

## NON-ASSERTORIC INFERENCE

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1. Like many contemporary writers, we consider inferences involving commands an undisputable fact of which any completely general theory of logic must take account.<sup>1</sup> Yet, stating and commanding are but two of (about) three thousand illocutionary acts;<sup>2</sup> and once one has broken with the dictum that only assertions *can* stand in logical relationships, there arises the possibility not of just two or three modes of inference, but rather of an indefinitely large number. At any moment of linguistic history there may be a finite number of illocutionary acts which can enter into inference patterns; but our resource of illocutionary acts, like our lexicon, may develop and change. Given our present linguistic resources, we submit that the following are valid inferences.

- (A) Shoot all traitors!  
John is a traitor.  
 therefore, Shoot John!
- (B) If I request you to pass him, then I promise that if you do, you will be rewarded.  
Please pass him.  
 therefore, I promise that if you pass him you will be rewarded.
- (C) If I both request and order you to leave, then I really want you to leave.  
 Please leave.  
Leave!  
 therefore, I really want you to leave.

The foregoing arguments, exhibited in a form a speaker might pedantically adopt in propounding an assertoric argument, will perhaps seem unnatural

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1. We are grateful to Hugues Leblanc and Gerald Vision for illuminating discussions of this paper.

2. See J. L. Austin, *How to Do Things with Words*, Harvard University Press, Cambridge (1962), Lecture XII.

and bewildering. When would anyone ever say such things in real life? It is indeed difficult, though not impossible, to construct a situation in which a single speaker would, on a single occasion, explicitly perform the illocutionary acts represented by the foregoing premises and conclusions. Yet there are other kinds of situations in which we should quite naturally say that someone had reasoned from the premises to their respective conclusions, and which exactly parallel the drawing of assertoric inferences. A hearer may, for example, draw a non-assertoric conclusion from the illocutionary act upshots<sup>3</sup> of one or more speakers other than himself. Again, a speaker may reflect upon the logical commitments he has made by the performance of non-assertoric illocutionary acts. The above arguments are formulated with the intention of capturing the reasoning done in such situations. Unless otherwise noted, the elements of all the arguments we shall discuss should be construed as directed toward the same person(s).

Upbraided with the dogma that logical relations can hold only between statements or propositions, some philosophers will find it natural to reject the examples with which we have begun. We can imagine them, when faced with the foregoing arguments, replying that in each case inferences can be drawn, but that they should be considered drawn from *statements* to the effect that certain speech acts have been performed. Let us consider how such a position might be developed with regard to argument (A).

Several possible attempts to convert (A) to an assertoric inference are not even mildly plausible. Suppose we substitute for the first premise, "S has commanded me to shoot all traitors." What then can be validly deduced from this in conjunction with the second premise? Certainly not, "I ought to shoot John." Nor can we validly infer, "S has commanded me to shoot John," since if S was unaware of the truth of the second premise, the conclusion would, in any straightforward sense, be false. The only plausible candidate for a conclusion is something like, "Should the occasion arise, S must command me to shoot John." On this view, the conclusion of every argument is an assertion that a speaker is committed to perform a certain speech act if he is to be consistent. But note: in stating assertoric arguments we never feel obliged to put the conclusion in the form of an assertion that the speaker is committed to make a certain assertion. We merely exhibit the sentence the speaker would normally utter in asserting the conclusion. Generally, we may regard the English sentences constituting an expression of a valid non-assertoric argument as an exhibition of the sentences a speaker would use in performing certain speech acts, the conclusion representing that act the premises commit him to perform, should the occasion arise, if he is to be consistent. And against this background, we may regard argument (A) as perfectly in order as it stands.

It scarcely needs pointing out that the sort of reasoning we have described constitutes a logical problem. The validity of assertoric

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3. This phrase is used to refer to the commands, warnings, assertions, etc. produced in the performance of an illocutionary act.

inference can always be explained in terms of truth and falsehood. But some of the illocutionary act upshots which figure in (A-C) are neither true nor false. It may be objected that the notions of validity, entailment, and so on, can be explained without reference to truth. We grant this point; yet, however the validity of assertoric inference is explained, there always remains the task of showing that the explanation applies to inferences involving requests, questions, warnings, etc. as well as to those involving statements.

In view of the fact that an indefinitely large number of illocutionary act upshots can figure in inferences, our best hopes for a more comprehensive logical theory would seem to rest upon the possibility of providing a general method of defining non-assertoric validity parasitically upon assertoric validity. Other philosophers have used this approach to deal with specific types of non-assertoric inference.<sup>4</sup> The advantage of our theory is its generality. We consider intolerable a view on which one must construct a different method of connecting each particular mode of non-assertoric inference with the assertoric mode.

Our theory depends heavily upon a distinction made most recently by Searle.<sup>5</sup> We shall adopt his names for the elements of the distinction, "Illocutionary Force" and "Propositional Content," (hereafter, "IF" and "PC"). Searle notes that the distinction has been made, in one form or another, by Frege, Sheffer, Lewis, Reichenbach, Hare, and others. Our theory requires an acceptable account of the distinction; but we cannot entirely accept Searle's way of making it. In part, he attempts to make the distinction by describing positively ancillary linguistic acts in which the PC is expressed, namely, the acts of referring and predicating. In our opinion, no one has yet succeeded in explaining the reference-predication distinction even in assertoric contexts. But since it is beyond the scope of this essay to explore that problem, we shall assume that the distinction, as applied to assertoric contexts, can be made. We are then faced with the problem of extending the distinction's applicability beyond assertoric contexts. Consider the statement, "There is someone here, namely N. M., taller than anyone else." In making this statement, we would be said to refer to N. M., and predicate of him being taller than anyone else present. Consider next the question, "Is there someone here taller than anyone else?" In asking this question we do not refer to anyone, nor do we predicate anything, in any standard sense of "predicate." Nor would one ordinarily be said to predicate anything of John when he issues the order, "John, shut the door!" Perhaps then we should recognize that some PC's do not involve making a reference, though this would raise the question of how one could predicate in such cases. The most serious problem, however, is that of giving a sense to "predicate" in non-assertoric contexts.

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4. See, for example, Nicholas Rescher, *The Logic of Commands*, Routledge and Kegan Paul, Ltd., London (1966), especially Chapters 6, 7, and 11.

5. John R. Searle, *Speech Acts*, Cambridge University Press, Cambridge (1969), pp. 29-33.

Searle's purported solution to this problem is to say that whenever we predicate we "raise the question of the truth of the predicate expression of the object referred to."<sup>6</sup> But as Searle himself sees, there is no ordinary sense of this phrase in which we raise this question of truth whenever we perform an illocutionary act of any and every sort. It seems natural to use this phrase chiefly, if not exclusively, when a *question* has been asked. So there is no ordinary sense of Searle's explanatory phrase by means of which "predicate" can be understood. Perhaps then, "raise the question of truth in some illocutionary mode" is a technical term. If so, its meaning has not been explained, and the quite various and distinct "modes" of "raising the question of truth" might easily give rise to the suspicion that there simply is no predicating element shared in common by, "Raleigh smokes," "Does Raleigh smoke?," "Raleigh, smoke!," etc.

In spite of these difficulties, we want yet to make a distinction which can be intuitively expressed as one between *what is said* and *how it is to be taken*. But greater clarity than this is imperative for our purposes. Desirable as it would be to define positively both the PC and IF of an utterance, we have not been able to do this. Consequently, we find that we are at least temporarily forced to adopt the strategy of defining only the IF of an utterance positively.

In view of certain contemporary discussions,<sup>7</sup> it is perhaps worth remarking that the IF of an utterance is to be distinguished from the meaning of a sentence uttered on a particular occasion. A sentence does not have any IF at all; only a particular utterance of it has an IF. This, as we shall see, is made clear by reflecting that talk of IF is a way of talking about the fact that a speaker has performed a certain illocutionary act. Thus, it is primarily his *action* which has IF; and the sentence he utters has IF only in an obviously derivative sense. Conversely, the act of utterance has no meaning. At best we may talk about what someone meant *by* uttering a sentence, which is to be distinguished from his act having meaning.

Though we shall define IF in terms of the notion of an illocutionary act, it is not our purpose here to settle any questions of detail about the analysis of the illocutionary act. Searle<sup>8</sup> provides such an analysis. For our purposes, however, we find it preferable to emend slightly the theory of W. P. Alston.<sup>9</sup>

Alston provides a model for analyzing the act of requesting someone to do something. He argues that to make a request is (roughly) to utter a sentence while recognizing that that sentence is governed by the rule that it

6. *Op. cit.*, p. 124.

7. See L. Jonathan Cohen, "Do illocutionary forces exist?," in *The Philosophical Quarterly*, vol. 14, No. 55 (April 1964).

8. *Op. cit.*

9. See his "Linguistics acts," in *American Philosophical Quarterly*, vol. 1, No. 2 (April 1964), for an account of this theory.

is not to be uttered unless certain conditions hold, for example, the condition that it is possible for the hearer to comply with the request. Alston feels that he has not succeeded in giving an analysis of the concept of an illocutionary act (in general), because he finds himself unable to answer the question. "What sorts of conditions (generally) must a speaker take responsibility for holding if he is to perform an illocutionary act?" But his reservations seem unnecessary, since this question can, in principle, be answered by an enumeration of the relevant conditions. There are, presumably, a finite number of illocutionary act types (requesting, stating, promising, etc.), a speaker can perform at any moment of linguistic history. The name of an illocutionary act type contains a PC variable: thus, "promising *H* that *p*," "warning *H* that *q*," etc. And for each such act type we can discover the relevant conditions for performing it simply by asking, "Which objections or criticisms of the performance are such that if the speaker does not countenance them, we will not say he is performing the act in question?"

We shall henceforward proceed on the assumption that the concept of an illocutionary act is viable, and clear enough for our present purposes. We may then also regard the notion of an utterance's IF as having been adequately explained. For to talk about the IF of an utterance (token) is tantamount to talking about the type of illocutionary act performed by the utterance of it: if I promise, then my utterance has the IF of a promise.

We shall want next to define the notion of an illocutionary force indicator (IFI), that is, of the aspect of an utterance which makes manifest what its IF is. Searle mentions as explicit indicators of IF: word order, stress, intonation contour, and the mood of the verb. But the vaguely specified element of "context" is most important. (Thus, "Coming from him, I took it as an order.") Considering especially this last point, we can see that while the number of IF's expressible in a language at any moment may be finite and even *relatively* small, it is reasonable to assume that the *indicators* of IF will be very heterogeneous and indefinitely large in number. Consequently, it would seem expedient to define the IFI simply as *whatever* in the utterance and its context is indicative of IF.<sup>10</sup> And the PC indicator (PCI) is defined as the remainder of the utterance and its context. Some utterances, e.g., greetings, may lack a PC, but where there is a PC, it is expressed by the PCI.

To summarize: our theory of non-assertoric inference rests on a fundamental distinction between the illocutionary force indicator (IFI) and propositional content indicator (PCI) of an utterance. We adopt, in slightly modified form, Alston's account of the illocutionary act. We then define the IFI of an utterance as whatever is indicative of the type of illocutionary act being performed, and the PCI as the remainder of the utterance, together with the relevant remaining context of utterance.

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10. Those familiar with transformational grammar will note here an analogy with the grammarian's "is a" relationship. See, for example, Noam Chomsky, *Aspects of the Theory of Syntax*, MIT Press, Cambridge (1965), p. 84.

2. Our most important aim in this essay is to give a clear sense to the logical concept of validity as applied to the upshots of non-assertoric speech acts. After explaining our symbolism we shall formulate rules of inference and a criterion of validity for non-assertoric arguments, using the IF-PC distinction we drew in section 1. Obviously, nothing in reality corresponds to the abstractions we have called the IFI and PCI of an utterance. It is not as if one could abstract the intonation and word-order of an utterance and actually have something left called the PCI. But, *pace* Berkeley, that alone does not render our abstractions incoherent. The distinction we have drawn will stand or fall on the basis of its theoretical fecundity. In full realization of these facts, we shall first lay down formation-rules in which we express separately the elements of the distinction we have drawn in the foregoing section. A series of explanatory remarks follow the formation rules.

*Formal Machinery.*

(i) IFI symbols:

'⊢' assertion	'R' request
'!' command	'P' promise
'?' yes-no question	'W' warning

- (ii) The usual sentential connectives ('⊃,' '∨,' '&,' '≡') can connect propositions in the PC's of IFI's and entire speech act upshots when they occur within the scope of an IFI, or within the scope of an hypothesis in a proof.

*Formation Rules:*

- (i) Premises and conclusions are expressed in the following form:

IFI (PCI)

- (ii) The PCI must have the form of a proposition in the present tense indicative.
- (iii) Corresponding to every IFI there must be a PCI.
- (iv) An IFI with its corresponding PCI may occur within the scope of another IFI (i.e., as its PCI), but this rule may be appealed to only once. That is to say, an IFI (with its corresponding PCI) cannot occur within the scope of an IFI which occurs within the scope of another IFI; rather, it would be symbolized as part of the PCI of the second IFI.

*Remarks on the foregoing rules.*

(a) The above list of IFI's includes only those used in this essay. Aside from the use of certain symbols (e.g., the assertion sign) sanctioned by some tradition, it should be apparent that we intend any IFI which figures in inferences to be constructed by allowing the IF to be expressed by the first (or first and second, etc., as may be required) letter of the illocutionary verb in question.

- (b) Generally, an IFI may be rendered in English, 'I (illocutionary

verb in the present, active, indicative) that . . .," e.g., "I warn that, I command that."

(c) Some illocutionary acts, greetings for example, do not have a PC. We have found no arguments involving such speech acts the validity of which must be shown by invoking our IF-PC distinction. There are, however, acts which do enter into valid arguments where it is impossible to give a natural distinct rendering in English of the IFI and PCI. For example, consider bequeathing as it occurs in the following argument:

I bequeath the contents of my cellar to John.  
My cellar contains a bottle of Chateau Lafite.  
 therefore, I bequeath a bottle of Chateau Lafite to John.

We suggest that here (following (b) above) we must recognize an IFI of bequeathing, 'B,' to be read, "I will that"; and that the PCI of the first premise is "John has the contents of my cellar." This admittedly forced interpretation of the premise and, *mutatis mutandis*, of the conclusion is justified by the fact that only in this way can such clearly valid arguments be brought within the scope of a general theory of validity which applies to very many arguments where no such forced reading is required.

(d) The *rationale* for rule (iv) will emerge more clearly in the sequel. Iteration of IFI's will be seen to be necessary in order not to obscure the validity of certain patently valid arguments. But there is no similar justification for repeated iterations of IFI's. For example, the assertion, "If someone commands you to promise that you will love her, then she is a fool," apparently contains four IFI's, three of which are iterated (i.e., assertion-command-promise). Now if Jane issues the command in the antecedent to John, we may validly infer (given the truth of the above assertion) that she is a fool. But if John so promises, then nothing can be inferred from the assertion. Hence, there is no reason to retain the third iterated IFI in our symbolism and it should be considered part of the PCI of the command.

(e) As Searle notes,<sup>11</sup> questions other than those that can be answered by a 'Yes' or 'No' answer have propositional functions instead of propositions as their PC. For simplicity, we deal here only with the 'yes-no' type, although our theory holds for the other types as well.

(f) Our formation rules allow conditional commands, warnings, bets, etc. to be symbolized by means of the material conditional sign (' $\supset$ '). Since Rescher, in his *Logic of Commands*,<sup>12</sup> argues for an alternative symbolism, some defense of our choice is required. The most important reason for fidelity to the horseshoe is that dispensing with it would seem to preclude justifying non-assertoric inferences by appeal to *modus ponens*.<sup>13</sup> Perhaps

11. *Op. cit.*, p. 31.

12. *Op. cit.*, pp. 38-41.

13. For additional reasons in favor of adopting this symbolism see H-N. Castañeda's review of Rescher, *The Philosophical Review*, vol. LXXIX, No. 3, pp. 441-442.

this difficulty does not become apparent if one attempts only to formulate a criterion of non-assertoric validity and disregards the problem of formulating rules of non-assertoric inference. But we shall presently want to give directions for *proving* valid inferences of the following forms:

$$\frac{!(p \supset q) \quad \vdash p}{!(q)} \qquad \frac{!(p \supset q) \quad !p}{!(q)}$$

The most persuasive argument against the symbolic convention we have chosen is that it obscures the distinction between a conditional illocutionary act and an illocutionary act with a conditional PC. Dummett<sup>14</sup> points out, for example, that there is quite a difference between a bet on the truth of a material conditional and a conditional bet: in the former case, if the antecedent is false, the bet is won; in the latter case, if the condition does not obtain, the bet is off. Similarly, there is a distinction between a conditional command and a command with a conditional PC. It is natural to think of commands whose conditions are not within the control of the addressee as conditional commands, and commands whose conditions are within the control of the addressee as commands with a conditional PC. Thus, a lazy child could obey the command, "If you go out, wear your rubbers!" by choosing to stay in; but the command, "If it rains, wear your rubbers!" is void, not obeyed, if it does not rain. The first command can be interpreted to mean, "I command that you either stay in or wear your rubbers!" while the second command should be interpreted to mean something more like, "If it rains I hereby command that you wear your rubbers!" In view of this distinction, no *one* symbolization can capture the exact force of all commands with a condition.

Now it should be evident that we not only admit the foregoing distinction, we insist upon it. But the real question before us is: must this distinction be reflected in the symbolism of an adequate theory of non-assertoric inference? We suggest that it need not, and shall henceforward ignore it in much the same way as distinctions between kinds of conditionals are ignored in propositional logic. Both the commands, "Don't go out without your rubbers," and "If it rains, wear your rubbers" are to be symbolized:  $!(p \supset q)$ . We consider this convention to be justified by the fact that when either type of command figures as a premise in a valid argument, so symbolizing it will enable us to prove these arguments valid. In brief, not every important distinction is important for a symbolization adequate to test for validity.

Bets are like commands in this respect. Let 'B' temporarily serve as an IFI for betting. We would symbolize *both* a conditional bet and a bet on the truth of a material conditional as  $B(p \supset q)$ . This symbolism will not obscure the validity of arguments involving the bet. Suppose someone

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14. See Michael Dummett, "Truth," in *Proceedings of the Aristotelian Society*, vol. 59 (1958-1959).



makes either type of bet, and then finds himself in a position to assert  $p$ . Even if his assertion is false, we should say that he is logically committed to betting that  $q$ , should the occasion arise. This is clear enough in the case of the conditional bet. Were the bet on the truth of the material conditional, a further bet on the truth of its consequent may be disallowed; but if such a bet *were* allowed, the bettor *must* bet on its truth (given his truth-commitment to the antecedent), on pain of logical inconsistency. Accordingly, we shall presently want to provide the means for proving arguments of the following form valid, regardless of the type of bet-with-a-condition made:

$$\frac{B(p \supset q) \quad \vdash(p)}{B(q)}$$

(g) Like the formation rules given for the propositional calculus, our rules are no guarantee against all kinds of nonsense. In particular, we have not ruled out attaching inappropriate PCI's to IFI's, for example, a command directed to the furniture. Our rules will, then, permit the inference of nonsense from nonsense, as do the rules of the propositional calculus. The difficulties we have found in attempting to block such moves seem to parallel the difficulties which currently beset any attempt to disqualify, e.g., "Saturday is in bed" as a value of ' $p$ ' in the propositional calculus.

*Validity.* Owing in part to the current state of linguistic act theory, formulating a general criterion of non-assertoric validity has shown itself to be the most difficult theoretical task we face. It would be foolhardy to pretend that our proposed criterion is anything but tentative and exploratory. We are certain only that nothing less complex than our proposal can be adequate.

Two preliminary remarks are in order: First, we need to make explicit what it is to validly infer a non-assertoric conclusion from premises. No one would suppose that a rational man must assert everything which follows from assertions he has made. Similarly, on our conception of non-assertoric validity, to say that an argument is valid is not to say that anyone has performed the illocutionary act represented by the conclusion, nor that he *must* actually do so in order to be consistent. Rather it is to say that if a single speaker performs all the illocutionary acts represented by the premises then, should the occasion arise, he must perform the illocutionary act represented by the conclusion if he is to be logically consistent. Let us, for the sake of an example, revert to argument (A) above. Suppose a commander issues the command, "Shoot all traitors!" and his subordinate discovers that the commander's brother John is a traitor. The subordinate then asks the commander, "Should I shoot John?" He thereby provides the commander with an occasion on which he must either issue the command conclusion or else be guilty of logical inconsistency, assuming, of course, that he assents to the second premise and does not retract the original command. This then is the sense in which we say argument (A) and others are valid.

Second, it should be understood that we do not intend our criterion of validity and rules of inference to cover *everything* which might in some intuitive sense be called a valid (non-assertoric) inference. Our theory is a theory of non-assertoric *entailment*, as opposed to such logical relations as presupposition and implication. Thus, we understand by the words "valid inference" something analogous to the sense these words have as applied to valid arguments in the propositional calculus. Accordingly, we would say that an argument such as,

Go to Macy's!

Go to the largest store in New York!

therefore, Macy's is the largest store in New York.

may be valid in some legitimate sense of "valid," nonetheless it is not an instance of the entailment relation we intend to discuss. It might reasonably be said of the foregoing argument that the two command premises could not be "felicitously" issued (in a sense to be explained presently), unless the assertoric conclusion were true. We should be inclined to call this logical relationship "presupposition" rather than entailment.

The pitfalls encountered in attempting to formulate a criterion of non-assertoric validity are instructive. Bearing in mind the central place assigned to the concept of truth in assertoric logic, we might attempt to find in the complete analysis of the illocutionary act a way of extending the applicability of the notion of truth. On Alston's analysis of the illocutionary act, the speaker who performs the act takes responsibility for certain conditions holding, though he may succeed in performing the act even if many of these conditions do not hold. More or less following Austin, we shall call an illocutionary act "felicitous" if all of the conditions which the speaker takes responsibility for holding do in fact hold. Very roughly speaking, we find an analogue to truth and falsehood in the felicity or infelicity of the speech act. It then becomes possible to formulate a criterion of non-assertoric validity closely paralleling that for assertoric validity:

A non-assertoric argument is valid if the premises cannot be felicitous without the conclusion being felicitous.

Unfortunately, the foregoing criterion runs afoul of the fact that the illocutionary act is intentional in nature. By this we mean not only that the successful performance of the act may be infelicitous, but also (and here more importantly), that the conditions one takes responsibility for holding in performing an illocutionary act will characteristically involve the intentions and beliefs of the speaker. This fact renders the last mentioned criterion of validity inadequate because a speaker may not recognize the logical consequences of his intentions and beliefs, in which case the premises of a valid non-assertoric argument may be felicitous and yet its conclusion infelicitous. Suppose, for example, that *S* requests *H* to do *p*. In some extended sense of "want," *S* thereby takes responsibility for the condition holding that *S* wants *H* to do *p*. Then if *H* hears *S'* assert

(correctly, let us suppose) that doing  $p$  entails doing  $q$ , he ( $H$ ) may validly infer the request that he do  $q$ . Yet  $S$  may refuse to make the request that  $H$  should do  $q$ , should the occasion arise for making this request, because he cannot see that doing  $q$  follows from doing  $p$ . If, in this situation,  $S$  persists in making his original request, we might say he is unwittingly inconsistent. But that does nothing to mitigate the force of this counter-example: even if it is true that  $S$  wants  $H$  to do  $p$ , and  $p$  entails  $q$ ,  $S$  simply may not in fact want  $H$  to do  $q$ . The most we can say is that  $S$  logically *ought* to want  $H$  to do  $q$ , given the request he has made and persists in making.

To deal with this problem we are forced to adopt a criterion of validity which is both complex and, at this stage of the development of speech act theory, difficult to apply. We first distinguish between the intentional and non-intentional conditions a speaker takes responsibility for holding in performing a given speech act. Our use of the term "intentional" is not eccentric: we understand by an *intentional condition* one such that the statement of it contains a proposition such that the condition may hold or not independently of whether the contained proposition is true or false. We shall henceforward refer to such propositions as *contained propositions*. The remainder of the intentional condition, exclusive of the contained proposition we shall call the *intentional context*. It is difficult to give uncontroversial examples of intentional conditions and their contained propositions just because neither the general form of analysis for illocutionary acts nor the analysis of any particular act is a settled matter. We offer, however, the following as examples, see p. 236, which indicate that:

(i) Because the statement of many conditions involves the propositional content of the illocutionary act, perhaps the majority of conditions for a given act will be intentional.

(ii) To discover which conditions are intentional, the conditions must be stated in a "normal form," reminiscent of the somewhat artificial method of giving distinct representations of the IFI and PCI provided for by our formation rules.

(iii) Generally, the contained proposition of an intentional condition will be identical with the PC of the illocutionary act.

(iv) Many, but not all, non-intentional conditions consist of entailments and presuppositions of the PC.

(v) Modal conditions count as intentional. We believe that an adequate modal logic will obviate any apparent difficulties created by this feature of our theory.

In order to formulate a relatively succinct criterion of validity, we now introduce the notion of *intentional implication*. The intentional conditions of the premises of a non-assertoric argument will be said to intentionally imply the intentional conditions of the conclusion if and only if the contained propositions of the collective premise conditions cannot be jointly true and the contained propositions of the conclusion false.

We now propose the following four-part criterion as an adequate criterion of non-assertoric validity; that is, a criterion for arguments with

Illocutionary Act	Sample Intentional Conditions	Contained Proposition	Sample Non-Intentional Conditions
Commanding <i>H</i> to leave the room.	<i>S</i> has an interest in getting <i>H</i> to leave the room. It is possible for <i>H</i> to leave the room.	<i>H</i> leaves the room.	<i>S</i> is in a position of authority relative to <i>H</i> .
Asserting that the cat is on the mat.	<i>S</i> believes that the cat is on the mat. (Note: It is arguable that the intentional condition here should be replaced by the non-intentional condition, "The cat is on the mat' (is true).")	The cat is on the mat.	There is a cat in the vicinity, identified by context.

at least one non-assertoric premise. A non-assertoric argument is valid if and only if:

1. The non-intentional conditions a speaker takes responsibility for holding in performing the illocutionary acts represented in the premises cannot hold without the non-intentional conditions for the conclusion holding.

2. The intentional contexts of the intentional conditions for the conclusion appear in the intentional conditions for the premises; and the intentional conditions for the premises intentionally imply the intentional conditions for the conclusion.

3. The conclusion must be non-assertoric, or else the argument must contain one or more assertoric premises which cannot all be true if the assertoric conclusion is false.

4. If no IFI falls within the scope of another, then the only non-assertoric IFI which figures in the premises is the IFI of the conclusion. (It is permissible, of course, to regard "premises" which do not satisfy this part of the criterion as superfluous, and hence not genuine premises at all.)

*Remarks on the foregoing criterion.* (a) The second part of our criterion, concerning intentional conditions, might be thought to allow all kinds of patently invalid arguments to pass as valid, for we seem to allow *any* illocutionary act which can somehow be scraped out of the collective, mixed-together conditions for the premises to be represented as a valid conclusion. But in fact a correct analysis of the illocutionary act places severe limitations on what counts as a valid argument in accordance with our criterion. Very few combinations of premise conditions will constitute sets of conditions related by implicit rules to the performance of something we should call an illocutionary act. Moreover, there must be associated with the illocutionary act represented in the conclusion a condition by reference to which this illocutionary act may be distinguished from the act of stating that the conditions one takes responsibility for holding in performing the non-assertoric act hold. This condition would seem to be what Searle calls the "essential" condition for performing a speech act.<sup>15</sup> Consideration of the "point," or purpose, of illocutionary acts which enter into inferences will reveal that the essential conditions of such acts are intentional. Since we require that the intentional contexts of intentional conditions for the conclusion of a valid argument appear in the premise conditions, we have a guarantee of sorts that our criterion will not result in allowing clearly fallacious arguments to pass as valid, at least insofar as the logical pattern of IFI's is concerned. Parts (3) and (4) of the criterion obviously impose additional restrictions of this sort. Other aspects of the criterion can easily be seen to parallel the standard criterion of validity for assertoric logic.

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15. See Searle, *op. cit.*, p. 60.

(b) The fourth part of the criterion is necessary to rule out such patently invalid arguments as those of the following form:

$$\begin{array}{c} !(p) \\ \frac{?(p \supset q)}{!(q)} \end{array}$$

(c) This criterion of validity, and the rules of inference we shall subsequently state, allow and are intended to allow non-assertoric inferences justified by the rule of addition to count as valid. Thus, we should hold that the following is a valid argument:

Mail this letter!  
Mail this letter or burn it!

We believe that the resistance many writers have felt toward this type of inference is based upon certain misconceptions. First, it scarcely needs pointing out that allowing this use of addition will in no way license the inference of "Burn it!" from "Mail this letter!" Second, there is absolutely no warrant for supposing that one could *obey* the command, "Mail this letter!" by obeying the command, "Mail this letter or burn it!" He who makes such an assumption exhibits a misunderstanding of the role obedience plays in the logic of commands. Loosely speaking, a valid command argument is one such that to obey the premises is to obey the conclusion.<sup>16</sup> But that is the only important connection between obedience and command validity. To suppose that he who obeys a logical consequence of a command has necessarily in some way complied with or obeyed the command is to commit a logical howler similar to supposing that if the conclusion of a valid assertoric argument is true, then its premises (or perhaps at least some of them) must be true.

As a matter of logic then, there is simply no reason to suppose that to obey an entailment of a command is to have gone at least some way toward obeying the command. Even so, one might reasonably feel that there is an extra-logical problem here which cannot be ignored. If a man is given an order, he may want to know exactly what he must do in order to comply with it. And he may have to draw inferences from the command, in *some* sense of "inference," if he is to know what to do. What then is this sense? The problem arises with special poignancy as regards unrestricted universal commands such as "Shoot all traitors!" For how could a sense be given to the notion of obeying such a command unless obedience of particular consequences of it is allowed to count as having complied with the command?<sup>17</sup> We are led by these considerations to pose the question, "Which consequences of a command are such that to obey them is to at least partially obey the command?"

16. Cf. Rescher, *op. cit.*, Chapters 5-7.

17. We owe this point to Mr. Ernest Tempelmeier.

We answer that only truth-functionally simple consequences of a command are relevant to its obedience. This stipulation does, of course, get rid of the unwanted inferences sanctioned by the rule of addition. But it is not arbitrarily constructed for this purpose. Reflection on the epistemological considerations which gave rise to the necessity for the stipulation support it. That is, we imagine a man who wanted to know what he must do in order to obey a command. But, in a sense, one *cannot* obey a truth-functionally compound command. One can only obey the disjuncts of a disjunctive command, etc., in much the same way that the truth of a conjunctive statement is explained in terms of the truth of its conjuncts. So, we find it natural to say that a man who infers "Do  $p$ !" from "Do  $p$  and  $q$ !" has drawn an inference which tells him more explicitly what he must do, in part, to obey the command. But he who infers "Do  $p$  or  $q$ !" from "Do  $p$ !" has not made an inference to a command which can be obeyed in the more primitive way in which a truth-functionally simple command can be obeyed. And consequently he has not made an inference which tells him more explicitly what he must do to obey the command. Thus, we conceive of obeying a compound command as being parasitic upon obeying simple commands in the same way that the truth of a compound statement is dependent on the truth of its components.

Several *caveats* on this view are in order: First, we need to recognize that there are some commands from which there are no inferences to be validly drawn which make more explicit what one must do to obey the command. Such is the case with disjunctive commands. Second, we must disavow any intention of providing a criterion for recognizing disguised compound commands. It is beyond the scope of this essay to discuss whether apparently simple commands, such as "Shut the door!" are disguised conjunctive and/or disjunctive commands. Finally, we should insist that if this attempt to explain what it is for a consequence of a command to be relevant to its obedience should fail, this failure in no way reflects upon the more central part of the theory of non-assertoric inference presented here.

(d) Our criterion of validity, and the rules of inference which follow, allow for a special sort of nonsense to be validly inferred from premises which, when taken singly, make perfectly good sense, as in the following argument:

If it rains, take an umbrella!  
Don't take an umbrella!  
 therefore, Don't rain!

In commenting upon our formation rules, we noted that they allowed the inference of nonsense from nonsense, just as do the rules of the propositional calculus. But this case is different, since the premises, taken singly, make sense. No competent speaker of English *would* issue the command premises to the same person at the same time. But still, what are we to say of the resulting conclusion if the commands were to be issued? Fortunately, we can be guided by the fact that there is an exact parallel to this situation in assertoric logic, as in the following argument:

It's raining.

I don't believe it's raining.

therefore, It's raining and I don't believe it.

We might speak, in both the assertoric and non-assertoric cases, of "emergent" nonsense. Now presumably no one would be tempted to give up the rule of conjunction in assertoric logic because of this piece of emergent nonsense. Rather we are inclined to say that the inference is valid, but that for reasons to be found outside the propositional calculus, the two premises are not to be uttered in the same breath. We opt for the same solution in the non-assertoric case. No doubt the reasons why the premises are not to be issued in the same breath are rather different from those which might be given in the assertoric case. The general point, however, remains that we can admit that an inference is valid, and explain the oddity of the conclusion by reference to the oddity of issuing the premises together.

*Rules of non-assertoric inference.* Our rules of non-assertoric inference depend upon a division of all possible non-assertoric arguments into three categories:<sup>18</sup>

1. Pure: All premises and conclusion of same non-assertoric IFI type.
2. Mixed<sub>1</sub>: Non-superfluous premises<sup>19</sup> include both assertoric and (one or more) non-assertoric IFI types.
3. Mixed<sub>2</sub>: Iteration of IFI's (some in scope of another) in at least one premise.

In all but the most simple arguments, there will be some combination of these, as in the following argument:

- A. P(I meet you at the station)  
 ⊢(I meet you at the station ⊃ I walk one mile)  
 ⊢(I walk one mile ⊃ !(You get my shoes))  
 !(You get my shoes)

To prove this argument valid it would be necessary to derive a sub-conclusion from the first two premises *via* a Mixed<sub>1</sub> inference, and then use that sub-conclusion as a premise together with the other premise to deduce the conclusion of the argument (a Mixed<sub>2</sub> inference).

Examples of the first type of inference are:

- B. !(John takes out the trash & John closes the door)  
!(John brings in the mail & John goes outside)  
 !(John takes out the trash & John goes outside)

18. Only arguments falling under one of these categories are covered by our rules of inference. Hence a completely assertoric argument will not be provable even if valid.

19. We call a premise superfluous if the conclusion of the argument can be derived without it.



- C.  $\text{?(The dog is outside)}$   
 $\text{?(The cat is outside)}$   
 $\text{?(The dog is outside \& the cat is outside)}$

Examples of the second type of inference are:

- D.  $\text{P(I go home)}$   
 $\text{\(\vdash(I go home \supset I take the bus))}$   
 $\text{P(I take the bus)}$
- E.  $\text{!(John goes outside \supset John wears his coat)}$   
 $\text{\(\vdash(John goes outside))}$   
 $\text{!(John wears his coat)}$

An example of the third type of inference is:

- F.  $\text{R(John does } p\text{)}$   
 $\text{!(John does } p\text{)}$   
 $\text{\(\vdash(R(John does } p\text{)) \& !(John does } p\text{)) \supset \(\vdash(\text{someone wants John to do } p\text{)))}$   
 $\text{\(\vdash(\text{someone wants John to do } p\text{))}$

- (i) Rules for argument types 1 and 2:
- a. Assume as hypotheses assertoric transformations of all non-superfluous premises, with the following qualification:
    - a<sub>1</sub>. Only one non-assertoric IFI type may be transformed within the scope of an hypothesis.
  - b. Use the rules of a standard propositional calculus<sup>20</sup> to deduce the assertoric transformation of the conclusion.
  - c. Assign to the assertoric sub-conclusion mentioned in (b) an IFI contained in the original non-superfluous premises, with the following qualifications:
    - c<sub>1</sub>. The assertoric sub-conclusion cannot contain any element previously appearing only in a non-superfluous assertoric premise.
    - c<sub>2</sub>. No assertoric IFI can remain as a conclusion in an argument which has non-assertoric premises.
- (ii) Rules for type 3 arguments:
- d. Introduce as an hypothesis any premise with iterated IFI's, deleting the main (outermost) IFI.
  - e. Treat the remaining IFI-PCI complexes as propositional variables or constants and deduce the conclusion by means of propositional logic from the result of (d) and the other premises.
  - f. The conclusion must have only one functioning IFI. If the result of (d) and (e) fulfill this requirement, then the hypotheses of (d) are discharged.

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20. In order to simplify this presentation of our theory, we restrict the (for our purpose) non-central assertoric logic involved to the propositional calculus. We see no reason to believe that the theory could not be extended to include quantificational, tense, and modal logic.

(iii) General Convention:

- g. No new hypothesis may be introduced until all hypotheses above it in the proof have been discharged.

*Sample Proofs.*

Proof of Argument C:

- |                         |              |
|-------------------------|--------------|
| 1. ? ( $p$ )            | Prem.        |
| 2. ? ( $q$ )            | Prem.        |
| 3. $\vdash(p)$          | hyp.         |
| 4. $\vdash(q)$          | hyp.         |
| 5. $\vdash(p \ \& \ q)$ | (from 3 & 4) |
| 6. ? ( $p \ \& \ q$ )   | (rule (i))   |

Proof of Argument F:

- |  |                         |
|--|-------------------------|
| 1. $R(\text{John does } p)$  | Prem.                   |
| 2. $!(\text{John does } p)$  | Prem.                   |
| 3. $\vdash(R(\text{John does } p) \ \& \ !(\text{John does } p) \supset \vdash(\text{someone wants John to do } p))$ | Prem.                   |
| 4. $R(\text{John does } p) \ \& \ !(\text{John does } p) \supset \vdash(\text{someone wants John to do } p)$         | hyp.                    |
| 5. $R(\text{John does } p) \ \& \ !(\text{John does } p)$  | (from 1 & 2)            |
| 6. $\vdash(\text{someone wants John to do } p)$  | (from 4, 5 & rule (ii)) |

There remains now the task of showing that the foregoing rules of inference only formalize the content of our criterion of validity, and hence that any argument proved valid by appeal to the rules will satisfy the criterion. For present purposes it is useful to distinguish once again between two aspects of the complete illocutionary act upshot which are relevant to the validity of non-assertoric arguments. On the one hand, we find that a necessary condition of non-assertoric validity is that the result of replacing all non-assertoric IFI's in its premises and conclusion with the assertion sign is a valid assertoric argument. Let us say that arguments which pass this test are "PC-valid." On the other hand, only certain configurations of IFI's will go to constitute a valid non-assertoric argument. If the configuration of IFI's of an argument is in conformity with the stipulations laid down by our criterion of validity, we shall say that the argument is "IF-valid." PC- and IF-validity are singly necessary and jointly sufficient conditions of non-assertoric validity.

Let us proceed to consider rules (b) and (e), which were formulated with the aim of licensing only inferences which will figure in PC-valid arguments. To say that a non-assertoric argument is PC-valid is to say, in effect, that an aspect of the argument is assertorically valid. Now rules (b) and (e) are nothing but directions for using the propositional calculus in doing non-assertoric proofs. Accordingly, if we can show that every assertoric argument which satisfies our criterion will also satisfy the standard criterion of assertoric validity and *vice-versa*, we may be assured that our rules will not permit PC-invalid inferences (assuming, of course, the soundness of the propositional calculus).

Parts 1 and 2 of our criterion were formulated partly to parallel the standard criterion of assertoric validity and thus insure PC-validity. In thinking about PC-validity, we are to suppose that the non-assertoric IFI's in an argument have been replaced with the assertion sign. This supposition facilitates a comparison of our criterion with the standard criterion of assertoric validity. What the exact points of comparison are depends upon how the illocutionary act of assertion is analyzed, a matter which is by no means settled. There seem to be two alternatives. Suppose we opt for saying that he who asserts  $p$  takes responsibility for the non-intentional condition holding that  $p$  is true. Then the first part of our criterion would in effect function as does the standard criterion of assertoric validity. This part of the criterion says that the non-intentional conditions for the premises cannot hold unless the non-intentional conditions for the conclusion hold. When the condition in question is the truth of the propositional content of an assertion, this part of our criterion is identical with the standard criterion of assertoric validity. If, on the other hand, we opt for saying that he who asserts that  $p$  takes responsibility for the intentional condition holding that he (S) believes that  $p$ , then part 2 of our criterion will function as does the standard criterion of assertoric validity. That is, this part of our criterion says that the contained propositions of the premise conditions of a valid argument cannot be true and the contained propositions of the conclusion conditions false.

The matter of IF-validity is a bit more complex. Rules (a<sub>1</sub>), (c), and (f) are designed to licence only inferences resulting in arguments whose configurations of IFI's conform to the stipulations of our criterion of validity. Let us first consider rules (a<sub>1</sub>) and (c), which apply to our first two types of inference. We shall employ a quite informal method of showing the consonance of these rules with our criterion of validity. Some aspects of the criterion can easily be seen to have nothing to do with the rules presently under discussion. In particular, those aspects of the criterion bearing on the iteration of IFI's are irrelevant here. So, we shall proceed by showing how rules (a<sub>1</sub>) and (c) may be derived (in an informal sense) from the relevant aspects of the criterion. An examination of rules (a<sub>1</sub>) and (c) will reveal that they were designed to insure the following:

- (I) Either all of the premises and the conclusion are of the same non-assertoric IFI type or the IFI type of the conclusion is identical with the (single) IFI type of the non-superfluous non-assertoric premises.
- (II) A non-assertoric IFI may not be assigned, in the conclusion, to a PC which has occurred in the premises only within the scope of an assertoric IFI in the premises.
- (III) No assertoric conclusions can be derived from an argument containing non-assertoric premises.

Let us then see how (I)-(III) may be derived from our criterion. (I) may be derived from parts 3 and 4 of our criterion, when they are suitably qualified. The required qualifications are as follows:

(a) Since rules (a<sub>1</sub>) and (c) do not apply to arguments involving IFI iteration, we may disregard the condition on the fourth part of our criterion.

(b) Since rule (c<sub>1</sub>) disallows purely assertoric inferences we may now disregard the second disjunct of part 3 of the criterion.

We are then left with the following extracts from our criterion:

The conclusion must be non-assertoric.

The only non-assertoric IFI which figures in the premises is the IFI of the conclusion.

It should be obvious that the foregoing admit the very same possibilities as (I). Moreover, (III) follows *a fortiori* from the excerpt from part 3 of the criterion. Finally, we can account for (II) by regarding it as a way of guaranteeing that part 2 of the criterion will be satisfied. To violate (II) would be *eo ipso* to violate part 2, because the conclusion in violation of (II) would represent an illocutionary act whose "essential" condition would not be intentionally implied by the intentional conditions for the premises.

Turning to rule (f), we note that this type of inference is provided for by the condition of part 4 of our criterion. Since, in virtue of rule (e), IF-validity here is a special case of PC-validity, we may be assured that no inference of the third type will violate our criterion with regard to its provisions for IFI configurations. And since rules (a), (d) and (g) are merely regulatory and procedural, we can conclude that our rules will, in general, licence no inference which violates our criterion of validity.

The theory proposed here, if correct, provides an extremely general framework within which all types of inferences may be fitted. It is interesting to note that each of our rules for non-assertoric inference consists of a direction for converting a non-assertoric argument into such a form that the usual test of assertoric deductive validity may be applied to it. Such a theory carries the implication that, while non-assertoric arguments are not in any sense to be regarded as disguised assertoric arguments, nonetheless the concept of assertoric validity is basic and fundamental to general logical theory. If this is so, we should be struck by it as a fact that needs explanation. But that is a matter for another occasion.

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