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Chapter 6 Doxastic Decision Theory, Voluntarism and the Primacy of Practical Reason

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1 INTRODUCTION

In a famous passage Blaise Pascal raises the question of whether god exists and gives it a unique twist by concentrating not directly on the matter of existence but rather on what we should believe regarding that matter. Should we believe that god exists, or should we believe that he does not?[1] Pascal claims that there are no theoretical reasons for or against the existence of god, and that we can therefore regard the possibilities "god exist" and "god does not exist" equally probable, as if a coin were tossed and either heads or tails would come up. For all we know there is a fifty percent chance that god exists and a fifty percent chance that he does not exist.[2]

Since the two possibilities are equally probable we cannot reach a decision on the basis of probability alone, and, Pascal thinks, our intellect is not offended by us believing one thing rather than the other. Therefore, he writes, we should consider the practical consequences of believing or disbelieving and base our decision to believe or disbelieve on the value of those consequences.

Suppose then that god exists. If we believe that god exists, then we can on this eventuality look forward to an eternity of life and happiness. Pascal does not say exactly what would happen to us if we instead were to believe that god does not exist, but it is clear that we would be less richly rewarded than we would have been, had we believed that god exists.

Suppose instead that god does not exist. Then it does not seem to matter much whether we believe that he exists or that he does not exist. We will go on believing or disbelieving, die and that's it. Pascal adds that we may actually benefit practically from our belief in god even if it turns out that he does not exist. True, we would have to sacrifice our worldly ambitions and pleasures, but as compensation our belief would have the more important effect that we become humble, honest and in other ways admirable persons.

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[1] For Pascal's argument, see his *Thoughts*, e.g., the English translation from 1965. A recent collection of essays on the wager is Jordan (1994).

[2] This way of representing ignorance (rather than uncertainty) by assigning a 50% chance to both alternatives is not without its problems.

Believing that god exists or believing that god does not exist are treated as the main alternatives by Pascal. Because the former belief is always better than the latter, Pascal concludes that we should believe that god exists.[3]

Is Pascal's analysis correct? An obvious objection is that Pascal's appeal to practical values in theoretical reasoning fails to square with common sense and scientific reasoning according to which a rational argument for a claim should show that the claim is true, or at least likely to be true. The wager argument seems irrelevant because it fails to show why we should think it true, or likely to be true, that god exists. Indeed, it does not even pretend to show that. While Pascal may well be right in that we would be happier if we believed in the existence of god, that putative fact fails to provide the required connection between belief and truth.

Does this mean that Pascal was entirely wrong about what constitutes rational belief? An affirmative answer to that question would be premature. In favour of Pascal's proposal counts not only its attractive mathematical character but also its attempt to unify practical and theoretical reasoning by subsuming the latter under the former. In addition, it has been argued that the decision theoretic account of belief formation, properly construed, illuminates an otherwise puzzling aspect of the process in which scientists accept hypotheses.[4]

Consider the following example from the history of science.[5] In 1773, Henry Cavendish conducted an experiment to determine how the electrostatic force between charged particles varies with the distance between the particles. From this experiment he drew the conclusion "The electrostatic force falls off as the nth power of the distance, for some n between 1.98 and 2.02". What is puzzling is that Cavendish did not accept a weaker, and hence more probable, conclusion instead, e.g. "The electrostatic force falls off as the nth power of the distance, for some n between 1.9 and 2.1"? Why take the risk of accepting a less probable hypothesis when there are more probable hypotheses available?[6]

The fact that scientists sometimes choose a stronger, less probable, hypothesis suggests that they do not select hypothesis with merely high probability in mind, but that they also take other factors into account. Insofar, Pascal was right. However, while Pascal thought that the additional values are practical, the view I shall defend conceives them as purely theoretical or intellectual values. In

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[3] From a logical point of view there are two other options as well: 1) believing that god either exists or does not exist, without believing one or the other (agnosticism), 2) believing that god both exists and does not exist, and fall into contradiction. On the common conception of god's preferences, these alternatives will also be sub optimal for you.

[4] See for example Levi (1967) and Maher (1993).

[5] This example is also discussed by Dorling (1974) and Maher (1993).

[6] It might be objected that the two hypotheses are not really competitors since they are in fact compatible. The important thing, though, is that they compete in another sense: at most one of them can be chosen as the strongest hypothesis eligible for acceptance (for this distinction see also Levi, 1967).

Section 2 below the reader is introduced to the concept of a doxastic decision problem, after which follows, in Section 3, an account of intellectual values.

However, there is this notorious anti-voluntarist objection, threatening the whole project of providing a decision-theoretic account of belief formation. Indeed, the objection, if sound, would give us reasons to question the very concept of a normative theory of belief—be it decision-theoretic or not. For our beliefs, so the objection runs, are not in any interesting sense under the control of our will. Following an epistemological tradition including Hume and Quine, beliefs are instead to be seen either as responses to stimuli or as dispositions to such responses. A theory makes normative sense if and only if it can be used to guide behaviour, where behaviour is to be understood in a wide sense as including changes of belief. If so, any normative theory of belief would be pointless: even if its recommendations were in some sense correct, we could not implement them. Or, to put it otherwise, there would be an embarrassing shortage of options to which to apply the theory. Section 4 is concerned with this objection.

Doxastic decision theory reduces belief formation to a matter of choice. To choose is to will and is in that sense something essentially practical. In Section 5, the question is raised if subscribing to doxastic decision theory as a normative theory commits one to the primacy of practical reason. Finally, in Section 6 some conclusions are drawn.

2   DOXASTIC DECISION THEORY

According to the most influential theory in the field, Bayesian decision theory, practical deliberation involves choosing one alternative from a set of alternatives, while taking into consideration the consequences or outcomes of the alternative acts under all possible circumstances.

Alternatives	S_1	S_2	...	S_m
A_1	o_{11}	o_{12}		o_{1m}
A_2	o_{21}	o_{22}		o_{2m}
...				
A_n	o_{n1}	o_{n2}		o_{nm}

In the table above, S_j are the states of nature, A_i the alternatives that are open to the person, and o_{ij} is the outcome of choosing A_i if the actual state of the world is S_j. We assume that the states be mutually exclusive and exhaustive given our background knowledge, i.e., that exactly one of the states is the true state of the world. We assume, furthermore, that we can assign probabilities to the states of nature, and that each outcome is associated with a utility value $u(o_{ij})$ representing the "goodness" of that particular outcome.

What alternative should be chosen? When one alternative is better than all other alternatives no matter what the state of nature is we say that it is *dominating*. It seems clear that when there is a dominating alternative, that alternative

should be selected. In general, however, we cannot expect there to be a dominating alternative. Fortunately enough, there is a general decision rule that has gained wide acceptance and can be used even in the absence of domination. Consider the expected utility of choosing option A_i:

$$E(A_i) = \sum_{j=1}^{n} P(S_j)u(o_{ij})$$

According to this formula, we obtain the expected utility of an option by multiplying the probabilities with the corresponding utilities for that row and adding the results. The decision rule now says that we should *maximise expected utility*, i.e., when confronted with a set of alternatives, we should choose an alternative that bears maximum expected utility. It is easily seen that dominating options maximise expected utility. Hence the rule to pick the dominating option, if there is one, is a special case of the rule to maximise expected utility.

Let us look at a standard example (from Savage, 1972). Your partner has just broken five good eggs into a bowl when you come in and volunteer to finish making the omelette. A sixth egg, which for some reason must be either used for the omelette or wasted all together, lies unbroken beside the bowl. You must decide what to do with this unbroken egg. We assume that you must decide among three acts only, namely, to break it into the bowl containing the other five, to break it into a saucer for inspection, or to throw it away without inspection. Depending on the state of the egg, each of those three acts will have some consequences of concern to you, say, those indicated below.

<table>
<tr><td></td><td colspan="2" align="center">**States**</td></tr>
<tr><td>**Alternatives**</td><td>**Good egg**</td><td>**Rotten egg**</td></tr>
<tr><td>**Break into bowl**</td><td>Six-egg omelette</td><td>No omelette, and five good eggs destroyed</td></tr>
<tr><td>**Break into saucer**</td><td>Six-egg omelette and a saucer to wash</td><td>Five-egg omelette and a saucer to wash</td></tr>
<tr><td>**Throw away**</td><td>Five-egg omelette, and one good egg destroyed</td><td>Five-egg omelette</td></tr>
</table>

The consequences are of different value to you. Given that you know the probability of the states and manage to assign numbers to the consequences, you can apply the rule to maximize expected utility.

A doxastic decision problem is a special case of the general notion of a decision problem. In a sense to be made more precise in Section 4, the special characteristic of a doxastic decision problem is that the alternatives are beliefs rather than practical actions. In order rationally to select one of the alternatives in a doxastic decision problem we must, if we want to use the rule to maximise expected utility, as in the case of practical deliberation, know the probability of each state of nature and the utilities of the different outcomes. When the required

information has been gathered we can compute the expected utility of the different doxastic options and arrive at an optimal option in accordance with the decision rule.[7]

3   INTELLECTUAL VALUES, OR:
THE TRUTH, THE WHOLE TRUTH AND NOTHING BUT THE TRUTH

As I said in the beginning, it is implausible to base theoretical reasoning on practical values. Consequently, several philosophers have advanced versions of doxastic decision theory based on purely theoretical values. Although they do not always agree on the details, the main idea is to ground the evaluation of beliefs on the theoretical values of having beliefs that are *true* and *informative*.

Let H be a hypothesis. The goal of truth would be represented by giving a higher value to "believing H when H is true" than to "believing H when H is false". If H' is a logically stronger hypothesis than H, then the goal of accepting informative (true) hypotheses would be represented by giving higher value to the outcome "believing H' when it is true" than to "believing H when it is true".

We have in effect assumed that the utility of believing a given hypothesis depends only on the truth-value of the hypothesis, and hence has only two possible values. It is, however, plausible to think that false theories can be more or less close to the truth. If so, it seems reasonable to suppose that the utility of believing a false theory can vary depending on its distance from the truth: the closer the theory is to the truth, the higher the utility of believing it.[8]

An elegant theory of epistemic utility has been formulated and defended by Patrick Maher, who argues that the goal of truth and the goal of information can be reduced to the one single goal of *verisimilitude*, i.e., the goal of being close to the whole truth. According to Maher, while the distance from any true hypothesis to the truth is zero, true hypotheses may differ regarding their distance to the *whole* truth. In general, more informative true hypotheses are closer to the whole truth than less informative true hypotheses. On this view, which I find plausible, scientists should, when they are confronted with several alternative hypotheses, prefer the hypothesis that is closest to the whole truth.

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[7] In the case of choosing a practical action, the presence of several optimal alternatives does not represent any particular difficulty: just pick one of them as the action to be performed! However, in the doxastic case a corresponding picking strategy appears unsatisfactorily arbitrary. Instead, the right thing to do would be to adopt the disjunction of the optimal beliefs as the new belief; that is, if believing A and believing B are both optimal, and there are no other optimal alternatives, then the new belief should be A *or* B, i.e., we should withhold judgment between A and B. But there is apparently no guarantee that the disjunction is also optimal. If not, then the theory recommends in effect the choice of a suboptimal alternative, which seems counter-intuitive. For more on this difficulty and for an attempt to resolve it, see Levi (1967) and (1991).

[8] The first rigorous account of 'closeness to the truth' was given by Popper (1963).

We can now explain why Cavendish did not choose to assent (merely) to the weaker and more probable hypothesis: that hypothesis was not close enough to the *whole* truth.

Can we go one step further and conclude that verisimilitude is all there is to belief fixation, so that we should simply select the hypothesis that maximises verisimilitude? If so, there would be no need to take probabilities into account, i.e. there would be no need to calculate the maximum *expected* verisimilitude. The answer to that question is no: if verisimilitude were all there is to belief fixation, then we could not explain why Cavendish did not choose a *stronger* hypothesis than the one he actually selected. For rather than claiming that the electrostatic force falls off as the nth power of the distance, for some n between 1.98 and 2.02, why not claim that the electrostatic force falls off simply as the second power of the distance? This hypothesis is stronger and, hence, if true, closer to the whole truth. The reason why Cavendish did not choose this hypothesis is that he did not consider it sufficiently likely to be true. Hence, the probability of a hypothesis is still a relevant factor, and there is a need for balancing the probability and the verisimilitude of a hypothesis. This, of course, is exactly what the rule of maximizing expected utility attempts to accomplish.

4   THE ANTI-VOLUNTARIST OBJECTION

In this section I shall discuss the voluntarism objection to the theory outlined above. Applying the notion of choice to beliefs, so the objection goes, commits one to a voluntarist position according to which we can choose our beliefs freely. But such a position is certainly untenable; we simply do not have direct voluntary control over what we believe.

Suppose that I intend to perform a normal practical action, e.g., to break the egg into the saucer (referring back to the example in section 2). The mere intention to do this is sufficient to raise the probability considerably that I will actually do it. Hence I could be expected to carry out a recommendation to break the egg into the saucer if such a recommendation were given. One could be led to think that decision theory is meaningful as a normative theory of practical action for this very reason. In contrast, suppose that I sincerely intend to *believe* something, say, that there is life on other planets. The intention of mine to believe this seems to have little, or no, causal influence on what I will actually believe. Hence, I could not be expected to carry out a corresponding recommendation to believe. Decision theory is therefore, it would seem, doomed to fail as a normative theory of how we should adopt beliefs; it is not within our power to implement any recommendations it might give, however reasonable or rational they might be.

However, if this objection were correct, then decision theory would be useless in many common cases of practical deliberation as well. A mere intention of a smoker to give up smoking will in many cases fail to raise the probability significantly that he or she will actually succeed. Hence, a smoker could not be expected to carry out a corresponding recommendation and a decision theoretic analysis of the smoker's predicament would be normatively useless for him.

Fortunately, the objection is flawed. The important thing is whether the intention to give up smoking raises the probability of actually quitting *provided that two additional conditions are met*: (i) the person subscribes to decision theory as a normative theory and (ii) she recognizes that giving up smoking is recommended by that theory relative to the values that the person holds dearest (e.g., her own health or, considering the negative effects of passive smoking, the health of her children). Similarly, it is not necessary that the intention to believe that there is life on other planets by itself has the desired causal effect of producing the belief. What is sufficient for doxastic decision theory to be normatively useful is that the intention to believe has the desired effect *provided* that the person subscribes to doxastic decision theory *and* recognizes that the belief in question is recommended by that theory.

As was clear to Pascal, his decision theory based on practical values has problems even with this weaker success requirement. Pascal thought it possible to convince oneself using the wager argument that one ought to believe in the existence of god—only to find oneself still disbelieving.[9] Not only is the belief not guaranteed under the proviso that the person subscribes to Pascal's general argument and recognizes its recommendation; it seems that this proviso does very little in the direction of raising the probability that the intention to believe will bring about the belief.

Does the intellectualist version of doxastic decision theory fare any better in this respect? Suppose that a person subscribes to it, while recognizing one option as being recommended by that normative rule due to its closeness to the whole truth. Would the intention to adopt the corresponding belief under these assumptions be causally effective in producing, with significant likelihood, the corresponding belief? Although this is an empirical question that cannot be answered conclusively from a philosopher's armchair position, it seems to me much more plausible to think that the intention would have a causal effect in this case than that it would in the case of Pascal's theory. It appears quite likely that one can subscribe to the normative intellectualist theory, recognize the optimality of a particular belief, intend to adopt the belief in question—and succeed. We may conclude that a much weaker, and correspondingly more plausible, form of voluntarism is sufficient for the normative purposes of doxastic decision theory.

Indeed, it seems possible, or even likely, that one can subscribe to the intellectualist's doxastic decision theory, recognise that one belief is recommended and find oneself having adopted the belief, without there having been any intermediate "will to believe" (to use William James' phrase[10]) at all. If this is true (which I think it is), then doxastic decision theory can guide action and hence be

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[9] His advice to a person who based on the wager argument intends to believe in the existence of god, but finds that the corresponding belief is not forthcoming, is to try to acquire that belief indirectly, by acting as if he or she believed: read the holy texts, attend religious ceremonies, and so on. This will, Pascal though, sooner or later bring about the desired belief in god.

[10] William James (1956).

normatively meaningful even in the complete absence of an intention to believe, meaning that the doxastic decision theorist can do without even the weaker form of voluntarism.

My proposal is close to the position of Patrick Maher and can be seen as an elaboration of his position, as I understand it. Maher maintains that "for the purposes of cognitive [i.e. doxastic] decision theory, we take the options to be not alternatives that are directly subject to the will but alternatives that we would (or could) take if our norms required this".[11] As I interpret Maher, his would-condition does not involve an intermediate intention to believe, whereas the could-condition does involve such an intermediate intention. Maher does not seem to think that it matters much whether we settle for the would-interpretation or the could-interpretation of the alternatives. The reason is probably that he thinks that in either case "there is no shortage of options to which to apply cognitive [i.e. doxastic] decision theory" (ibid.). For the purposes of rebutting the anti-voluntarist objection, Maher is correct, but in the next section it will matter that the would-condition is sufficient.

In contrast to Maher's and my solution, the standard move is to make a distinction between two kinds of doxastic attitude, claim that one but not the other is subject to voluntary control and then, finally, restrict the decision theoretic account to the former. For instance, Levi makes a distinction between doxastic performance and commitment, contending that while doxastic performances are responses to stimuli or dispositions to such responses and hence "not fully under the control of deliberating agents", "agents are able to choose how to revise their doxastic commitments and, in this sense, can deliberately change their beliefs".[12] To the extent that these distinctions are introduced in order to avoid voluntarism within an intellectualist doxastic decision theory, they are unnecessary.

Maher, too, makes a distinction between belief and acceptance, but his motive is not to avoid voluntarism. On Maher's view, the state that is expressed by a willingness to act as if the hypothesis H were true is another mental state than the state expressed by sincere intentional assertion of H. But, as Maher observes, the "folk concept of belief" appears to regard belief in H as a single mental state having both these characteristics. Concluding that the folk concept is incoherent, Maher reserves his doxastic decision theory for the choice of states expressed by sincere intentional assertion rather than for the choice of beliefs. The former states are identified with acceptance states. Note that, unlike Lehrer, Maher construes acceptance in a way which is intended to imply that "acceptance is not usually directly subject to the will" (p. 148).

It should be noted that Maher's theory of acceptance is not without its problems. Maher maintains that acceptance is (normally) not linked to practical action in any direct way, in particular, that acceptance of H (normally) produces

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[11] Maher (1993), p. 148.

[12] Levi (1991), p. 71.

no change in one's willingness to act as if H were true in practical contexts.[13] This leaves him with the serious problem of showing how acceptance can nonetheless be an important and interesting notion. Instead of pursuing this discussion, I shall move on to a Kantian theme.

5   ON THE PRIMACY OF PRACTICAL REASON

As pointed out already, much of the attraction of doxastic decision theory lies in its promise to unify practical and theoretical reason by showing that, in the two cases, the underlying structure of evaluation is one and the same. Pascal saw the parallel but, in assuming the values underlying practical and theoretical reasoning also to be the same, he stretched the analogy too far. Isaac Levi, a prominent contemporary advocate of pragmatism, ascribes the unity thesis to the American pragmatist tradition:

> "What is 'pragmatic' about pragmatism is the recognition of a common structure to practical deliberation and cognitive inquiry in spite of the diversity of aims and values that may be promoted in diverse deliberations and inquiries".[14]

Levi is here quite explicit regarding the point that the unity in question concerns the structure rather than the substance of deliberation and inquiry.

A similar unity thesis was already defended by Immanuel Kant. For Kant reason is unified in the sense that there is only one faculty of reason: "it is one and the same reason, be it with a theoretical or practical aim, which judges according to principles".[15] Kant advocated not only the unity of reason but also the *primacy of practical reason*.[16] In his spirit, we may ask whether someone who subscribes to the intellectualist version of doxastic decision theory is thereby committed to advancing the primacy of practical reason. There is a simple answer to this question: No, unlike Pascal's suggestion the modern theory does not reduce theoretical reasoning to reasoning from practical values.

But, as I hinted in the introduction, the primacy thesis need not be interpreted as requiring the reduction of theoretical reasoning to reasoning from practical values. One could instead claim that to decide is to will, and that to will is to

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[13] This is also Maher's reason for thinking that "normally, practical utilities are irrelevant to the rationality of accepting a hypothesis" and for supposing that rational acceptance maximizes expected cognitive (i.e. intellectual or theoretical) utility (Maher, 1993, p. 150).

[14] Levi (1991), p. 78.

[15] Kant (1788, 1902), p. 121. It should be noted that Charles S. Peirce, who has been referred to as "the founder of pragmatism", was heavily influenced by Kant.

[16] For an interpretation of Kant's complex position, see Rauscher (1998).

do something practical, from which it would appear to follow that decision theory *in itself* belongs to the practical realm. Hence, the doxastic decision theorist, in his efforts to reduce theoretical reasoning to decision-making, seems committed to the *primacy of the will*. One could also make essentially the same point by saying that he is committed to the *primacy of action*. For to choose is to perform an *act* and presumably the alternatives among which we are to choose in a given decision problem are also alternative *acts*. Hence, applying decision theory involves as a necessary ingredient performing at least one action. On one plausible understanding of what "practical" means, decision theory is therefore essentially practical.[17]

These arguments are intimately related to the anti-voluntarist objection against doxastic decision theory. To neutralize the anti-voluntarist objection, it was sufficient to note that a weak form of voluntarism, corresponding to Maher's could-condition, does the job. In the present connection it is crucial that the would-condition is also sufficient: doxastic decision theory can guide behaviour even in the absence of an intention to believe. For the intellectualist version of doxastic decision theory to make normative sense it is sufficient that an agent who subscribes to the theory as a normative theory and recognises one belief as recommended by the theory will, with significant probability, be disposed to adopt the corresponding belief as a matter of objective causal fact. I have also suggested that it seems likely that this requirement is, in a sufficient number of cases, met. From the normative point of view, it is not necessary then that the person contemplating a doxastic decision problem really *chooses* an alternative belief, in the sense of forming an intention to believe it. Or, what comes to the same thing, it is not necessary that we view the alternatives as possible intentional actions. In a word, one can subscribe to the intellectualist version of doxastic decision theory as a normative theory of belief without adopting the view that practical reason is primary in either the sense of the primacy of the will or the primacy of action.

The idea of a primacy of practice invites speculation. It is, I think, plausible to regard practical reason as primary in another sense, namely, in the sense in which the purpose of the practice of human theoretical inquiry is ultimately practical. It should be noted that the view that the evolutionary function of inquiry is to serve the survival of the human species is compatible with a doxastic decision theory based on intellectual values. For it could well be that an inquirer motivated by pure intellectual curiosity would be the most fittest for survival, since such an inquirer could be expected to be more willing to observe, reason and experiment, activities that tend ultimately to favour our practical success.[18]

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[17] Hans Rott has defended the primacy of practical reason in the sense of the primacy of will. See in particular his 1997 paper, p. 145, and also his forthcoming book. Incidentally, Rauscher (1993) employs the expression "primacy of action" to signify a position that he associates with Kant but which does not seem to be exactly the same as the one I am discussing here.

[18] Maher (1993), p. 151.

Another evolutionary advantage might derive from the fact that a purely intellectual inquirer would be in a better position to separate the *information* she has from the practical *use* of that information.[19] Hence, instead of being tied to a particular practical application, her information system could be used for many different practical purposes.

6 CONCLUSION

I have defended Pascal's suggestion that the problem which belief or hypothesis to adopt can be seen as a decision problem, provided that the values involved are purely theoretical rather than, as Pascal himself thought, practical. The two goals most often referred to in this connection are the goals to have true and informative beliefs. They can be subsumed under the one single goal of verisimilitude, i.e., the goal of being close to the whole truth. On a normative interpretation of doxastic decision theory, that theory seems committed to an implausible voluntarism. But, as I have tried to show, this impression is false: the normative usefulness of the theory does not require that we can believe "at will" in the strong sense that we can believe anything we want. In fact, it does not require that we can believe "at will" at all. The latter point was seen to have implications for the question whether the employment of doxastic decision theory in theoretical reasoning presupposes the primacy of practical reason; it does not. Finally, I suggested that the intellectualist view on belief fixation advocated here is compatible with the plausible position that the practical has primacy over the theoretical in the sense that belief fixation ultimately serves practical ends.[*]

REFERENCES

Dorling, J. (1974) "Henry Cavendish's Deduction of the Electrostatic Inverse Square Law from the Result of a Single Experiment", *Studies in History and Philosophy of Science*, 4: 237-48.

Hilpinen, R. (1991) "Inquiry, Argumentation and Knowledge", in *The Logic of Theory Change*, Fuhrmann, A. and Morreau, M. (eds.), Berlin: Springer-Verlag, 3-18.

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[19] Cf. Hilpinen's discussion of multipurpose information systems in his 1991 paper. Those systems are expected to give many different persons, presumably with widely different practical preferences and values, information about many different kinds of questions.

James, W. (1956) "The Will to Believe" in *The Will to Believe and Other Essays*, New York: Dover.

Jordan, J. (ed.) (1994) *Gambling with God: Essays on Pascal's Wager*, Lanham: Rowman and Littlefield Publishers.

Kant, E. (1788) *Critique of Practical Reason*, Vol. 5 of *Kant's Gesammelte Schriften*, Walter de Gruyter (1902).

Levi, I. (1967) *Gambling with Truth*, Cambridge, Mass.: MIT Press.

Levi, I. (1991) *The Fixation of Belief and Its Undoing*, Cambridge: Cambridge University Press.

Maher, P. (1993) *Betting on Theories*, Cambridge: Cambridge University Press.

Pascal, B. (1965) *Selections from the Thoughts: Pascal*, translated into English by A. H. Beattie, Arlington Heights.

Popper, K. (1963), Conjectures *and Refutations*, New York: Harper and Row.

Rauscher, F. (1998) "Kant's Two Priorities of Practical Reason", *The British Journal for the History of Philosophy*, Vol. 6, No. 3: 397-419.

Rott, H. (forthcoming) *Change, Choice and Inference*, Oxford: Oxford University Press.

Rott, H. (1997), "Vom Primat der praktischen Vernunft: Logische Regeln als Regeln rationaler Wahl", in G. Meggle (ed.) *Proceedings of the 2nd Conference "Perspectives in Analytical Philosophy"*, Berlin and New York: De Gruyter: 138-147.

Savage, L. (1972), *The* Foundations *of Statistics*, New York, 2nd edition.

Chapter 7   Belief versus Acceptance[*]

Raimo Tuomela

1   INTRODUCTION

Belief seems to be connected to truth and to the acceptance of the content of belief as true. If a person accepts as true that the cat is on the mat, then it might seem that he must also believe that the cat is on the mat, and conversely. However, the connections here should be investigated in terms that are more precise and should be properly argued for. This is my main aim in this paper. I will discuss these matters not only in the case of single agents but also, to some extent, in the collective case.

Before starting my discussion, I wish to emphasize that while I will discuss what can be regarded as the standard notion of belief, the notion of acceptance as true or as correctly assertable to be concentrated upon below is to an extent a philosopher's technical notion. A more standard notion of acceptance is one which regards acceptance as the acceptance of something as good or as satisfactory.

In the literature on belief and acceptance, several related notions and terms have been considered. Among them are acceptance of something as true, assenting to a sentence, holding a sentence true, holding a sentence as true, believing something to be the case (*cf.* Cohen, 1992, Ullmann-Margalit and Margalit, 1992, Tuomela, 1992, Bratman, 1993, Engel, 1998). Some of these notions explicitly involve linguistic items such as sentences while some do not. In this paper I will consider to some extent what other philosophers have said about the issues at hand. Especially I will focus on the paper by Engel (1998) and the book by Cohen (1992).

Engel (1998), largely following Bratman (1993), assumes the following about belief (pp. 143-144):

1) Beliefs are involuntary, and are not normally subject to direct voluntary control.
2) Beliefs aim at truth.
3) Beliefs are evidence-related in that they are shaped by evidence for what is believed.
4) Beliefs are subject to an ideal of integration or agglomeration.
5) Beliefs come in degrees.