DONALD NUTE

CONVERSATIONAL SCOREKEEPING AND CONDITIONALS[1]

Abstract. David Lewis has recently developed the notion of conversational scorekeeping as a way of explaining the acceptability of utterances in various contexts and the manner in which this acceptability changes in a rule-governed manner. I will expand Lewis's discussion by showing how the acceptibility of conditionals is linked to conversational score. In particular, I will argue that at least one controversial issue concerning the logic of conditionals, the interpretation and use of conditionals with disjunctive antecedents, may be resolved by applying Lewis's notion of an accommodation rule for conversational scorekeeping.

CONVERSATIONAL SCORE AND RULES OF ACCOMMODATION[2]

In the course of a conversation, Tom asks Dick, "Is Harry still dating that lush?" Dick might respond, "She drinks a good bit, but she isn't a lush." Or Dick might respond, "Harry never dated her." Either of these responses would indicate that Dick thought the question was somehow unacceptable. The first response involves a disagreement about the standards of application for the vague predicate 'lush'. The second response involves a rejection of Tom's presupposition that Harry has dated a particular person. If neither of these objections is made, if Dick responds in a way that indicates the question is appropriate and acceptable, then Tom and Dick have tacitly agreed on a standard of application for the predicate 'lush' and have tacitly come to share a presupposition about Harry's recent dating habits. We frequently arrive at such tacit acceptance of parameters of acceptibility for utterances made in the course of a conversation. Standards of applicability for vague predicates and presuppositions are just two examples of such parameters.

These tacit parameters of acceptability often change during the course of a conversation. Before Tom's question, no agreement had been established about the applicability of 'lush' and there were no shared presuppositions about Harry's dating. It is only upon the asking of Tom's question and Dick's failing to object that these particular conditions for the acceptability of utterances came into existence for Tom and Dick. Once called

Journal of Philosophical Logic 9 (1980) 153–166. 0022–3611/80/0092–0153$01.40

into existence, though, they help govern the acceptability of subsequent utterances in the conversation. At any stage in the course of a proper conversation, there exists a set of such parameters which help determine the acceptability of utterances made as part of that conversation at that stage. We will say that all of these parameters taken together comprise the *score* of the conversation at that stage. The set of presuppositions and the applicability standard for some vague predicate are just two components of conversational score. As these components change, so does the conversational score.

The way in which conversational score evolves is at least in part rule-governed. Many of the rules which govern the way conversational score changes are *rules of accommodation*. A rule of accommodation dictates that when an utterance is made which is only acceptable if certain components of the conversational score take on certain values, then the conversational score is adjusted so that those components have the needed values. In our example, we see two such rules of accommodation in operation. Since Tom's question will be acceptable only if 'lush' is applicable to a certain person, then unless Dick objects the standard for applying 'lush' is set low enough so that person qualifies; and since Tom's question is only acceptable if it is assumed that Harry has dated a certain person, then unless Dick objects it becomes a presupposition of the conversation that Harry has dated that person.

Lewis provides a general scheme for rules of accommodation for conversational scores.

RULE 1: If at time t something is said that requires component s_n of conversational score to have a value in the range r if what is said to be true, or otherwise acceptable; and if s_n does not have a value in the range r just before t; and if such-and-such further conditions hold; then at t the score-component s_n takes some value in the range r.

Rules of accommodation for conversational scores might also be called conversational principles of charity. In general, when a participant in a conversation makes an utterance which can only be true or otherwise acceptable provided that one accept a certain presupposition, or a certain standard for the application of some vague predicate, or any of some other kind of parameter within which that utterance is to be interpreted, then barring

good reasons to do otherwise, one should accept the required conversational parameter.

SELECTION FUNCTIONS AND CONDITIONALS[3]

I am mostly concerned with subjunctive conditionals like 'If I were warm, I would remove my coat', but what I have to say should also apply to conditionals in the indicative mood. I will use '$\phi > \psi$' to represent a conditional which has ϕ as antecedent and ψ as consequent. One semantics for conditionals says that $\phi > \psi$ is true just in case every ϕ-world (that is, every world at which ϕ is true) which is *enough like* the actual world is also a ψ-world. Suppose we have a function f which selects for each possible conditional antecedent ϕ the set $f(\phi)$ of all ϕ-worlds enough like the actual world (which I will use '@' to denote) for our consideration. Then, to put our truth condition for conditionals another way, $\phi > \psi$ is true just in case every member of $f(\phi)$ is a ψ-world.

How much like @ must a world α be in order for α to be a member of $f(\phi)$? There is no determinate answer to this question for the proper answer is different on different occasions. Consider, for example, the conditional 'If this penny were asbestos, then it would be a poor conductor of electricity'. Is this conditional true or false? Our answer depends upon the criteria we adopt for deciding whether a world α at which this penny is asbestos is enough like @ for us to consider it. We might require that in order for α to be enough like @ the penny must retain all of its *actual* physical properties in α. Since the penny is asbestos in α, at least some asbestos must be a good conductor of electricity in α. Given a selection function of this sort, the conditional is false. But we could impose different requirements. We might alternatively demand that all the actual physical properties of *asbestos* be preserved in α if α is to be considered in evaluating our conditional. Then since the penny is asbestos in α, the penny does not conduct electricity well in α. A selection function of this sort makes the conditional come out true.

We may even use different selection functions at different stages of the same conversation. As an example of this, consider once again the conversation between Tom and Dick. Tom says to Dick, "If Harry had left his house to come over here right after we called him, he would have been here by now." "Yes," says Dick, "but perhaps he had to change a flat. He has been driving on four bald tires." "Well, perhaps. But even so, if he had left

as soon as he hung up, he would have been here by now." Consulting his watch and considering for a moment, Dick says, "I suppose you're right. He must have got side-tracked as usual." This bit of conversation illustrates a change in the selection function used during the conversation for evaluating conditionals. First, Tom and Dick consider only worlds in which Harry has an uneventful drive to their present location in evaluating the conditional 'If Harry had left right after our call, he would have been here by now'. After Dick's remarks, however, a new selection function is adopted. They then consider worlds in which his drive is interrupted by the changing of a tire, worlds which were not considered in the initial evaluation of the conditional. In this particular example, the acceptability of the conditional does not change as a result of the change in the selection function, but it certainly could have changed. The selection function we use in evaluating conditionals, then, is one of those changeable determiners of the acceptability of utterances which are the components of the conversational score at any given stage of a conversation.

Not only is our selection function a component of the conversational score, but changes in this component are at least in part governed by rules of accommodation. Consider once again the example of the asbestos penny. Under usual circumstances if someone were to say, "If this penny were asbestos, it would be a poor conductor of electricity," we would be very unlikely to object because we would automatically interpret this utterance using a selection function which makes the conditional true. But under the same circumstances we would be just as likely to accept an utterance of 'If this penny were asbestos, then at least some asbestos would be a good conductor of electricity'. Here again, we *accommodate* the conditional by adopting a selection function which makes the conditional true. The only thing we would be unlikely to do is to accept both of these conditionals on the same occasion because to do so would require that we use two incompatible selection functions at the same time.

The general rule of accommodation for conditionals could be formulated something like the following.

RULE 2: If at time t a conditional is uttered that requires that we use a certain kind of selection function if the conditional is to be true; and if a selection function of the required sort is not being used just before t; and

if a selection function of the required sort is plausible at t; then at time t a selection function of the required sort is adopted.[4]

Rule 1, which gives us the general form of a rule of accommodation for conversational score-keeping, refers to "such-and-such" additional conditions which must be satisfied in order for the rule to require a change in the conversational score. In formulating Rule 2, I have replaced this place-holding clause with the requirement that a selection function of the required sort be plausible at t. The plausibility of a selection function depends upon many things such as our knowledge of history, our physics and psychology, and our moral convictions. For example, we would in most circumstances reject as implausible a selection function f such that no member of f(I roll a fair die) is a world in which I roll an ace. But the plausibility of a selection function is also determined in part by conversational score. When Rule 2 requires us to replace the selection function in use with a new selection function, the new function should differ as little as possible from the one it replaces. In particular, the new selection function should, where possible, take the same value for each antecedent of a conditional already occurring in the conversation as did the function being replaced. Our choice of selection functions might also be restricted through utterances other than conditional utterances. For example, the sentence 'Suppose I do not roll an ace' puts a restriction upon our choice of selection function, a restriction which we do not place on our selection function without this sentence having been uttered and accepted.

Rule 2 is too simple to give us acceptable results in all cases. Later we will develop a further restriction for the application of Rule 2.

THE SDA CONTROVERSY

Consider the conditional 'If Spain had fought in alliance with America or in alliance with Germany in World War II, Hitler would have been pleased'. The normal reaction, I think, is to reject this conditional because Hitler would not have been pleased if Spain had fought in alliance with America. But why should this fact make the conditional objectionable? Our objection seems reasonable only if our original conditional implies the conditional 'If Spain had fought in alliance with America in World War II, Hitler would have been pleased'. Should such an implication hold, then by *modus tollens*

any objection to our second conditional would be an objection to our first. Various authors have suggested that this implication holds and that we should adopt the following thesis for simplifying the disjunctive antecedents of conditionals:

SDA: $((\phi \vee \psi) > \chi) \rightarrow ((\phi > \chi) \,\&\, (\psi > \chi))$.[5]

Considered by itself, SDA presents no difficulties. But when we try to add such a thesis to any of a number of otherwise attractive conditional logics, serious problems arise.

The basic problem with SDA is that it implies, in combination with other widely-held axioms and rules for conditional logic, that every conditional is equivalent to the corresponding strict implication, i.e., that $(\phi > \chi) \leftrightarrow \Box(\phi \rightarrow \chi)$ is a theorem of conditional logic. Such a result trivializes any logic of conditionals. It also means that conditionals are transitive and contraposable and that we can add conjuncts to the antecedent of any true conditional with impunity, but these properties are universally rejected by recent writers on conditional logic. So we have a conflict between the intuitive acceptability of SDA and the intuitive unacceptability of transitivity, etc. How are we to resolve this dilemma?

So far there have been two basic suggestions about how to settle the SDA controversy. One of these focuses upon the relationship between the conditionals of ordinary discourse and the formulae of a conditional logic. According to this suggestion, SDA is not necessary if we adopt a different "translation lore" for symbolizing conditionals. The other suggestion is that we give up substitution of provable equivalents for conditional logic. If we do this, we can embrace SDA without committing ourselves to those other unwanted theses mentioned above.

A number of people have suggested that a special translation lore will solve our problem,[6] but perhaps the best formulation of such an account is that of Barry Loewer.[7] Loewer suggests that an English sentence of the form 'If ϕ or ψ, then χ' should sometimes be translated into the language of conditional logic as $(\phi \vee \psi) > \chi$ and sometimes as $(\phi > \chi) \,\&\, (\psi > \chi)$. Certain *pragmatic pressures* are to determine the proper translation on a given occasion. Where SDA is needed, the sentence in question is properly translated in the second manner and we can infer either conjunct without the use of SDA. This proposal is supported by examples from ordinary discourse which do not fit the pattern of SDA. Take, for example, the

apparently true conditional 'If Spain had fought in alliance with America or in alliance with Germany in World War II, she would have fought in alliance with Germany'. If we were to apply SDA in this case, we would arrive at the unlikely conclusion that Spain would have fought in alliance with Germany if she had fought in alliance with America.

The value of this proposal will depend, at least in part, upon the account to be given of the pragmatic pressures which come to bear on our decision to translate one way or the other. Loewer offers three basic pragmatic principles to guide our choice: that one should be prepared to defend one's assertions, that one should make one's assertions as informative as one's situation allows, and that one should interpret the assertions of another in an accommodating or sympathetic manner. I will call these the defensibility, maximal informativeness, and accommodation principles respectively. Loewer next points out that it violates the principle of maximal informativeness to assert 'If ϕ or ψ, then χ' when one knows which of ϕ and χ is true or is more plausible. From this and the defensibility principle, Loewer argues that it will usually be a violation of standard pragmatic principles to assert 'If ϕ or ψ, then χ' *unless* one is prepared to defend both 'If ϕ, then χ' and 'If ψ, then χ'. Loewer further argues that even in those cases where a person asserts 'If ϕ or ψ, then χ' even though he *knows* which of ϕ and ψ is true or more plausible, he is still constrained by the principle of defensibility even though he has violated the principle of maximal informativeness. By Loewer's principle of accommodation, then, we should usually symbolize an assertion of 'If ϕ or ψ, then χ' as $(\phi > \chi)$ & $(\psi > \chi)$.

The only cases which Loewer considers in which we would be justified in translating 'If ϕ or ψ, then χ' as $(\phi \vee \psi) > \chi$ are those cases in which the speaker explicitly cancels the usual expectation that he can defend both 'If ϕ, then χ' and 'If ψ, then χ'. Loewer's example is, 'If ϕ or ψ, but I don't know which, then χ'. Such an example might be that of the lady and the tiger; the man in the arena says, "If I open this door or that door, but I don't know which, I will be eaten." But Loewer has overlooked those cases which are of the form 'If ϕ or ψ, then ϕ'. All of these cases involve conditionals in which the consequent is identical with (or perhaps only obviously entails) one of the situations mentioned in the antecedent. We might be able to amend Loewer's account by saying that an English sentence of the form 'If ϕ or ψ, then χ' is *always* to be translated as $(\phi > \chi)$ & $(\psi > \chi)$ unless either the pragmatic pressures which dictate such translation

are explicitly cancelled by the speaker or unless χ obviously entails either ϕ or ψ. In either of the latter two cases, the conditional is to be translated as $(\phi \vee \psi) > \chi$.

Is this an acceptable solution to the SDA controversy? I think not. First, there are cases in which Loewer's conclusion (as we have amended it) is clearly mistaken. Consider, for example, the following short monologue.

> If Spain had fought in alliance with America or in alliance with Germany in World War II, she would have fought in alliance with Germany. So if Spain had fought in alliance with America or in alliance with Germany in World War II, Hitler would have been pleased.

There is nothing objectionable about this piece of discourse. But we surely would object if the second conditional were to be translated as $(\phi > \chi)$ & $(\psi > \chi)$ as Loewer's amended conclusion would dictate. (This example, by the way, seems to be every bit as much a problem for proponents of SDA as it is for the translation lorists.) But perhaps Loewer can avoid our example. He might claim that having made the first assertion, we should not hold the speaker responsible when he makes his second assertion for defending 'If Spain had fought in alliance with America in World War II, Hitler would have been pleased'. But what justifies us in ignoring Loewer's defensibility principle in this case? Can our amended version of Loewer's conclusion be provided with a general restriction from which this will follow? It begins to look as if Loewer's account finally comes down to the suggestion that we translate 'If ϕ or ψ, then χ' as $(\phi > \chi)$ & $(\psi > \chi)$ in those cases in which SDA holds and that we translate it as $(\phi \vee \psi) > \chi$ in those cases in which SDA does not hold. But this is hardly an explanation unless we can provide general principles for deciding when SDA holds. I think we can do this by looking at the role selection functions play as components of conversational score; but once we do this, we will have no need for a special translation lore.

The second solution which has been suggested for our problem is motivated by the desire to make our translation rules as simple as possible even when this means that we may have to complicate our axiomatic system and our semantics. This suggestion involves giving up the rule of substitution of provable equivalents for conditional logic (SE). A case can be made for giving up SE, but such a case seems always to rely upon tacit acceptance of

SDA or a similar principle. For example, if we accept substitution of provable equivalents, then from 'If we struck this match, it would light', we may infer 'If we struck this match and it were wet or we struck it and it were not wet, then it would light'. It seems that the first of these conditionals is true while the second is not. But this reaction seems to be based upon a tacit acceptance of SDA and a rejection of the conditional 'If this match were wet and it were struck, it would light'. And there is also a further consideration: after rejecting the conditional 'If we struck this match and it were wet, then it would light', there is an inclination to change our evaluation of the original conditional 'If we struck this match, it would light'. We will take this tendency into account a bit later. For the moment, we simply notice that it is difficult to make a case for the rejection of SE independently of SDA or some principle like it.

This particular proposal is further complicated by the fact that some and perhaps most substitutions of provable equivalents cause no problems. Double negation, commutation and association of conjunctions and disjunctions, and many others seem quite all right. If we reject SE, then we must replace it with a complicated set of substitution principles which will certainly seem as *ad hoc* as the translation lore we are trying to avoid.[8]

DISJUNCTIVE ANTECEDENTS AND CONVERSATIONAL SCORE

There is a third alternative involving conversational score-keeping, and in particular rules of accommodation, which avoids the problems of the two accounts we have already discussed. This solution allows us to account for the evidence for SDA and the pragmatic pressures discussed by Loewer, *prior* to the adoption of a particular conditional logic or the adoption of a translation lore for conditionals. We will be able to explain the evidence for and against SDA while translating all English conditionals of the form 'If ϕ or ψ, then χ' as $(\phi \vee \psi) > \chi$ and at the same time to accept a conditional logic which is closed under SE but which is not closed under SDA. This being the case, we will no longer distinguish between the pseudo-English 'If ϕ or ψ, then χ' and the purely formal $(\phi \vee \psi) > \chi$.

We begin by accepting Loewer's point that a speaker who asserts $(\phi \vee \psi) > \chi$ normally accepts responsibility for defending both $\phi > \chi$ and $\psi > \chi$. This pragmatic principle is reflected in the fact that when most

people initially hear $(\phi \vee \psi) > \chi$, they interpret this conditional by considering all those worlds they would consider in interpreting conditionals with either ϕ or ψ as antecedent. These after all are the worlds which will have to be considered in defending $\phi > \chi$ and $\psi > \chi$. In other words, we generally use a selection function f for which $f(\phi \vee \chi) = f(\phi) \cup f(\psi)$ to interpret $(\phi \vee \psi) > \chi$. Let's call a selection function which satisfies this condition *standard with respect to* $\phi \vee \psi$. Although we usually use standard functions to interpret conditionals, we have seen cases where we do not. We need to incorporate the notion of a standard selection function and the exceptions to the employment of such functions into our rules of accommodation. We can accomplish this by providing an additional restriction for Rule 2:

> Any selection function adopted through an application of Rule 2 must be standard for the antecedent of the conditional uttered at time t unless *all* of the following conditions are satisfied: the conditional uttered at time t is of the form $(\phi \vee \psi) > \chi$, χ obviously entails one of ϕ and ψ, and there is no selection function satisfying the conditions of Rule 2 which *is* standard for $\phi \vee \psi$.

While the statement is a bit complicated, the intent of this restriction is quite clear. The only time when the pragmatic pressures mentioned by Loewer do not exist, the only time we do not expect someone who asserts $(\phi \vee \psi) > \chi$ to be able to defend both $\phi > \chi$ and $\psi > \chi$, is when there is an unusual connection between χ and either ϕ or ψ, or when the course of the conversation up to the time of the assertion cancels that expectation.[9] By considering four different cases involving conditionals with disjunctive antecedents, we shall see that Rule 2 with this new restriction accomplishes just what we want.

In the first case, a conversation begins with an utterance of 'If Spain had fought in alliance with America of in alliance with Germany in World War II, Hitler would have been pleased'. There is no plausible selection function standard with respect to the antecedent of this conditional which makes the conditional true. Nor does the consequent entail either disjunct in the antecedent. Therefore Rule 2 does not apply and we use a plausible selection function standard with respect to the antecedent to interpret this conditional. Of course, any such selection function renders the conditional false. Since we are using a selection function which is standard with respect

to the antecedent of this conditional, we are in a situation in which SDA holds for the conditional.

In the second case, 'If Spain had fought in alliance with America or in alliance with Germany in World War II, she would have fought in alliance with Germany' is uttered. Let's assume that just before this conditional is uttered, we are using a selection function which renders the conditional false. The consequent of the conditional clearly entails one of the disjuncts in the antecedent. Furthermore, there is no plausible selection function which makes the conditional true which is also standard with respect to the antecedent of the conditional. But there is a plausible selection function which makes the conditional true which is *non*-standard with respect to the antecedent. The restrictions upon adopting a non-standard selection function are satisfied, and we therefore adopt a selection function f such that every member of f(Spain fought in alliance with America or in alliance with Germany in World War II) is a world in which Spain fought in alliance with Germany. This selection function also makes 'If Spain had fought in alliance with America or in alliance with Germany in World War II, she would *not* have fought in alliance with America' true. In this case, we are *not* in a position where SDA holds for this conditional.

In case three, 'If Spain had fought in alliance with America or in alliance with Germany in World War II, Hitler would have been happy' is uttered *after* 'If Spain had fought in alliance with America or in alliance with Germany in World War II, then she would have fought in alliance with Germany' is uttered. The latter conditional is treated just as in case two. Then when we consider the former conditional, we are already using a selection function which renders this conditional true. Therefore the conditions of Rule 2 are not satisfied and we do not adopt a new selection function. In this case, then, and unlike in case one, we conclude that Hitler would have been happy and that the conditional is true.

We will consider one final case. It is implausible that Spain would have fought in alliance with both America and Germany, but suppose we consider a conditional with a disjunctive antecedent such that the two disjuncts might plausibly both occur and such that the consequent entails one of the disjuncts in the antecedent. Neville Chamberlain might have tried to reassure the British by saying, "If Hitler attacks Czechoslovakia or Britain, he will attack Czechoslovakia." Here Rule 2 applies and we adopt a selection function which makes Chamberlain's utterance true and which is *standard* with

respect to the antecedent of his utterance. In this case, and unlike in case two, SDA holds. Also unlike in case two, the selection function we have adopted does *not* make 'If Hitler attacks Czechoslovakia or Britain, he will *not* attack Britain' true. Chamberlain's supposed reassurance should not have been very reassuring.

This proposal for handling disjunctive antecedents also explains what is wrong in cases like our match example. We reject the conditional 'If we struck the match and it were wet or we struck the match and it were not wet, then it would light' because we do not believe that the match would light if it were wet. We resist accepting the conditional, in other words, because we reject a conclusion which the conditional implies if we use SDA. *But we can't use SDA in this case.* Recall that we began by accepting the conditional 'If we struck this match, it would light'. In accepting it, we adopt a selection function which restricts us to looking at worlds in which we strike the match and the match is not wet. (All of this assumes, of course, that the match is *actually* dry.) Then when we hear the funny conditional with the disjunctive antecedent, we *should* evaluate it in terms of the selection function we have just adopted since this selection function makes the conditional come out true. Rule 2 does not apply. But if we do *that*, then we are not justified in concluding that the match would light if we struck it and it were wet. Our selection function simply does not make this conditional true. On the other hand, if we were to change the conversational score and adopt a new selection function, one which requires that we look at some worlds where the match is struck and it is wet, then *all* of our conditionals become false. So our proper response to the two conditionals given together should be either, "Yes, if we struck the match and it were wet or we struck the match and it were not wet, the match would light, but only because the match would *not* be wet in this case," or "I wasn't considering the possibility that the match might be wet; if we allow that possibility, then the match might not light if it were struck." In other words, we either don't change our selection function and we say something which indicates that SDA does not hold, or we change our selection function and reject both of our equivalent conditionals. In no case do we accept both of our equivalent conditionals *and* accept SDA. To do so would surely be a mistake, but perhaps now we can see exactly what kind of a mistake it would be. This mistake involves changing the conversational score in the middle of an argument in a way which amounts to an

equivocation. The two equivalent conditionals are only true if the score is one thing, and SDA holds only if the score is something else. We can avoid this mistake without adopting either a special translation lore or a funny logic.

What, then, is the status of SDA? Contrary to what I have maintained elsewhere, SDA is not a generally acceptable thesis for conditional logic. Instead, it is a consequence of pragmatic considerations, a consequence which appears when the proper pragmatic situation arises. The conditions which give rise to SDA are very common and require explanation, but we must also give an account of the cases where SDA does not hold. This can be done without resorting to either a funny logic or a funny translation lore.

University of Georgia

NOTES

[1] This paper has benefitted from the helpful criticisms of two anonymous referees.

[2] This section is an adaptation of David Lewis's account of conversational score and accommodation rules in 'Scorekeeping in a language game', *Journal of Philosophical Logic* 8 (1979), 339–359.

[3] The selection function semantics for conditionals is developed in various places including David Lewis, 'Completeness and decidability of three logics of counterfactual conditionals', *Theoria* 37 (1971), 74–85; and Donald Nute, 'Counterfactuals', *Notre Dame Journal of Formal Logic* 16 (1975), 476–482. I have oversimplified this semantics in ways which do not affect my conclusions. The semantics developed in Robert Stalnaker, 'A theory of conditionals', *American Philosophical Quarterly*, monograph series 2 (1968), editor Nicholar Rescher, 98–112, can be treated as a special case of the selection function semantics in which for each ϕ, $f(\phi)$ has at most one member. The solution which I propose for the SDA problem will not work for Stalnaker's semantics. David Lewis has proposed an alternative to selection function semantics in *Counterfactuals* (Blackwell, 1973) and elsewhere. My solution to the SDA problem could easily be adapted to the similarity of worlds or system of spheres semantics of Lewis.

[4] Some sort of accommodation rule for conditionals is suggested in Robert Stalnaker, 'Indicative conditionals', *Philosophia* 5 (1975), 269–286, and in Donald Nute, *Topics in Conditional Logic* (Reidel, 1980). So far as I know, though, no one has previously suggested a solution to the SDA problem which uses these rules.

[5] This thesis has been proposed in one form or another in Lewis G. Creary and Christopher S. Hill, 'Review (of David Lewis, *Counterfactuals*)', *Philosophy of Science* 43 (1975), 341–344; in Kit Fine, 'Review (of David Lewis, *Counterfactuals*)', *Mind* 84 (1975), 451–458; in Donald Nute, 'Counterfactuals and the similarity of worlds', *Journal of Philosphy* 72 (1975), 773–778; and other places.

[6] Fine suggests this in his review of *Counterfactuals*. Thomas McKay and Peter van

Inwagen suggest it in their 'Counterfactuals with disjunctive antecedents', *Philosophical Studies* 31 (1977) 353–356.

[7] Barry Loewer, 'Counterfactuals with disjunctive antecedents', *Journal of Philosophy* 73 (1976), 531–536.

[8] Logics closed under SDA but not closed under SE are developed in Donald Nute, 'Simplification and substitution of counterfactual antecedents' *Philosophia* 7 (1978), 317–326; and in Chapter 2 of Donald Nute, *Topics in Conditional Logic*.

[9] One other exception we might want to allow is in those cases where our antecedent is disjunctive, one of the disjuncts is highly plausible, and one of the disjuncts is highly implausible. An example would be, 'If I forgot to pay my water bill or grew a second head'. We might want to say that exactly the same things would happen if I forgot to pay my water bill or grew a second head as would happen if I simply forgot to pay my water bill. Then we would say that 'if I forgot to pay my water bill or grew a second head, they would cut off my water' is true. I think David Lewis would want to allow an exception in a case like this, but I consider this to be a mistake.