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ON A RECENT THEORY OF RATIONAL ACCEPTANCE *

(Received 23 December, 1982)

In two recent articles, Mark Kaplan has offered a new theory of rational acceptance within the framework of Bayesian epistemology. In one of them (1981a), he discusses some of the foundational difficulties which confront both *analyses of the concept* of acceptance and *normative theories* of acceptance, and he offers an analysis of the concept. In the other (1981b), he reviews some of those considerations and also offers a normative theory of acceptance, a sophisticated elaboration and modification of the confidence-threshold theory of acceptance that is designed to adjudicate correctly between the desiderata of truth and comprehensiveness and also to be immune to the lottery paradox problem – a problem, first discussed by Henry Kyburg (1961) and Carl Hempel (1962), that seems fatal to the naive confidence-threshold view. Here, after a brief discussion of Kaplan's analysis of the concept of acceptance, I shall show that, in fact, Kaplan's revision of the confidence-threshold view is *not* immune to the lottery paradox problem.

Central to Bayesian epistemology is the idea that a rational person's beliefs come in degrees that conform to the probability axioms. Within this framework, therefore, it is natural *either* to try to explicate 'accepting proposition *P*' as 'having a "high enough" degree of confidence in *P*' *or* to reject the idea of acceptance altogether, supposing that the relevant epistemological phenomena (e.g., confirmation of scientific hypotheses) may be better understood in terms of degrees of confidence. Richard Jeffrey (1956, 1968, 1970) has elaborated the second alternative by defending the "probabilistic theory of science," according to which scientists neither accept nor reject hypotheses, but only assign probabilities to them. Kaplan rejects the first Bayesian alternative, but, of course, does not endorse the second. One of the reasons Kaplan gives for rejecting the first alternative involves the lottery paradox. Since I shall later show that the lottery paradox presents difficulties for Kaplan's normative theory, it will be worthwhile to see here how the paradox figures

Philosophical Studies **44** (1983) 331–343. 0031–8116/83/0443–0331$01.30

in Kaplan's rejection of the kind of analysis of the concept of acceptance suggested in the first alternative above.

After rejecting the idea that the level of confidence definitive of acceptance is that of certainty, Kaplan states, "if it is a state of confidence, acceptance must be a state of confidence above some threshold – most plausibly, some threshold greater than or equal to .5", and he presents the confidence-threshold view of acceptance as follows:

(1) There is a number n, $.5 \leqslant n < 1$, such that, for any person X and proposition P, X accepts P if and only if X has a degree of confidence that P greater than n (1981b, p. 307).[1]

Now let us assume the following rationality constraints:

(2) If X is rational, then
(a) X accepts the conjunction of any propositions she accepts;
(b) X accepts all the consequences of every proposition she accepts; and
(c) X does not accept any contradiction (1981b, p. 308).

Initially, (1) and (2) may seem intuitively quite reasonable. But the lottery paradox generates a contradiction from the two theses – indeed, a counterexample to (1) if one accepts (2), as Kaplan does. First, choose any value for n as high as you please, short of 1; say $n = .9$. Next, we suppose that X is rational and has degree of confidence 1 in (and hence accepts) the proposition, T, that there is a one-thousand-ticket fair lottery in which exactly one ticket will win. For each $i = 1, 2, \ldots, 1000$, let L_i be the proposition that the ith ticket will *lose*. Then, assuming that X has the natural degrees of confidence (represented by the probability function prob) in connection with the lottery, $\text{prob}(L_i) = .999$ for each i. Hence, according to (1) with $n = .9$, X accepts each L_i. By (2) then, X also accepts the conjunction $L_1 \,\&\, L_2 \,\&\, \ldots \,\&\, L_{1000}$. But $-(L_1 \,\&\, L_2 \,\&\, \ldots \,\&\, L_{1000})$ is a consequence of T; so, since X accepts T, it follows, by (2), that X accepts $-(L_1 \,\&\, L_2 \,\&\, \ldots \,\&\, L_{1000})$. And since – also by (2) – X accepts all conjunctions of propositions which X accepts, X accepts the conjunction of the long conjunction with its negation; and since this conjunction is a contradiction, X accepts a contradiction, which, by (2) makes X not rational, contradicting our assumption that X *is* rational. So, either there are no rational people who accept propositions to the effect that there is a one-thousand-ticket fair lottery in which exactly one ticket will win, or the rationality constraint (2) is false, or (1) with $n = .9$ is false. Kaplan rejects the first two alternatives and endorses the third. And clearly, the same kind of example will tell against (1) with any value of n short of 1. Note that the lottery paradox only constitutes a counterexample to the sufficiency part – the "if"-part – of the confidence-threshold view as expressed in (1). Kaplan presents another puzzle – the preface paradox – as a counterexample to the "only if"-part of (1).

Kaplan diagnoses the failure of (1) as an analysis of acceptance as follows. The Bayesian foundations of the idea of degrees of confidence is decision theoretical. (At least it seems that this is the most promising among Bayesian approaches, as I have argued elsewhere (1982).) According to this approach, a rational person's degrees of belief and degrees of desire combine in a certain way to yield preferences. Also, *via* an appropriate "representation theorem," one's subjective probabilities and desirabilities can be inferred (uniquely up to certain transformations) from one's preferences, if the preferences satisfy certain mild rationality constraints (e.g., transitivity and antisymmetry) and others of a structural nature. Subjective probabilities (degrees of confidence) and desirabilities are, then, more or less theoretical entities which "lie behind" and explain their more or less observable manifestations: preferences. Now Kaplan says that

> It is a mistake to suppose that the proper role of acceptance-talk is to describe the doxastic input into rational deliberation. This is, rather, the role of confidence talk. The proper function of acceptance-talk is to describe a certain feature of our behavioral repertoire – the practice of defending propositions in the context of inquiry (1981a, p. 138).

So Kaplan suggests that "we should view '*X* accepts *P*' as just shorthand for '*X* would defend *P* were her aim to defend the truth' " (1981a, p. 138), where it is later explained that, "[b]y 'aim to defend the truth' I mean, rather, the aim to defend as comprehensive a part of the truth as one can" (1981a, p. 139). Of course the desires for truth and comprehensiveness can conflict, as Kaplan points out. And it will be a task for the normative theory of acceptance to adjudicate between these two desires.

Before turning to Kaplan's normative theory, I would like to point out a perhaps disturbing feature of the proposed analysis of the concept of acceptance. *Prima facie*, the analysis is in terms of the idea of defending propositions. But it seems that, without altering the correctness of the analysis or the degree to which it illuminates the concept of acceptance, one could substitute many other verbs for 'defend' in the analysis. For example, why not analyze 'X accepts P' instead as 'X would try to refute P were X's aim to try to refute the truth', or as 'X would write down a sentence in French which expresses P were X's aim to write down sentences in French which express the truth'? More generally along these lines, 'X accepts P' might we analyzed as 'For anything φ which it is within X's power to do to P, X would φ P were it X's aim to φ the truth'. Now, since each of these analyses seems equally correct and illuminating, we should conclude that the use of the particular idea of *defending P* does not in itself contribute any illumination of the concept of acceptance. So it is appropriate to ask what other features of Kaplan's analysis may be illuminating. All the other features of the analysis are shared by the other candidates given above. And it seems that the only relevant thing in common to all these analyses is that they each imply that if X accepts P then X treats P as a truth – i.e., regards P as true. Thus, it seems that Kaplan's analysis is illuminating just to the extent that the analysis of 'accepts' as 'treats as a truth' or 'regards as true' is illuminating. While such an analysis seems *correct* to me, the extent to which it is adequate in other respects is unclear to me.

Now *if* it could be established that X is rational only if X aimed to defend (all and only) the truth, then, perhaps, one would be inclined to analyze 'X accepts P' as 'X defends P', where X is assumed to be rational. But, aside from the implausibility of the strong constraint on rationality, it would seem, intuitively, that there are many cases of accepting propositions which one does not defend. On the other hand, Kaplan states that in his sense of 'defend', "to say that X defended P is not to say that X offered a defense of P – say, by offering an argument for P. Rather, it is to say simply that X asserted that P or assented to P" (1981b, p. 311, n.). However, again, there would seem to be many cases of acceptance without corresponding assertion; and an analysis of acceptance in terms of assent would seem to be circular.

In any case, let us assume that X wants to defend the truth – that is, the most comprehensive a part of the truth as X can. Kaplan's normative theory of acceptance deals with the sometimes competing desires to defend nothing but the truth and to defend as much of the truth as one can by first characterizing the *strongest proposition which X should defend*, where a proposition P is *stronger than* a proposition Q if P logically implies Q and Q does not logically imply P. Then the theory asserts that for any proposition P, X should accept P if the strongest proposition X should defend logically implies

P. I shall adopt Kaplan's words – which were in turn adopted from similar usage by Isaac Levi (1967, 1980) – and call the strongest proposition which X should defend 'the *proposition which X should defend as strongest*'. Also, we assume that X is rational in the Bayesian sense.

In order to isolate the proposition which X should defend as strongest, Kaplan first characterizes the relation which holds between any two propositions P and Q when P is stronger than Q and X should prefer defending P as strongest to defending Q as strongest. Then the proposition X should defend as strongest is defined to be (roughly) the disjunction of those maxima of this relation which have the greatest (equal) probability. To characterize this preference relation, Kaplan proceeds through a series of attempts, each superior to its predecessors. The first attempt:

(3) There is a number c greater than .5 such that, for any P and Q where P is stronger than Q, X, if rational, will prefer defending P as strongest to defending Q as strongest *if and only if* prob(P) is greater than $c \cdot$prob(Q) (1981b, p. 317).

Now Kaplan feels that the preference relation under consideration should be transitive. But, on the above characterization, it will not be. The example he gives to show this lets prob(R) = 1, prob(Q) = .91, and prob(P) = .88, where P is stronger than Q, Q is stronger than R, and c = .9. Then Q is preferred to R and P to Q; but P is not preferred to R. For this reason, Kaplan feels that (3) must be revised (and, indeed, the rest of his theory requires transitivity of the relation).

Incidentally, it is by no means obvious that the relation being characterized should be transitive anyway. Kaplan suggests that if one prefers to defend a proposition P as strongest to defending Q as strongest (where P is stronger than Q), then one has a good argument from Q to P, and "reflection on the nature of argument and rational inference will alone suffice to motivate the judgment that any theory that prohibits the inference from R to P, yet prescribes the inference from R to Q and the inference from Q to P – as (3) does – is inadequate" (1981b, p. 320). But, of course, the kind of argument and rational inference on which we are supposed to reflect must be *inductive* argument and *inductive* inference, for if P is stronger than Q, then, by the definition of 'stronger than', there cannot be a *deductively* good argument from Q to P. However, the nature of inductive inference is not well enough understood, it seems to me, for reflection on the nature of it clearly to yield the conclusion that inductive inference is transitive. And it certainly is not transitive on the model of inductive inference according to which the inductive strength of an argument is the probability of its conclusion conditional on the conjunction of its premises.[2] Note that when P is stronger than Q, the condition that prob(P) is greater than $c \cdot$prob(Q) is equivalent to the condition that prob(P/Q), the probability of P conditional on Q, is greater than c. So Kaplan's example shows that on this conditional probability model, inductive inference is not transitive. More recently, Kaplan has suggested (in conversation) that the thesis of transitivity of the preference relation currently under consideration could be better supported from considerations involving preference more generally, pointing out that, as noted above, one Bayesian rationality constraint on an agent's preference relation (on options and outcomes) is that it is transitive. My intuitions are unclear here, however, so I cannot argue that the preference relation under consideration is or is not transitive.

In any case, Kaplan modifies (3) with the help of the idea of a "good chain," where

(D2) For any P and Q and number c, a set of propositions A is a *good chain* from Q to P with respect to c for $X =_{df}$
- (i) A is finite and linearly ordered;
- (ii) A has Q for its first member and P for its last; and
- (iii) for any two members of A, S and S', such that S' is the immediate successor of S, S' is stronger than S and prob(S') is greater than $c \cdot$prob(S) (1981b, p. 320).

Then the successor of (3) insures transitivity of the preference relation:

(4) There is a number c greater than .5 such that, for any P and Q where P is stronger than Q, X, if rational, will prefer defending P as strongest to defending Q as strongest *if and only if* there is a good chain from Q to P with respect to c for X (1981b, p. 320).

But Kaplan points out that, while (4) insures transitivity, it is still defective, for it suffers from basically the same lottery paradox problem as the naive confidence-threshold view does. Let propositions $T, L_1, L_2, ..., L_{1000}$ be as before (this is a slight modification of Kaplan's notation, which uses 'Lt_i's instead of 'L_i's). And suppose that $c = .9$. Then the ordered set $\{T, T \& L_1, T \& L_1 \& L_2, ..., T \& L_1 \& L_2 \& ... \& L_{990}\}$ is a good chain from T to $T \& L_1$ &

L_2 & ... & L_{990} with respect to .9 for X, assuming that X has the natural degree of belief assignment with respect to the fair lottery. So, if X selects the value, .9 for c, then, according to (4), X should prefer defending T & L_1 & L_2 & ... & L_{990} as strongest to defending T as strongest. "But," as Kaplan puts it, "I doubt that anyone will want to say that, confronted with a fair one-thousand-ticket lottery, X has a good argument for the claim that one of the last ten tickets will win" (1981b, p. 321). And note that for *any* given ten tickets, (4) will endorse the inference from T to the proposition that the winning ticket will be among those ten.

Kaplan's way of modifying (4) to take care of counterexamples of this kind is to try to make precise the idea that each step in the good chain from T to T & L_1 & L_2 & ... & L_{990} is *arbitrary* in that there is no good reason to prefer inferring T & L_1 from T rather than inferring T & L_i from T, for any value of i other than 1; there is no good reason to prefer inferring T & L_1 & L_2 from T & L_1 rather than inferring T & L_1 & L_i from T & L_1, for any value of i other than 1 and 2; and so on. His definition (where '$\approx$' means 'is roughly equal to'):

(D3) For any P, Q, and number c, P is *arbitrary* with respect to Q and c for $X =_{\text{df}} P$ is a member of a set of propositions $\{R_1, R_2, ..., R_n\}$ such that
- (i) each R_i is stronger than Q;
- (ii) for each R_i, prob(R_i) is greater than $c \cdot$prob(Q);
- (iii) for each i and j, $i \neq j$, $\text{prob}(R_i/R_j) \approx \text{prob}(R_j/R_i) \not\approx \text{prob}(R_i)$;
- (iv) prob(R_1 & R_2 & ... & R_n) is not greater than $c \cdot$prob(Q); and
- (v) there is no set A satisfying (i)–(iv) such that each member of A is both stronger than at least one R_i and stochastically independent of P (1981b, p. 322).

Then a good chain is defined to be *tarnished* (1981b, p. 324) if it has a pair of successive elements where the second is arbitrary with respect to the first (and the appropriate number c, for X). Then (4) is revised to yield its successor, (5), according to which X should prefer defending the stronger P as strongest to defending Q as strongest if, and only if, there is an untarnished good chain from Q to P with respect to the appropriate number c for X (1981b, p. 325).

Does this work? In particular, is the good chain, above, from T to T & L_1 & L_2 & ... & L_{990} a tarnished chain? Kaplan says:

(T & L_1), by virtue of its membership in {(T & L_1), (T & L_2), ..., (T & L_{1000})}, is arbitrary with respect to T and .9 for X. Similarly, (T & L_1 & L_2), by virtue of its membership in {(T & L_1 & L_2), (T & L_1 & L_3), ..., (T & L_1 & L_{1000})}, is arbitrary with respect to (T & L_1) and .9 for X – and so on (1981b, p. 322, with the change in notation explained earlier).

If all this were true, then the relevant chain would be tarnished so that by Kaplan's modification of thesis (4), we would not be able to conclude that X should prefer defending T & L_1 & L_2 & ... & L_{990} as strongest to defending T as strongest. But, as I will show below, none of the steps in the good chain under discussion is arbitrary on Kaplan's definition (D3), so that the chain is, on Kaplan's definition, actually untarnished. But first, some comments on the conditions in (D3).

It's clear why clauses (i) and (ii) should be part of the definition: the idea is just that the R_i's are to be indistinguishable from P with respect to which one of them X should prefer defending as strongest over defending Q as strongest. It is this indistinguishability from the other R_i's which, intuitively, constitutes the arbitrariness of P. But I cannot see any intuitive motivation for clause (iii), although Kaplan gives an example (1981b, p. 324) of an intuitively tarnished chain that wouldn't be tarnished according to the definition if we substituted '=' for '≈' in (iii). But, of course, the intuitively tarnished chain *would* be tarnished according to the definitions if clause (iii) were just left out of (D3). Kaplan just assumes (1981b, p. 322) that the motivation for the other features of clause (iii) should be clear. Nor is it clear to me why clause (iv) should be a part of the definition of 'arbitrary', although Kaplan gives an example of an intuitively tarnished chain that wouldn't be tarnished according to the definitions if clause (iv) of (D3) required R_1 & R_2 & ... & R_n to be inconsistent or to have probability 0 rather than just requiring it to have probability not greater than $c \cdot \text{prob}(Q)$. But again, the intuitively tarnished chain *would* be tarnished according to the definitions if clause (iv) were just left out of (D3). Perhaps the idea behind clause (iv) is that it will be harmless to infer one among several intuitively arbitrary propositions if the inference to the conjunction of them all is rationally warranted.

Kaplan explains that requirement (v) is included in order to avoid a problem pointed out to him by Allan Gibbard. Let P be any proposition that is stronger than T, that has probability 1000/1001, and which is probabilistically independent of all consistent truth-functional compounds of the propositions T, L_1, $L_2, \ldots, L_{1000}$ of the lottery example. That is, other than being stronger than T, P is unrelated to the lottery. Then the set $\{P, T \& (-P \vee L_1), T \& (-P \vee L_2), \ldots, T \& (-P \vee L_{1000})\}$ satisfies clauses (i)–(iv) of (D3). Kaplan explains that this should not count against P and that clause (v) in the definition saves P from being arbitrary by virtue of its membership in this set; for the set $\{T \& L_1, T \& L_2, \ldots, T \& L_{1000}\}$ satisfies (i)–(iv), each member of it is stronger than at least one member of Gibbard's set, and each member of it is stochastically independent of P.

But the inclusion of clause (v) in the definition cannot be right. First, on the intuitive level, no rationale is given for the three parts of (v), other than that, together, they save the theory of acceptance from one counterexample. On the intuitive level, (v) is *ad hoc*. But also, formally, the inclusion of (v) has just the opposite effect of leaving it out, in an extreme way: leaving (v) out makes Gibbard's innocent proposition P arbitrary, but including (v) renders *every* proposition that is stronger than Q and which has a probability greater than $c \cdot \text{prob}(Q)$ *nonarbitrary* with respect to Q, c and rational X. That is, no set that satisfies (i)–(iv) in (D3) will satisfy (v): there will always be a set A whose existence renders (v) unsatisfied. I will not prove this claim in general. For simplicity, I will simply show that the set which Kaplan asserts renders the first step in the lottery paradox chain arbitrary does not satisfy (v). From this, the pattern of the more general argument can be seen.

What I wish to show is that $T \& L_1$'s membership in $\{T \& L_1, T \& L_2, \ldots T \& L_{1000}\}$ (call this set 'B') does *not* render $T \& L_1$ arbitrary with respect to T and .9 for X. This is because the set B does not satisfy clause (v) of the definition of arbitrariness (with respect to T and .9 for X): there *is* a set with the properties described in clause (v). Let T^* be the proposition 'There is a 999-ticket fair lottery, and exactly one ticket will win'. Let L_i^* be the proposition 'Ticket i of the 999-ticket fair lottery will lose', for each $i = 2, 3, \ldots, 1000$. (Assuming that the tickets of this lottery are numbered from 2 to 1000, rather than from 1 to 999, will simplify the notation in the argument that follows.) And let us assume that the outcomes of this second, 999-ticket lottery are independent of the outcomes of the first, 1000-ticket lottery (relative to X's subjective probability assignment, prob). And for smoothness in the derivations to follow, let us assume that $\text{prob}(T) = \text{prob}(T^*) = 1$. (The derivations would go through, less smoothly though, if T and T^* were just assumed to be probabilistically independent of each other.) Now, for each $i = 2, 3, ..., 1000$, let S_i be the proposition $L_1 \vee L_i^*$, and let A be the set $\{T \,\&\, T^* \,\&\, L_2 \,\&\, S_2, T \,\&\, T^* \,\&\, L_3 \,\&\, S_3, ..., T \,\&\, T^* \,\&\, L_{1000} \,\&\, S_{1000}\}$. First note that each member of A is stronger than at least one member of B: $T \,\&\, T^* \,\&\, L_i \,\&\, S_i$ is stronger than $T \,\&\, L_i$, for each $i = 2, 3, ..., 1000$. Second, each member of A is stochastically independent of $T \,\&\, L_1$: for each member of A, its probability conditional on $T \,\&\, L_1$ is equal to its unconditional probability, which is 998/999, as I now show. For each $i = 2, 3, ..., 1000$,

$$\begin{aligned}
\text{prob}(T \,\&\, T^* \,\&\, L_i \,\&\, S_i/T \,\&\, L_1) &= \text{prob}(L_i \,\&\, S_i/L_1) && \text{(by the assumption that prob}(T) = \text{prob}(T^*) = 1) \\
&= \text{prob}(L_i/L_1) && \text{(because } L_1 \text{ logically implies } S_i) \\
&= 998/999 && \text{(because if ticket 1 loses, there are 999 tickets left, each with a 998/999 chance of losing);}
\end{aligned}$$

and

$$\begin{aligned}
\text{prob}(T \,\&\, T^* \,\&\, L_i \,\&\, S_i) &= \text{prob}(L_i \,\&\, S_i) && \text{(by the assumption that prob}(T) = \text{prob}(T^*) = 1) \\
&= \text{prob}(L_i \,\&\, (L_1 \vee (-L_1 \,\&\, L_i^*))) && (S_i \text{ is logically equivalent to } L_1 \vee (-L_1 \,\&\, L_i^*)) \\
&= \text{prob}((L_i \,\&\, L_1) \vee (L_i \,\&\, -L_1 \,\&\, L_i^*)) && \text{(by the logical law of distribution)} \\
&= \text{prob}(L_i \,\&\, L_1) + \text{prob}(L_i \,\&\, -L_1 \,\&\, L_i^*) && \text{(by the addition axiom of probability and the fact } L_i \,\&\, L_1 \text{ and } L_i \,\&\, -L_1 \,\&\, L_i^* \text{ are mutually exclusive)} \\
&= \text{prob}(L_i \,\&\, L_1) + \text{prob}(-L_1 \,\&\, L_i^*) && \text{(since } -L_1 \text{ logically implies } L_i \text{, in the presence of } T \text{, which is believed to degree 1)}
\end{aligned}$$

$$= \text{prob}(L_i)\text{prob}(L_1/L_i) + \text{prob}(-L_1)\text{prob}(L_i^*)$$

(by the multiplication rule and the assumption that the two lotteries are independent)

$$= (999/1000)(998/999) + (1/1000)(998/999)$$

(by the nature of the lotteries)

$$= 998/999$$

(arithmetic).

And finally, the set A satisfies clauses (i)–(iv) of (D3) (with respect to T):

(i) Clearly, each $T \,\&\, T^* \,\&\, L_i \,\&\, S_i$ is stronger than T.

(ii) We saw above that, for each $i = 2, 3, ..., 1000$, $\text{prob}(T \,\&\, T^* \,\&\, L \,\&\, S_i) = 998/999$. And this is greater than $c \cdot \text{prob}(T)$ if $c = .9$ and $\text{prob}(T) = 1$.

(iii) It is easy to check that for all i and j, where $i \neq j$, $\text{prob}(T \,\&\, T^* \,\&\, L_i \,\&\, S_i/T \,\&\, T^* \,\&\, L_j \,\&\, S_j) = \text{prob}(T \,\&\, T^* \,\&\, L_j \,\&\, S_j/T \,\&\, T^* \,\&\, L_i \,\&\, S_i) = 997/999$; and this is $\not\approx$ $\text{prob}(T \,\&\, T^* \,\&\, L_i \,\&\, S_i) = 998/999$, relative to the fineness of the distinctions drawn in the example.

(iv) The conjunction of the members of A is inconsistent, so its probability is not greater than $c \cdot \text{prob}(T)$.

Thus, $T \,\&\, L_1$ is *not*, by virtue of its membership in set B, arbitrary with respect to T and .9 for X. Using the same kind of argument, it can be shown that there is no set C such that, by virtue of $T \,\&\, L_1$'s membership in C, $T \,\&\, L_1$ is arbitrary with respect to T and .9 for X. Similarly, none of the other steps in the good chain from T to $T \,\&\, L_1 \,\&\, L_2 \,\&\, ... \,\&\, L_{990}$ involves the kind of arbitrariness defined in Kaplan's (D3). So the theory, as stated, unfortunately *does* endorse the inference from T to the proposition that the winning ticket will be among the last ten, and, in fact, any inference from T to a proposition that the winning ticket will be among some given ten tickets.

It may seem that a possible way out of the problem just described for (D3) would be to relativize the notion of arbitrariness to a given language. Thus, clause (v) would require that there is no set A of propositions *in some language* $\mathscr{L}$ which has the features specified in the original version of clause (v). If $\mathscr{L}$ consisted just of the propositions $T, L_1, L_2, ..., L_{1000}$, together with truth-functional compounds of these propositions, then the set A constructed above would not be in violation of the condition, for A is not in $\mathscr{L}$. Of course given such a relativization, not even the problem pointed out by Allan Gibbard would be a difficulty for Kaplan's theory, in which case the details of clause (v) would not even have that as a motivating rationale, let alone any intuitive rationale. Nevertheless, perhaps Kaplan's insights about acceptance could be saved and given a satisfactory formulation using the idea of relativizing the notion of arbitrariness to a given language. But then, such a revised theory of rational acceptance would have to motivate satisfactorily the idea of such relativization and say *why* we should relativize to one language rather than another in any given case.

I believe that there is something correct in Kaplan's intuition that the inductive reasoning which generates the lottery paradox involves a "vicious" arbitrariness of some kind – an arbitrariness which the naive confidence-threshold view did not even attempt to exclude in its characterization of rational acceptance. Kaplan's theory attempts to deal with this arbitrariness, but with using only the same tools with which the naive view attempted to characterize acceptance and say when acceptance is rationally warranted: purely formal probabilistic characteristics of the relevant propositions, generated by a person's degrees of confidence. And it seems to me that, without somehow restricting the language (and somehow justifying this), it will always be possible to invent "grue" type propositions (such as the S_i's, above) that will show the inadequacy of any purely formal characterization of arbitrariness. Perhaps an appropriate notion of arbitrariness can be characterized in terms of some kind of *semantic* symmetry among the relevant propositions.

NOTES

* This paper was written under a grant from the University of Wisconsin-Madison Graduate School, which I gratefully acknowledge. I would also like to thank Mark Kaplan for a number of useful suggestions.

[1] In his (1981a), Kaplan first criticizes, along the lines given below, the confidence-threshold view understood as a *normative canon* of acceptance (where 'accepts' in (1) is read as "accepts, if rational' or 'should accept') and later gives a different critique of the confidence-threshold view as an *analysis of the concept* of acceptance than the one given below. Here, however, (1) is to be understood as a proposed analysis of the concept of acceptance.

[2] See, e.g., Brian Skyrms: 1975, Choice and Chance, pp. 6–13.

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