Refining Hitchcock's Definition of 'Argument'

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ABSTRACT: David Hitchcock, in his recent "Informal Logic and the Concept of Argument" (2007), defends a recursive definition of 'argument'. I present and discuss several problems that arise for his definition. I argue that refining Hitchcock's definition in order to resolve these problems reveals a crucial, but minimally explicated, relation that was, at best, playing an obscured role in the original definition or, at worst, completely absent from the original definition.

KEYWORDS: argument, assertive, concluding, illation relation, premissing, speech act, suppositive

1. INTRODUCTION

David Hitchcock, in "Informal Logic and the Concept of Argument" presents and defends the following recursive definition of argument:

> 1. Any set of the form {<c, ∵, P>} or {<P, ∴, c>} is an argument where the conclusion c is a speech act of any type, ∵ is a premiss indicator, ∴ is a conclusion indicator, and the set P of premisses is a set of one or more assertives.
> 2. Any set equivalent in meaning to a set of the form described in clause 1 is an argument.
> 3. If a conclusion in an argument A is a premiss in an argument B, then A ∪ B is an argument.
> 4. If {<P, ∴, c>} is an argument, and A is an argument, then so are {<A ∪ P, ∴, c> } and {<A, ∴, c>}. Similarly for {<c, ∵, P>}.
> 5. Nothing is an argument unless it can be constructed in a finite number of steps using the above rules (Hitchcock 2007, pp. 114-116).

In this paper I shall argue that Hitchcock's definition requires significant refinement and propose such refinements. For the purposes of this paper, to say that the definition requires refinement is to say that, given Hitchcock's desired outcomes for the proposed definition either (a) the definition as it stands does not achieve those outcomes or (b) the definition can achieve those outcomes more elegantly. I shall not be concerned here with whether the definition, either as it stands or refined, is an adequate definition of argument[1] or whether Hitchcock's desired outcomes, at least individually, are the

[1]To cite just two examples of disagreement: Roy Sorensen argues that we can have arguments with no premises (Sorensen, 1999); Michael Gilbert argues that not just speech acts can be the premises or conclusions of arguments (Gilbert, 1997).

outcomes necessary for an adequate definition of argument. However, I shall conclude that once the refinements necessary for the simultaneous satisfaction of the desired outcomes are in place, it is clear that the success of the definition depends upon one crucial relation—a relation that is at best playing an obscured role in the original definition or at worst completely absent from the original definition.

2. REFINING THE BASE CLAUSE

In the process of distinguishing the reason giving and the disputational sense of 'argument', Hitchcock describes the reason giving sense in the following way: "The arguer expresses a point of view on a question, and offers as support for this position one or more reasons. The expression of the point of view and the provision of one or more reasons in its support constitute a complex of speech acts" (Hitchcock 2007, p. 102). What kind of complex? In the very next section titled, "Argument as discourse supporting a point of view by offering one or more reasons," Hitchcock describes argument as "a type of discourse in which the author expresses a point of view and offers one or more reasons in support of that point of view" (Hitchcock 2007, p. 103). Discourses are straightforwardly concatenations of various kinds of expressive acts where the concatenation is itself a complex act. Hence, one of Hitchcock's desired outcomes is that arguments be a kind of complex act and so we have the following desired outcome:

> Outcome 1: Arguments are in the ontological category of acts.

The problem is that the base clause (clause 1) of the proposed definition violates this outcome, since the entities defined as arguments in clause 1 are sets, not acts.

One might object that Hitchcock's set talk ought not be taken quite so strictly—the set talk is merely meant to give us a convenient way to talk about or model the complex act that is a claim-reason complex. I have no objection to using set-theoretic modeling or using set talk as a heuristic in general, but in this particular case there are two issues. Firstly, a very close competitor to the arguments as a sort-of-discourse view is the arguments as sets-of-propositions view. Most of those who define arguments as sets of propositions literally mean that arguments are a kind of set, i.e. abstract object.[2] Given this nearby competitor, and given outcome 1, I would recommend either defining argument explicitly in terms of acts or making crystal clear that set-theoretic versions of the clauses are meant to model arguments, and not literally specify what arguments are. Secondly, whether Hitchcock's ordered sets can really be shorthand for the claim-reason complex is not clear, since not all the members of the set are either acts or sets of acts. The ordered sets also contain premise and conclusion indicators, which are words such as "since" and "therefore" (Hitchcock 2007, p. 106).

Perhaps these problems can be avoided by dropping the illatives from the ordered set and using the following definition as a heuristic or modeling definition:

[2]Admittedly, throughout the course of the paper, Hitchcock does describe arguments as abstract objects. However, this seems to be the result of trying to include hypothetical arguments in the class of arguments and not merely a consequence of sets being abstract objects. In conversation, Hitchcock has expressed a preference for construing arguments as a complex act—both actual complexes and certain merely potential complexes.

1a. Any set of the form <P, c> is an argument where the conclusion c is a speech act of any type and the set P of premisses is a set of one or more assertives.

The problem with 1a however is that it is much too permissive. Even though I said I am not overly concerned with whether Hitchcock's definition is correct, at the very least the definition ought not be obviously wrong. Hence, I attribute to Hitchcock at least the following desired outcome:

Outcome 2: The definition should exclude uncontroversial non-arguments.

1a fails to meet Outcome 2. Consider the assertive, "It is raining" uttered by Sam in 1805. Consider the assertive, "The ground is wet" uttered by Sally in 2008. No one wants to say that the concatenation of those two acts constitutes an argument. [Even the advocates of the sets-of-propositions position need not say that the concatenation of Sam's and Sally's utterances manages to refer to the relevant set.]

But suppose we put the conclusion, 'therefore' back into the ordered set. Have we thereby avoided the problem? No. The complex of Sam's utterance, the word 'therefore', and Sally's utterance do not constitute an act of arguing or an argument, and yet the original clause 1 appears to be satisfied. Hence, even the original clause 1 appears to violate Outcome 2.

The problem is that Hitchcock wants the premise and conclusion indicators to do the job of premising and concluding the assertives or speech acts of c and P. "In such a sequence, the illative does the work of premising each reason and concluding each conclusion; hence, we do not need to mention these acts in characterizing the reason and conclusion" (Hitchcock 2007, p. 107). The words, 'since', 'therefore', 'thus', etc., cannot do this on their own, and so clause 1 allows the Sam/Sally concatenations to count as arguments.

Hitchcock does suggest, parenthetically at least, that it is not merely the words that are members of the ordered set, but the words used illatively (Hitchcock 2007, p. 106, 107). But merely adding the specification that the ∵ and ∴ symbols are variables ranging over illative uses of such words as 'since', 'hence', 'therefore', etc., will still not solve the problem. Suppose, Luther utters "It is raining, so the ground is wet" in 1905. Here we have an illative use of 'so', but surely the ordered set that has the set containing Sam's 1805 utterance as its first member, Luther's 1905 illative use of 'so' as its second member, and Sally's 2005 utterance as its third member does not constitute an argument.

The premise and conclusion indicators are supposed to indicate that the members of P and c have been premised or concluded. To premise an assertive "is to put it forward as a (perhaps partial) basis for inferring a conclusion," and to conclude a speech act 'is to put it forward for acceptance on the basis of one or more assertives offered as supporting reasons" (Hitchcock 2007, p. 106). Perhaps, we can again eliminate the illative from the ordered set, but specify that the members of P and c are premised or concluded speech acts. In other words, reword clause 1 as:

1b. Any set of the form {<P, c>} is an argument where c is a concluded speech act of any type and P is a set of one or more premised assertives.

There are two problems with 1b. Firstly, it excludes what Hitchcock wants to include in the class of arguments, namely "merely potential discoursal claim-reason complexes never uttered or even mentally entertained by anyone" (Hitchcock 2007, p. 107). Presumably such claim-reason complexes are such that no part of it has in fact been premised or concluded, but at best could potentially be so. 1b however restricts the class to sets with members that have been concluded or premised. In other words, 1b violates the following desired outcome:

> Outcome 3: Claim-reason complexes "that are merely entertained in thought" and "merely potential discoursal claim-reason complexes never uttered by anyone or even mentally entertained by anyone" (Hitchcock 2007, p. 107) should count as arguments.

The other problem with 1b is that it still fails to satisfy Outcome 2. Suppose Sam's 1805 statement that it is raining is part of his argument for why he should not go to town today, i.e. it is a premising. Suppose that Sally's 2005 utterance that the ground is wet is argued for on the basis of a recent water-main break, i.e., it is a concluding. But then the ordered set that is Sam's premising in 1805 and Sally's concluding in 2005 is, according to 1b, an argument and that is surely wrong.

What Hitchcock wants is that the premises be premised for that particular conclusion and that that conclusion be concluded on the basis of those premises, not just that the members of P have been premised and c has been concluded. In other words, Hitchcock wants the ordered sets of Ps and cs that bear a certain relation to each other—the 'premising on the basis of' or 'concluding on the basis of' (or potentially premised or concluded on the basis of) relations.

So suppose we return to clause 1, but instead of saying that the ∵ and ∴ symbols are words or illative uses of words, say that they are relations—the premising/concluding and concluding/premising relations, which are presumably one and the same relation—the illation relation. While I suspect it is indeed the illation relation that Hitchcock wants[3] we should not make it a member of the ordered set. As a member of the ordered set it looks like we can construct arguments merely by taking sets of assertives and some other speech act and put them together in the ordered triple that has the illation relation as its middle term. If I had to speculate on a motivation for this, it is Outcome 3—Hitchcock is trying to allow us the flexibility to include merely potential arguments in the class of arguments. So even if a particular set of assertives and a particular speech act never have been concluded or premised of each other, we can imagine them being so and can represent this possibility by the ordered triple.

[3] Here is another reason for Hitchcock to favor the illation relation. He admits that you can have arguments, even though there is no premise indicator or conclusion indicator (and hence no illative use of them either). He says in this case that "arguments with no explicit illative can be regarded as having one implicitly" (Hitchcock 2007, p. 107). But this seems ad hoc if the indicators or the illative use of the indicator is supposed to be part of the argument. A better account of the fact that there can be an argument, but no explicit indicator is that the presence or absence of the illation relation does not depend on the presence or absence of the indicator. (Though presumably the clear presence of the illative use of such an indicator will correlate with the obtaining of the illation relation.)

The problem however is that our imagining is in terms of act types, whereas our definition is applying to act tokens. When we imagine that it is possible that the following could be an argument:

> The creation of stable worm-holes large enough to transport human-sized objects is physically impossible. No human can be accelerated beyond the speed of light. No other physical possibility exists for sending a human being back in time, so human time-travel into the past is physically impossible,

we imagine tokens of the premise acts bearing the illation relation to a token of the conclusion act. But we do not mean that *any* tokens of the premise acts could bear the illation relation to *any* token of the concluding act. Indeed, the Sam and Sally examples show we do not want that. But then having the illation relation as part of the ordered triple in order to capture potential arguments is too permissive.

We need another way to allow us to capture the fact that we are only interested in the assertive/speech act token combinations that do or could bear the illation relation to each other. Let I be the premising or concluding relation. Using Hitchcock's brief explication of premising and concluding, let us say that I obtains between acts P and C iff P is offered as a basis for inferring C or C is put forward for acceptance on the basis of P. For the moment then, I put forward the following revised version of the base clause:

> 1c. Any set, <P, c> in which I does or could obtain between P and c is an argument where c, the conclusion, is a speech act of any type and P, the act (possibly complex) is the concatenation of one or more assertives.

Note that the set talk is still a mere heuristic—the argument is a complex act modeled via the set. According to 1c, the actual arguments are just those combinations of P and c for which the I-relation does obtain. The merely possible arguments are those combinations for which the I-relation does not, but could obtain. What counts as a merely possible argument will then depend on how one cashes out the 'could'. I am certainly not going to try to provide such a cashing out here. Intuitively however, given the assumption that acts performed by unrelated individuals across centuries of time will not and could not bear the I-relation to each other, we can exclude the Sam/Sally cases that vexed earlier versions of the base clause. I turn now to the recursion clauses of the definition.

3. REFINING THE RECURSION CLAUSES

Clause 2, given the current version of clause 1 is redundant. It adds no new ordered pairs to the class of arguments. After all, an I-related instance of <{*es regnet*}, *der Boden draußen ist nass*> satisfies clause 1 just as much as an I-related instance of <{it is raining}, the ground is wet> does. I would argue that clause 2 did the same on a reasonable interpretation of the original clause 1 as well, but will not go into the details here. Since clause 2 is redundant we can eliminate it.

Not so fast, someone might object. Despite initial appearances that clause 2 is expanding the class of arguments, perhaps its intention is to narrow the class. What

clause 2 might be doing is defining when two structures identified by the base clause should count as the same argument. Consider that clauses 1 and 2 appear to come from Hitchcock's definition of simple argument:

> Simple argument =df a class of those triples of the form <c, ∵, P> or <P, ∴, c > that are equivalent in meaning to one another, where c is a speech act of any type, ∵ is a premise indicator, ∴ is a conclusion indicator, and P is a set of one or more assertives" (Hitchcock 2007, p. 108).

Perhaps instead of 1c above we should replace the original clauses 1 and 2 with Hitchcock's definition of simple argument.

There are however several problems with this proposal. Firstly, the definition of simple argument clearly violates Outcome 1. Nor can we plausibly treat the class talk here as merely a heuristic. Even if we take the ordered sets as shorthand for a complex act, the equivalence class of these ordered sets is not itself plausibly a stand-in for a complex act. Secondly, the definition of simple argument is trying to solve a problem in a way contrary to the metaphysical commitments of Outcome 1. Hitchcock's definition of simple argument is trying to respect the intuition that "It is raining, so the ground outside is wet" and "*Es regnet, so der Boden draußen ist nass*" are the same argument. But given the ontological commitment to arguments as acts, since the act of uttering the former sentence is different than the act of uttering the latter, we should resist the claim that the arguments are literally the same argument. What we should say rather is that the two acts are two tokens of the same argument type, just as your car and my car might be the same car in the sense that they are both instances of one particular brand and model. Hence, the equivalence class picked out by the definition of simple argument should not be seen as defining a particular thing as a simple argument, but rather as defining when two argument tokens are instances of the same argument type. In other words we might say that the acts of uttering or thinking or expressing "It is raining, so the ground outside is wet" and "*Es regnet, so der Boden draußen ist nass*" are acts of the same type on the grounds that they are in the equivalence class because they have the same meaning.

But if the only work that clause 2 is doing is to define what counts as the same (or same type) of argument as those in clause 1, then clause 2 is not adding any new arguments to the class specified in clause 1. If clause 2 is not adding any new arguments to the class outlined in clause 1, then it should be eliminated.[4]

[4]Here is another reason to be thankful to eliminate clause 2. What is it for triples to be equivalent in meaning? Well, assuming the members of the triple have meaning we might say that two triples have the same meaning just so long as each corresponding member of the triple has the same meaning. Given that in this case one of the members of the triple is itself a set we will need to define two sets having the same meaning. Defining sets having the same meaning is not as straightforward as triples since (a) sets do not have easily identifiable 'corresponding members' and (b) sets need not have the same cardinality. For example, assuming that the meaning of an assertive equivalent to a conjunction (e.g., Geoff is a hungry philosopher) would be same as the meanings of the assertions of both conjuncts, we could have two separate sets of speech acts with different cardinality, but the same meaning. Notice that these problems arise without even addressing the notoriously difficult problem of specifying when two things we accept have meaning, such as sentences, have the same meaning.

Clause 3 is meant to expand the definition of argument to "allow for complex arguments, in which one or more of the reasons offered in direct support of a conclusion is in turn argued for" (Hitchcock, p. 108). In other words, if I give reasons for a conclusion and then use that conclusion, perhaps along with further reasons, to argue for another conclusion, Hitchcock wants the whole chain to itself be an argument. Speaking generally, Hitchcock wants to allow two simple arguments to form a larger argument provided that the premise of one simple argument is the conclusion of the other. Though Hitchcock is not explicit on this point, extended correspondence on this issue has made clear[5] that Hitchcock is not interested in allowing two simple arguments that share a premise or share a conclusion to form a larger argument on that basis. Speaking roughly, two arguments joined serially form a larger argument, but two arguments that join with a divergent or convergent structure do not.

Again, I am not interested in whether Hitchcock is right in his desire to include one type of joining, but not another. I merely note that Hitchcock has the following desired outcome:

> Outcome 4: Two arguments that diverge to separate conclusions or converge to the same conclusion do not form a complex argument.

The problem with clause 3 as it stands is that it allows violations of Outcome 4. Here is an example of a divergent structure that gets allowed. Let A be an argument that is the union of <{1}, 2> and <{2}, 3>. Now let B be the following argument <{2}, 4>. A conclusion in argument A is a premise in argument B, so A ∪ B is an argument. Here is an example of a convergent structure that gets allowed. A is again the argument that is the union of <{1}, 2>, and <{2}, 3>}. B is the argument <{4}, 2>. A premise from A, *viz*. 2, is a conclusion from B, hence A ∪ B is an argument. The problem is that, while two simple arguments cannot be joined at an overlapping premise or overlapping conclusion to form a complex argument, a complex argument and a simple argument can be joined to create complex arguments that have divergent or convergent structures. To avoid complex arguments that join each other in the middle and so create divergent or convergent structures, clause 3 needs to be reworded to:

> 3a. If a conclusion in argument A (that is also not a premise in argument A) is merely a premise in an argument B, then A ∪ B is an argument.

Unfortunately, there is still the potential for a significant problem with this clause. It is not currently clear what the import of "a conclusion in argument A is merely a premise in an argument B" is. The conclusion and premise in question cannot merely be the same type of act or else we get violations of Outcome 2 just as we did for the original clause 1. To see this consider: "Grass is green, so something is green" uttered by Oliver in 1806. Let, "Something is green, so something is colored" be uttered by Bill in 2006. The former is an instance of the argument < assert-grass green, assert-something green>. The latter is an instance of the argument <assert-something green, assert-

[5] Hitchcock emails of 10/14/06, 10/15/06, 10/29/06.

something colored>. By 3a, understood in terms of types, there is an argument {< assert-grass green, assert-something green>, <assert-something green, assert-something colored>}. But presumably we do not want the combination of Oliver's and Bill's utterances to be an instance of that argument.

But suppose we require the conclusion of A to literally be the same token act as the premise of B. Now a new oddity appears. Suppose Sue had uttered, "Grass is green, so something is green, so something is colored." According to 3a, there is a single complex argument here composed of two simple arguments. But if she had instead uttered, "Grass is green, so something is green and since something is green, something is colored," then according to 3a, she would merely have uttered two simple arguments, since her second utterance of "something is green" is not the same token act as her first utterance of "something is green." But intuitively, Sue's two expression choices concern how to express one and the same argument.

The problem is to refine clause 3 in some way such that the concatenation of Oliver's and Bill's utterances does not count as an argument, while Sue's case does involve a single argument even though she has a choice about how to express this argument. Resorting back to the equivalence classes from the original clause 2 or from Hitchcock's definition of simple argument will not suffice. Firstly, the equivalence classes will not exclude the Oliver and Bill concatenation since Oliver's conclusion utterance has the same meaning as Bill's premise utterance. Secondly, resorting to equivalence classes means abandoning Outcome 1 since, as already argued above, equivalence classes are neither acts nor appropriate stand-ins for complex acts. But once one abandons Outcome 1, trying to construct arguments out of speech acts and equivalence classes of speech acts seems quixotic—sets of propositions will do the job much more elegantly.

My tentative solution is to once again appeal to the illation relation. Clearly, the conclusion of A and the premise of B cannot (always) be the same token act without excluding Sue's repetitive utterance as a single argument. Hence, the conclusion of A and the premise of B must be acts of the same type. The type cannot be mere equivalence in meaning since that fails to exclude the Oliver/Bill concatenation. But suppose we also require that the conclusion of A bear the I-relation to the conclusion of B as in:

> 3b. If a conclusion in argument A (that is also not a premise in argument A) is merely a premise in an argument B and the conclusion of A (in conjunction with other premises of B) bears the I-relation to the conclusion of B, then A ∪ B is an argument.

Even if we let "a conclusion of A is merely a premise in an argument B" mean the conclusion of A is the same type of act as the premise of B, Oliver's and Bill's arguments will not form a larger argument since it seems clear that Oliver's token concluding act is not being offered as a reason for Bill's token concluding act. Hence, the Oliver/Bill concatenation would be excluded by 3b.

My proposal is tentative, however, because while it is not obvious that in the case of Sue's repetitive expression of her argument, that her first concluding act *fails* to bear the I-relation to her second concluding act, it is also not obvious that the I-relation *obtains* either. Given that Sue sees her choice between the redundant and non-redundant

expressions as not constituting a choice between different arguments and given that if she makes the non-redundant utterance the conclusion of A, just being token identical with the premise of B, bears the I-relation to the conclusion of B, it seems plausible that the conclusion of A bears the I-relation to the conclusion of B even in the case of the use of the non-redundant expression. If so, then 3b allows both of Sue's utterances to count as complex arguments. At the same time, while it is clear that Sue's second act of uttering the repeated sentence is the offering of a reason for her ultimate conclusion, it is not clear that her first utterance of the sentence is the offering of a reason for her ultimate conclusion. Regardless, for the moment I shall suppose that the appeal to the I-relation in 3b solves the problem of excluding the Oliver/Bill concatenation, but including both of Sue's possible utterances. I shall return to the issue briefly after completing the refinement of Hitchcock's definition. I turn now to clause 4.

According to Hitchcock the clauses given so far accommodate direct arguments to a conclusion, but an adequate definition needs to be expanded to cover generalizations from arbitrarily chosen instances, proofs by cases, *reductio ad absurdums*, and conditional proofs—what Hitchcock collectively calls suppositional arguments (Hitchcock 2007, p. 110, 112). Hence, we can attribute to Hitchcock the following desired outcome:

> Outcome 5: Suppositional arguments, for example, generalizations from arbitrarily chosen instances, proofs by cases, *reductio ad absurdums*, and conditional proofs, etc., should be accommodated by the definition of argument.

According to Hitchcock, "the easiest way to accommodate such arguments is to expand the concept of a premiss so that it includes not only assertives whose content is a proposition but also arguments (which are complexes of illocutionary acts)" (Hitchcock 2007, p. 110). Clause 4 articulates this expansion of what can count as a premise in an argument.

Whether the easiest way to accommodate suppositional arguments is to allow arguments themselves to be premises in larger arguments is an open question I do not wish to try to resolve here. But if *reductios* or conditional proofs, etc., can be reconstructed as multiple direct arguments with a conclusion acting as a premise in a further argument, then clause 4 would not add any arguments over and above clause 3 and could be eliminated. But for the purposes of this paper I shall assume that Hitchcock is righ--that accommodating suppositional arguments requires allowing arguments to count as premises. Even so, there are still problems with clause 4.

To show how clause 4 accommodates *reductios* and conditional proofs, Hitchcock applies his recursive definition to Euclid's proof that there are more primes than any finite number of primes and Anselm's ontological proof for the existence of God. The problem however is that his examples do not in fact satisfy the definition of argument he proposes, since the 'arguments' he is using as premises do not themselves satisfy the definition. For example, one of the 'arguments' that is being used as a premise in Euclid's proof is <{suppose that EF is not prime, assert VII.31}, ∴, suppose that EF is measured by some prime number> (Hitchcock 2007, p. 111) and one of the 'arguments' that is being used as a premise in Anselm's overall argument is <{suppose that than which nothing greater can be conceived exists in the understanding alone}, ∴, suppose that that

than which nothing greater can be conceived can be conceived to exist in reality as well as in the understanding> (Hitchcock 2007, p. 114). But neither of these structures are arguments according to Hitchcock's definition since neither has first terms whose members are sets of assertives, i.e. speech acts that "commit their utterers to the truth of an expressed proposition p" (Hitchcock 2007, p. 103, 104).

Neither Euclid nor Anselm would assent to being committed to the truth of the suppositions in these structures. (Euclid because the conclusion he ultimately wants follows whether EF is prime or not, and Anselm because he would ultimately reject that that than which nothing greater can be conceived exists in the understanding alone.) But if 'supposing that p' as it appears in Euclid, Anselm, etc. is not an assertive, then clause 4 will not allow us to include Euclid's or Anselm's arguments in the class of arguments, since what look like embedded sub-arguments being used as premises, will not themselves be arguments according to the four clauses. More generally, if the supposing that goes on in *reductios* or conditional proofs is not an assertive, then the four clauses will not capture *reductios* and conditional proofs as arguments.[6]

Solving this problem requires us to further modify clause 1, so that acts of supposing as well as acts of asserting can count as premises in basic arguments. Can suppositions bear the illation relation to other speech acts? Certainly the Euclid and Anselm examples indicate that they can. More generally, whenever we make a supposition and draw out its consequences, we are treating the supposition as a reason for those consequences. Hence, I strongly suspect that suppositions quite often bear the illation relation to other speech acts.[7] Let us call acts of supposing, assuming, pretending, and the like 'suppositives'. Given that suppositives can bear the I-relation to other speech acts, we can further modify clause 1 to:

> 1d. Any set, <P, c> in which I does or could obtain between P and c is an argument where c, the conclusion, is a speech act of any type and P, the act (possibly complex) that is the concatenation of one or more assertives or suppositives.

But even if we fix clause 1, there is still a problem with clause 4. Right now the entities in the antecedent of clause 4 are the argument <P, c> and the argument A, which means that arguments as premises, the As, can only be joined to conclusions that already bear an illation relation to some premise set P. But consider: "Suppose it rains tomorrow. In that case the game will be cancelled. So we know if it rains

[6]Hitchcock points out that Searle includes hypothesizing in the list of assertives (Hitchcock 2007, p. 103), but if the mark of an assertive is committing their utterers to the truth of an expressed proposition, then while some sorts of hypothesizing, such as offering a potential explanation for a given phenomena, will count as assertives, other sorts of hypothesizing such as 'supposing precisely to show it is false' will not. When Euclid says: Let A, B, and C be the only primes, he could just as easily have said: Pretend A, B, and C are the only primes. The result of his argument can be to show that the initial pretense is mere pretense and so A, B, and C cannot be the only primes. But pretending p does not commit the pretender to the truth of p (though it may commit the pretender to acting like p is true, at least until the pretense is revealed to be just a pretense).

[7]Both Alec Fischer, in (Fischer 1989), and Michael Wreen in (Wreen 1994) argue for the inclusion of suppositions and the like as premises in addition to assertives. Full disclosure—Hitchcock himself pointed out the Fischer article to me in response to my bringing this point up in our correspondence.

tomorrow the game will be cancelled." In this case A is <{suppose it rains tomorrow}, the game will be cancelled> and c is "if it rains tomorrow the game will be cancelled", but there just is no equivalent of <P, c>.[8] More generally, the clause as stated effectively says that if we have two arguments, then assuming the illation relation holds, one argument could be a premise for the other's conclusion by itself or in conjunction with the other argument's premises. But presumably all Hitchcock wants to say is that, assuming the illation relation holds, arguments themselves could be premises. To capture the latter we need a clause such as:

> 4.1 If A is an argument, then any set, <A, c> in which I does or could obtain between A and c is an argument where c, the conclusion, is a speech act of any type.

But presumably arguments might also be used as premises in conjunction with other premises (some of which might themselves be other arguments.) Hence we also need:

> 4.2 If A is an argument, then any set, <P ∪ A, c> in which I does or could obtain between A ∪ P and c is an argument where c, the conclusion, is a speech act of any type, and P the act (possibly complex) that is the concatenation of one or more assertives or suppositives or arguments.

This concludes my proposed refinements to Hitchcock's original defintion. At this stage if we rewrite and renumber, given that the old clause 2 has been eliminated and clause 4 split in two, the refined definition will be:

> 1*. Any set, <P, c> in which I does or could obtain between P and c is an argument where c, the conclusion, is a speech act of any type and P, the act (possibly complex) that is the concatenation of one or more assertives or suppositives.
> 2*. If a conclusion in argument A (that is also not a premise in argument A) is merely a premise in an argument B, then A ∪ B is an argument.
> 3*. If A is an argument, then any set, <A, c> in which I does or could obtain between A and c is an argument where c, the conclusion, is a speech act of any type.
> 4*. If A is an argument, then any set, <P ∪ A, c> in which I does or could

[8] Suppose we say <P,c> is <{suppose it rains tomorrow, the game will be cancelled}, if it rains tomorrow the game will be cancelled>. But that accounts for the given text, so why go looking for additional arguments in the text? Suppose we take the stated argument to be occurring against background B. Now more options for <P, c> emerge—it could be <B, c>, but why think the illation relation holds between B and c? It might only be by the addition of the claim that it will rain tomorrow that one would be willing to advance B as a reason for c. Suppose <P, c> is <{B ∪ suppose it rains tomorrow}, if it rains tomorrow the game will be cancelled>. Again I am not sure that the illation relation holds, but suppose it does. Why do we need suppose that the author is also giving another argument for the given conclusion over and above <P, c>? Treating <P, c> as <{B ∪ {suppose it rains tomorrow, the game will get cancelled}}, if it rains tomorrow the game will be cancelled> just exacerbates the same problems.

obtain between A ∪ P and c is an argument where c, the conclusion, is a speech act of any type, and P the act (possibly complex) that is the concatenation of one or more assertives or suppositives or arguments.

5*. Nothing is an argument unless it can be constructed in a finite number of steps using the above rules.[9]

Clearly the success or failure of this refined version of Hitchcock's definition depends upon the ultimate nature of the illation relation. I conclude with a few questions about the I-relation that need to be answered before the full import of the refined definition can be determined.

Can an articulation of the I-relation be found that clearly allows Sue's redundant utterance to count as a single complex argument, but Oliver's and Bill's utterances to not count as a single complex argument? Given that Sue's second utterance is the offering of a reason for inferring 'something is colored', what makes it the case, if it is the case, that Sue's first utterance of 'something is green' is also an offering of a reason for inferring 'something is colored'?

What exactly are the relata of the I-relation? Each individual premise and the conclusion? The concatenation of all the premises and the conclusion? Non-overlapping partitions of the concatenation of all the premises and the conclusion? To make the statement of the definition simpler I have assumed it is the concatenation of all the premises, but I acknowledge it is merely an assumption. Note also that a positive answer to the last question may have import for whether linked/convergent structure can be re-introduced as an internal structural element of arguments even if the recursive definition prohibits generating divergent and convergent structures out of disparate arguments.

What exactly is it to offer something as a reason for inferring something else? Can a computer do it, even if we suppose it has no intentionality? Does the offerer need to intend to be offering a reason or can the offerer offer a reason without intending to do so?

What happens if it turns out that an object or a non-verbal action can bear the I-relation to an utterance? Does that mean the scope of what can count as a premise needs to be expanded further, or is there some principled way to restrict the I-relation to speech acts?

Finally, is the I-relation more than just the argument making relation? It had better be or else the refined definition just says, not very informatively, that whatever is connected by the argument making relation is an argument. While this point may seem trivial, I raise it because I can see answers to the previous questions that come dangerously close to treating the I-relation in this trivial fashion. For example, saying that Sue's first utterance bears the I-relation to her ultimate conclusion because Sue intends her two arguments to form a single chain of reasoning seems to be effectively saying she intends the two arguments to form a single one. Also disputes over whether non-verbal acts can bear the I-relation to other acts can easily get sidetracked by the uncritical acceptance of "p and c are I-related, so p/c is an argument." Where p or c is not a verbal act, advocates of non-verbal acts claim the I-relation generates an argument. Critics respond that since p or c is non-verbal, p/c is not an argument, and so p and c cannot bear

[9] See the Appendix for a version of this definition that makes the domain of the definition acts rather than sets.

the I-relation to each other. Both sides are guilty of treating the I-relation as the argument making relation, instead of trying to determine and agree upon the nature of the I-relation independently of one's preconceptions of what is and is not an argument.

4. CONCLUSION

To satisfy his own desired outcomes, Hitchcock needs to refine his definition of argument. If Hitchcock's desired outcomes are necessary constraints on an adequate definition of argument and if satisfying them requires, as the refined definition seems to suggest, essential appeal to the illation relation, then it is incumbent upon us to get clear on the nature of this relation. I suspect that, in one guise or another, the illation relation has already vexed argumentation theorists for quite some time. Given that I see no obvious or clear answers to the questions I posed at the end of section 3, I suspect it will continue to vex us for some time to come.

APPENDIX

Here is a version of the definition that makes the objects of the definition acts rather than sets.
Let AS be the set of all possible assertives and suppositives, both simple and complex.
Let C be the set of all possible speech acts.
Let AS-C be the set of all complex acts that are combinations of one act from AS and one act from C.
Let I be the premising or concluding relation. I obtains between a member of AS and a member of C iff the member of AS is offered as a basis for inferring a member of C or the member of C is put forward for acceptance on the basis of the member of AS.

> Clause 1: A simple argument is any member of AS-C for which I obtains between the act from AS and the act from C.
> Clause 2: If A and B are arguments and a component part of A, a, from C, which is not also from AS, is type-identical with a component part of B, b, from AS alone and a bears I (in conjunction with the other components of B that along with b bear I to a component of B from C), then the complex act that is the combination of A and B is an argument.
> Clause 3: For any argument A, any complex act that is the combination of A and a member of C for which I obtains between A and the member of C is an argument.
> Clause 4: For the complex act, X, that is the combination of any arguments, A_1, ..., A_n and any member(s) of AS, any complex act that is the combination of X and a member of C for which I obtains between X and the member of C is an argument.
> Clause 5: Nothing is an argument unless it can be constructed in a finite number of steps using clauses 1–4.

Clearly the membership of AS will vary from theorist to theorist depending on one's account of (i) acts, (ii) the simpleness and complexity of acts, and (iii) possibility. Here is one partial account:

Let SAS be the class of all simple actual assertives and suppositives. By 'all' I mean all the simple assertives and suppositives that have ever been made or ever will be made throughout the entire span of the universe. An assertive is simple if it contains no other assertive as a component part. [Otherwise I leave 'simple' unexplicated and rely on our intuitions for recognizing simple assertives/suppositivies. But simple assertives, for example, will not match up with simple sentences of Sentential Logic. For example, a disjunction will be a simple assertive since neither disjunct by itself is an assertive. Conjunctions where each conjunct is itself an assertive or a suppositive will be complex acts.]

Let X be the set of all complex actual assertives and suppositives. X is generated via unrestricted combination of members of SAS, *i.e.*, for any set of acts from SAS, there is a complex act that is the combination of all the acts in the set. [For comparison consider unrestricted composition in mereology, *i.e.*, for any set of objects there is another object that is the mereological sum of those objects.] Clearly, X contains a lot of bizarre stuff. For example, the complex act that is the combination of George's assertion that Socrates is mortal made in Philadelphia in, say, 1752 and Phil's supposition that pi is a rational number made in San Fransisco in 2006 is in X. Equally clearly, X would not be very practical as a basis for a sound metaphysics of complex actions for action theory. But X does have the virtue of making sure that no complex action we may really be interested in will be left out.

Let SASX be the union of SAS and X. SASX is the set of all actual assertives and suppositives.

Pretend modal realism is true, *i.e.*, pretend all the logically possible ways a universe might be are as concrete as this universe. For each possible world α, let SASXα be the set of all assertives and suppositives in α.

Let AS be the union of SASX and SASXα for all α.

C can be generated in a manner parallel to AS.

All the members of AS-C are complex acts, though some of the acts are merely possible complex acts (from the perspective of the actual world). Given that all simple arguments are members of AS-C, all simple arguments are complex acts. Given that each recursive clause generates a new complex act as output, all arguments are complex acts.

I is a relation that holds between a member of C, which is all possible speech acts, *i.e.*, across all possible worlds, and a member of AS, which is all possible assertives/suppositives. Whether I obtains depends on whether for act c in world α and acts p in world α, I obtains between c and p in α. (I assume that whatever the I-relation is, it is not a cross-world relation, *i.e.*, for any two distinct worlds α and α' there is no act p in α that bears I to any act c in α'.) But α could be a merely possible world, in which case, if in the actual world I does not obtain between the counterparts of c and p, then the argument <p, c> is merely a potential one.

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