive. The intention in the first case is to make the listener believe what is said, in the second case to arouse certain emotions or volitional attitudes in the listener, and in the third case to ask the listener to do something. The predicates "true" and "false" do not apply to instrumental usage (cf. ESL, p. 17ff).

The possibility of scientific ethics is called into question in RSP because the axioms of ethics cannot be cognitive statements. "Ethics includes both a cognitive and a volitional component, and cognitive implications can never eliminate volitional decisions completely, though they can reduce the number of such decisions to a small number of basic decisions" (RSP, p. 319f). Scientific philosophy cannot supply certainty in the cognitive realm nor can it provide moral directives in the field of action (cf. RSP, p. 323). In a certain sense, it is possible to detect in this essay a compromise of Reichenbach's earlier non-cognitivist position. A significant claim in RSP is that "ought" and "should" must be interpreted in terms of volition: "I will" (cf. RSP, p. 291: "We arrive at the result that moral directives are of a volitional nature, that they express volitional decisions on the part of the speaker.") Here, however, the cognitive theory of ethics is considered to be incomplete rather than downright false. The cognitive elements of ethical utterances are shown their proper place within the non-cognitive relations between knowledge and action.

Reichenbach gives the volitional interpretation of ethical judgments two formulations: expressive and declarative. According to the expressive version, "should" and "ought" express the volition of the speaker, understood in imperative mood. For instance, the sentence "Smoking should be prohibited" gets the meaning "Abolish smoking!" The declarative version explicates these words with recourse to the existing volitional state of the speaker. It renders the above sentence as: "I want smoking to be forbidden." This analysis is challenged by the so-called relational or cognitive interpretation given by the pragmatists (Reichenbach 1959b, p. 195; Reichenbach does not specify who they are), according to whom "should" and "ought" express "logical or physical entailment" (p. 194). Applied to the above example it reads: "Since the Supreme Court decided that smoking is unconstitutional, it should be prohibited."

One might ask which interpretation, volitional or cognitive, is in better harmony with ordinary language usage. Given the ambiguity of it, it is difficult to give an answer, he says, because both interpretations work. However, a rational reconstruction of the cognitive interpretation reveals its inadequacy in showing that it is necessarily incomplete. By this he means the following. There is a direct connection between volition and action, whereas there always remains a gap between knowledge and action. He gives the following example of moral reasoning. Let V be a certain set of set valuations. Suppose action A will provide maximal satisfaction in relation to V . It follows from these premises that by doing A one will get maximal satisfaction. The question is whether we can derive imperative "Do A !" from this cognitive conclusion. Reichenbach's claim is that this obviously is not the case: one might still wonder, while admitting the premises, whether one should do A . "The step from knowledge to action cannot be cast into the form of a logical inference" (p. 197). The reason for this is: "I can refuse to do A without being logically inconsistent" (ibid.). Thus the very transition from knowledge to action requires a non-cognitive interpretation. Moreover, it is not only the relation between V and A that is problematic: some critical questions remain concerning the status of V . Does it refer to the set of generally accepted valuations? In that case, the utterance "Do A !" means that it is usually regarded as good to act according to it. However, this conflicts with the normative nature of ethics, which allows us to criticise rather than merely to explicate existing valuations. Some generally accepted values V can be deceptive and even wrong. Examples are easy to find.

It is possible to clarify ethical discussion by stating the relation between V and A as an implication: "If certain valuations V are assumed as basic, then A supplies maximal satisfaction." This refers not to the factual acceptance of values, but to the connection between a certain action and its condition: one can thus say that for every given action A , a set V exists that makes A good and another set V' that makes it A bad.

Is there any guarantee that various persons, communities, or cultures share a certain set V , i.e., are committed to the same basic values? According to Reichenbach, "the pragmatists believe that there exists only one such set, i.e. they believe that human beings are sufficiently similar so that the same set of ultimate valuations can be derived" (p. 195). This belief is hardly valid, and even if it were, it would be an empirical and not an a priori true belief. The following objections speak against its validity: (i) it incorporates the old fallacy of deriving what is desirable from what is desired; (ii) there is a multitude of needs, and distinguishing between good and bad needs means that "value judgments are smuggled in" (p. 196); and (iii) sociological, psychological, and psychoanalytic research does not indicate a consensus on what such needs would be.

A further question concerns the relation between sentences that explicitly mention the assumed set V on the one hand and the volitional state of the speaker expressing the sentence on the other. Three distinct classes exist: (1) Volitional states are irrelevant; examples of this include the sentences, "Stealing is wicked" (which addresses a moral question) and "The divorce law should be modified" (which refers to an existing legal code). (2) Volitional states are less dispensable when the speaker is expressing her or his personal judgment; e.g., "Paul should do like that." (3) Volitional states are indispensable in directives that individuals address to themselves. This classification could be understood as a revision of Reichenbach's earlier standpoint, according to which the expression "should" always indicates the volition of the speaker (cf. RSP, p. 291; cf. above). Imperatives are token-reflexive expressions referring to the speaker (RSP, p. 289; cf. ESL, p. 284).

At the end of the manuscript he returns to his criticism of ethical cognitivism by repeating the claim that the imperative "Do A!" is not derivable from a relational analysis according to which A follows from V. It is the decisive merit of the non-cognitive theory of ethics to have recognised the non-logical relation between knowledge and action, which is the blind spot of ethical cognitivism. Its position remains incomplete because it addresses the question, "What should I do?" by drawing an inference, while the proper answer is given by making a volitional decision: "Our valuations are always affirmed anew, or at least require volitional efforts to be sustained" (p. 198). The non-cognitive theory posits that ethical utterances are neither true nor false, and stresses that they are not derivable from declarative statements. It therefore supplies an adequate explication of these utterances.

Comments: This ethical manuscript is much shorter and sketchier than the one concerning the freedom of the will. The main relations to be analysed are those between values and action and between knowledge and action, while in the freedom article they were between volition and volition as well as between volition and action. According to Reichenbach, valuations can be studied empirically or critically: his aim was not to present a normative theory but to clarify ethical discussion. We can say he was doing metaethics. Such a clarification includes a confrontation between the cognitive and the non-cognitive interpretations of ethical theory: it is a question of which interpretation fits the colloquial language better and wins out in its rational reconstruction. His answer is that ethical cognitivism loses the game because it remains incomplete.

In order to back his non-cognitive theory he took up a piece of reasoning that is known as "practical syllogism." The main idea goes back to Aristotle (*Nicomachean Ethics* 1111b–1115a). The premises describe a relation between a goal and the means for its realisation as well as the fact

that a person wants to reach the goal in question. This syllogism is often construed to imply that from these premises follows the conclusion that the person seizes the means in order to reach the goal. However, Reichenbach's view was that this did not necessarily follow: one may refuse to act in accordance with the premises "without being logically inconsistent" (p. 197). One may, in principle, accept the premises and then ask, rebelliously: "What if I do not follow the regulations?" Or one may lack the necessary will-power. He concluded from this that the relation between knowledge and action was not conceptual. Reichenbach is thus a precursor of an important later discussion on these matters, started by Elisabeth Anscombe (1957) in her book *Intention* and developed by G. H. von Wright (e.g. 1971) in his various publications. His idea is that in practical syllogism the premises logically entail action. The point is, the premises entail action and not only action description. Therefore, Reichenbach is wrong: one cannot refuse to act according to the valid premises of practical syllogism.

My view is, though, that Reichenbach certainly is right about *akrasia*, or the weakness of the will, in that it is a real possibility as Aristotle says; namely, action according to the recommendation contained into the conclusion ("Do A!") does not follow necessarily. He suggests that the connection between knowledge and action is construed by cognitive theory as an implication, whereas according to his theory it was to be understood as a non-cognitive transition. However, one may wonder whether he was requiring too much of the cognitive theory of ethical utterances. An ethical cognitivist may draw a distinction between founding imperatives on the one hand and complying with imperatives on the other and then claim that such a foundation has been supplied by the practical syllogism. Whether people actually comply with this "voice of reason," as it were, is not a matter of concern for ethical theory.

Moreover, a corresponding transition is needed in all applications of a theory to reality – even in the case of mathematics, which certainly is a cognitive theory. As far as the issue of not following the precepts of one's own best interest is concerned, as these are given in the premises of a practical syllogism, one could claim that in a wider context of prudence, or *sophrosyne*, such an action may well be inconsistent. Finally, it is possible to go on using Reichenbach's method of rational reconstruction and to wonder how such a reconstruction could be applied to irrational behaviour (cf. theories of *akrasia*).

Kant is not mentioned in this manuscript, but it is reasonable to assume that his idea of the categorical imperative is implicitly included in the criticism of the *a priori* approaches to valuations. If no "ultimate set of valuations" exists, as Reichenbach claims, neither may there be an ultimate norm. Then it is an empirical question of which values – and which norms

– are considered by a given culture and historical era as ultimate. According to his view, the basic task of ethics is to criticise existing valuations – and a fortiori, accepted norms. Whether this is done through the cognitive ascertainment of the critical standpoint or by means of volitional decision remains an open question – in spite of Reichenbach’s arguments.

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