Pena, vagueness, February 26, 1999 BIG

If ‘5 is big’ means ‘5 is in this range and not in that range’ does it follow that ‘5 minus .001' is in this range and not in that range? Not necessarily.

Without a meter bar present, some things are clearly less than a meter, some things are clearly more than a meter, and some things are not clearly either. That does not mean that what a ‘meter’ is is vague in a logically pejorative sense.

Just because certain kinds of reasoning cannot use *p*, it does not follow that *p* is not true. So the argument based on the sorites is off the point. That argument at most shows that certain kinds of reasoning with certain sentences does not work. But the anti-bivalence guy is trying to show something different: that such vagueness prevents *p* from being true.

THIS IS IT!

Is it true that if X is on this part of a continuum, X + 1 is also? No, that statement is not universally true. Or is it true that whenever X is in such a such a range of values, X + 1 is also. Not universally. But when we say “That is big,” “That is a heap,” “He is chubby,” etc., what we mean is “That is in a range, or an a part of a continuum, which, given your interests, goals, ends, etc. you would unhesitatingly call “big” or “a heap” or “chubby.” But if you add or subtract anything from a value you have objectified in any of the preceding ways it does not follow that the result of adding or subtracting can likewise be objectified in those ways. (Also, cloud, chair, person)

But there is a way of assigning “rich” a meaning such that it is true that if you subtract a penny, the person is still rich. Assume that “rich” means something like “a quantity of money so much greater than quantity Y that, rounded to the nearest whole dollar amount, it is more than 3 times Y. (No this doesn’t work either.) Try “a quantity of money at least two times greater than quantity Y . . .

But even if these ways worked, the objection would be that they work only by adding some sort of specificity to qualify the vagueness. But all that objection can show is that the way quantity is objectified by “rich,” “big” etc. is such that it is not suitable to use operations like adding and subracting with it. So these terms provide no argument against bivalence. Some things are clearly rich; some are clearly not rich, and some things may be neither rich nor not rich. Elm trees are neither odd nor even. Oxygen atoms are neither male nor female, heterosexual or homosexual, idealists or realists.

August 9, 1999

Clarity. Is the concept unclear, or is our perception of individuals not clear enough to apply it, or both? A person with less than 20-20 vision would have difficulty applying some concepts. Either way, no problem.

The real question is whether a concept is clear enough for the purpose at hand. That purpose can be such that treating the concept as if we can add 1 to it (+ 1) is completely inappropriate and so irrelevant.

If the purpose at hand makes the concept of a kind that it is appropriate to add 1, then the meaning of the concept is that of a quantitative range, and the premise that the result of adding 1 is in the same range need not be true.

And even if the concept is vague, there can be clear cases that are not disproved by the existence of unclear cases any more than the existence of the great unwashed disproves the existence of the great washed. Here a “clear” case of F means a case that it is unreasonable to consider non-F.

Dummett, Sorites, truth, bivalence, Pena, January 21, 1998

Every quantity is both great and small from different points of view. If we add or subtract something from the first quantity, the result is still both great and small from different points of view, though the result is not great and small in the same way that the first quantity was. It is still something great or small from different points of view, but that which is great and small from these points of view is not as great or as small as it was before. Is not great or small in the same sense; for it is also greater or smaller than it was before in an absolute sense. That absolute sense is not what we mean by "great" or "small" in the relative sense.

Great and small, rich and poor. These are relative concepts. They locate their referents at different places on the same continuum, without objectifying what those places exactly are; they objectify those places only as "significant from the point of view of some goal." When we talk about growing an inch or gaining a penny and make the true statement that neither of these changes the small to the great or the poor to the rich, we are making a true statement. But we are relating (comparing) a discrete quantity to a continuous quantity.

The definitions of poor and small are such that we can say that adding certain discrete quantities would change the referent from the poor part of the continuum to the rich, as defined by the significance of the result to the goal defining "poor" and "rich"; adding certain discrete quantities would not; and adding other discrete quantities would be ambiguous.

Rich and poor locate things on a continuous "scale", a scale potentially divided into discrete sections but not actually so divided, as far as the meanings of these terms is concerned. Rich and poor are universal concepts but of a certain kind. They refer to the relation of two things on a scale that must, for the sake of these concepts, i.e., by the nature that these objective concepts happen to have, be potentially, not actually, discretely divided. There are other kinds of concepts which take the continuum as actually divided.

One concept means, A is closer to one end of the scale than B is; the other means A is farther from that end of the scale than B is. And both concepts add: and the closeness or distance is significant from the point of view of some goal. But in the case of these concepts, that significance cannot be defined by actually dividing the continuum. I.e., the significance cannot be defined by saying up to this point "poor", this point and beyond "rich".

Because we are talking about a scale of continuous rather than discrete quantity, any point on the scale will always be greater than some things and smaller than others, no matter how close to either end we take the point. So concepts like "greater" and "smaller" do not work in such a way that for any discrete quantity added or subtracted, we can say that the result is significant for the point of view that defines "big" or "small." For there will always be quantities between that which is now small and that which is now big such that it is undefined whether those in-between quantities are themselves big or small in this sense.

Is someone is poor, is she still poor if we add a "small" amount to her wealth? If we say this instead of saying, "If we add a penny," the answer is not automatically yes, as it is in the case of the penny. The answer should be "How small is the amount?" "Penny" objectifies a quantity and so does "small amount". These terms objectify the same quantity in different ways. What is the difference between these ways?

The word-function of "Penny" is "being equal to one already objectified discrete quantity". The word-function of "small" is "belonging to a continuum of nondiscrete quantities which are less than a quantity on another part of the continuum and sufficiently less to be important from the point of view of some practical, ethical or aesthetic, goal.

Both of these terms, contrary to Wittgenstein, objectify an extra-objective quantity by means of a comparison, by means of relating it to another extra-objective quantity. Penny relates a quantity to a discrete quantity as having the

relation of equality with that quantity.

"Small" objectifies a quantity by relating it to several other things and in a more complex way. Objectifies the amount of money, an absolute, extra-objective amount, that Mary has to (1) the continuous range of potential, not yet actual, discrete quantities; (2)to two different areas of that range that, though different from each other, are not actually divided from each other in the sense of having defined boundaries, one part necessarily containing potential discrete quantities that are unequal, greater or lesser, than the other; and (3) to some practical value from the point of view of which each of these parts are either better or worse.

If we leave out the third way in which "small" or "poor" objectifies Mary's money, we are left with "small" or "big" in a mathematical sense. This is important; for here the same absolute amount can be small or big from different points of view. "Small" objectifies the amount in relation to all the other amounts in one part of the continuum; "big" objectifies the amount in relation to all the other amounts in the remaining part. This is probably the level at which the analysis should start, i.e., at smaller than and bigger than, rather than small and big.

Gray is dark relative to white and light relative to black; the middle note is higher relative to the deeper note and lower relative to the higher note.

The intermediate state is a contrary to either extreme; for in a sense it is each of the extremes. The intermediate is a contrary relative to both extremes (larger than one, ie., large compared to one, and smaller than the other, i.e., small compared to the other), and each extreme is a contrary relative to the intermediate state or stage. (A privation can be a contrary; the penniless is poor.)

So it is not just vagueness that is the cause. It is the mixture of vagueness and precision — in the same respect — that is one of the causes. A mixture of not just different objectifications, all judgments mix different objectifications, but of objectifications whose means so differ that we can mix them in certain ways but not in others.

A is smaller, B larger. If I add a penny to A is it still smaller? Not necessarily. So to be small is to be smaller than B and to be smaller than B by a continuous range of potential quantities, which range is important relative to some practical standard, some end other than pure truth.

November 18, 1998 BIG

"If Joe's money is clearly (comfortably, in the middle of, closer to the middle of than the standard deviation, etc.) in the range of poorness, adding $.01 to it does not put it out of the range of poorness." That statement may be true. But if it is true, it does not follow that this statement is true "If Joe's money is anywhere in the range of poorness, adding $.01 to it does not put it out of the range of poorness." The latter statement is false because adding a penny may put Joe's money out of that range.

Or, if adding a penny does not put Joe's money out of that range, the reason may be that the word-function of "poor" is such that it does not have sharp limits, and so a penny need be neither in nor out of the range the way a triangle need be neither Catholic or non-Catholic. Or all triangles are non-Catholic, but not because any of them are Protestant or Jewish.

The point of the example two paragraphs back is that for any concept the existence of unclear cases does not disprove the existence of clear cases. So there can be cases that are clear and unclear relative to being poor and relative to being a chair. But poorness and chairness differ in an important respect regarding their ways of being clear and unclear. "Poor" expresses a location in a range of locations, a range that may or may not have sharp edges. As such, poorness is a logical construct, a kind of set. "Poor" expresses membership in a set of locations, a set defined (objectified) not by mathematically defined concepts but by relation to some goal assumed to be shared by the speakers. Any set is a logical construct, but you can construct a set with precise membership conditions, if you wish.

In the case of “poor” and “big” the set does not have precise membership conditions. For one thing, the wf of “poor” is doubly a construct: (1) any set is a construct; (2) this construct is defined by a relation to human purposes. And because of (2) we can add that the construct is defined by a criterion extrinsic to the features of the range, or its members, themselves; it is defined by an extrinsic denomination. Still, all of these may not add up to explaining why and how the set lacks sharp edges.

The nature of the goal defining the set must be such that the goal is not able to provide sharp edges. But that does not mean there are no truths about what is; on the contrary, the preceding statement is itself a truth about what it, a truth about the nature of the goal and the kind of standards it can provide. For there can be goals that provide sharp edges, but they are not the kind of goals that are operative in all situations.

If I tell a gold-digger that the blind date I am fixing her up with is “rich,” what I mean is that he has enough money to “Impress” her. The facts that what will or will not impress her is not very precise and that she herself would hesitate over many cases are both truths and so offer no evidence against truth and our ability to know it.

Of course, if we had complete scientific knowledge, we could predict and state exactly what her reactions would be: clearly impressed, clearly unimpressed, various states in between. Each of these states is what it is and is not what it is not. But we can objectify each of these states in different ways and for different purposes.

When we objectify such a state by the wf of “poor,” the truth-value of the statement does not make it suitable for all purposes. For example, it is true that we can always add .01 to the money of a poor man, because “poor” objectifies a quantity of money. But it is not necessarily true that if Joe is poor adding .01 to his money makes him still poor. For it is not suitable to mix these ways of objectifying quantities for the purpose of knowing whether the first way is still true. Likewise, it is not suitable to ask what color a law has.

Consider: “If something is small, then continuously adding small amounts to it results in something small.” Not only is that false, it is contradictory. It contains the implicit contradiction that no quantity can be big, but some quantity can be small, though “big” and “small” are comparative terms that require one another.

The bottom line is that the untruth is in the statement: “If X is in the range that fulfills our purpose for predicate P, then changing its place by an amount that fulfills our purposes for a predicate like “tiny” (or “insignificant?”) always leaves X in the same range.” That statement is not true.

There are no fuzzy realities, only fuzzy concepts. But wfs can be fuzzy in different ways, as the example of “chair” and “poor” show. The range that is objectified by “poor” is not a fuzzy entity, because it is not an entity. It as a being of reason, a set of quantities, discrete or potentially discrete. Likewise, there is a difference between “vagueness” as said of the relation between two general wfs, like color and red, and between a wf and an individual objectified by the wf.

PNC, January 22, 1997

Does contradiction make everything true? Why not say it makes everything false, by reversing the places of p and -p in the disjunctive syllogism? (No that doesn’t do it.)

PNC, January 14, 1997

But how could we formulate a PNC that would tell us that we must be aware that a proposition is not simultaneously assigned not-M, when we assign it M? Wouldn’t we need a super metalanguage, a metalanguage beyond which there is no greater? No. The language/meta-language distinction functions in explaining how we are aware of validity in formal systems. So that distinction is NOT of use in explaining logical awareness. We need some language, of course, but that is all.

Pena, Aug. 31, 94

Good example to use against his postion: Gewirth, Reason and Morality, p. 197. The dictator uses contradiction for his own purposes. But he does not countenance contradiction at the level of his own purposes.

Truth - Pena
3-27-89

Objections to Bi-valence. Sure "big" is vague and imprecise in each usage that we give it. But that does not prevent it from expressing a vague and imprecise truth in each usage. In fact that vagueness and imprecision may be just what saves bi-valence. Of course, "big" is used for different purposes in different contexts. "He has a really big house." "A really big show." "A really big salary." We are using big differently in each case. But in each case it objectifies a state of affairs, and we use it to objectify a state of affairs. In each case it objectifies a comparative state of affairs, a comparison between the absolute "size" of, say, a salary, and other vaguely mentioned or indirectly mentioned salaries. We are objectifying the fact that the size of the "big" salary is larger than that of most others and larger by a degree that, in the context in which we are speaking, is significant for the purposes for which we are speaking, significant as measured by some assumed goals shared by those conversing.

Sure, "big" acquires its ability to objectify from the context. So do all words. That does not imply that sentences do not possess truth as units. To say that big acquires its meaning from the context, is to say that it does possess a meaning in this context. Hence sentences using it are true as units. If it were not true that "big" possessed a meaning in this context, it would not be true that it acquires its meaning from the context. It cannot be true that it has acquired a meaning unless it has a meaning.

Thing and Object - Pena - Paralogues
3-27-89

Pena objects to the use of terms like "as" "insofar as" and other reduplicative terms. But the analysis of parageneric abstraction in Chapter 12 of Causal Realism shows that reduplicative expressions are unavoidable in philosophy.

I use reduplication to describe logical relations in Chapters 3 and 4. Pena would object, of course. Can I give a cash value to this usage. Logical relations pertain to objects as objects. What does "as" mean here? What resources do I have to explain it? Causal relations. Logical relations are relations *resulting from* making things objects. They are also (2) relations pertaining to objects and (3) relations perceived to pertain to objects, i.e., relations that exist in apprehension as themselves objects and exist in apprehension as modifying other objects. Further they modify other objects as a result of the other objects being objects. For they are perceived to be ways of being objects, one way of being an object as opposed to another way, or they are perceived to be ways of making things objects (e.g., the identity relation). The causal relations involved are both efficient (resulting from things being objects) and final (characterizing objects for the sake of making them objects).

Formal Systems - philosophical limits of
3-27-89

The formal approach to philosophical problems has no successes. Not one. Hempel's disproof of the verification principle? First, I do not accept it as

proof. Second, If it is is proof, it is a proof that another attempt to apply formal methods in philosophy is unsuccessful.
Rorty admits in The Linguistic Turn that there have been no sucessess. His later work can be interpreted as the claim that we shouldn't look for any successes, i.e., there reason there have been no successes is that there shouldn't be any, and we shouldn't look for them.

The point in his earlier work was that all the linguistic turn had done was to put all previous philosophy on the defensive. But the burden of proof had always been there, so what's new? Perhaps what's new is that "putting on the defensive" means all philosophy must henceforth be done this way even though this way has not yet achieved anything, ie., the belief that if there is anything to be achieved, it will be by these methods. But when and how has that belief been demonstrated. It's not a demonstation, its a program; its an act of faith in a program, an expression of a preference for a program; that's all.

Rorty's later work, "The Mirror of Nature," says, in effect, if there were anything to be achieved, it would be this way, but this very method shows there is nothing to be achieved.

It's time once again for philosophy to bury its skeptical undertakers.

Pena - BIG

3-8-91

Somewhere I say that part of the bi-valence problem is explained by the imperfection of human knowledge. Tie this in with what Maritain says about the different stages undergone by the human intellect, ie. the "magical sign" stage. He talks about this in "Sign and Symbol" and maybe his other sign article; see also "On the Philosophy of History." The point is that the principle of non-contradiction is always true; the nature of the human mind does not change. But the human mind operates under different conditions. Maybe
in the "magical" stage the P of NC just isn't relevant (directly) because truth or falsity is not at stake. Maybe some of the magical stage is still left over in our use of language. And maybe other uses of language don't involve truth or falsity in the strict sense because they don't achieve the kind of conceptualization, even vague and imprecise conceptualization, necessary for truth.

And there are poetic uses of language expressing connatural awareness that has not achieved the level of conceptualization. To achieve conceptualization, we would have to have a concept of the affective state that gives us the connatural awareness in the first place. Forming such a concept implies that we are explicitly, not implicitly, reflecting on our previous awareness, because that previous awareness took place, not through a concept, but through an affective, conative, state. We were implicitly non-reflectively
aware of ourselves in that previous state, but ipso facto, we were not aware of ourselves by means of a concept of ourselves. For connatural knowledge to take place by means of a concept (McInerny), we would have to have a concept of ourselves, and such a concept comes about only through explicit reflection.

Logic, formal systems, Pena, Putnam, July 25, 1993, BIG

I say Pena's constructs must conform the the principle of noncontradiction and that Putnam really implies that science will and will not reject the principle. The opponent says all I'm doing is putting the P of NC in the metalanguage, but not in the language itself. This is the sacrilzation, not of logic, but of a <u>tool</u> of logic, i.e., languages set up in metalanguages. Formal method is a tool but

only a tool of logic. The validity and constraint imposed by the P of NC has nothing to do with whether a formula corresponding to it appears in a particular linguistic construct. An indication of this is Putnam's proof that Tarski's account of truth does not apply to "natural" languages.

PNC, Necessary truth, meaning, 9/20/94

In Metaphysics IV, 4, Aristotle appears to be arguing that asserting that X is both F and not F amounts to saying that "F" both signifies what it does and does not signify what it does, so that admitting contradiction amounts to eliminating any kind of significant speech at all. "X is both F and not F" amounts to saying that what is signified by "f" is true of X and is not true of "f". E.g., that X is a female and is not a female. But if "f" signifies that something is female, and a thing is not female, what "f" signifies is not true of the thing. So what is the difference between saying that X is f and not f and saying that "f" signifies and does not signify female, i.e., that what "f" signifies is that something is female and that something is not female?

Also, if the PNC does not apply to X, then in addition to its being true that X is and is not F, it is also true that X is not (F and not F).

PNC, logic, Putnam, 7/ 3/94

Introduce the discussion by noting the some say the only thing left that is unique about the PNC is that everything follows from its denial. Then show that the argument to that effect does not work. Does it follow that there is nothing left that is unique about the PNC?
The opposite follows. The fact that disjuntive syllogism and other laws that use negation do not work if the PNC does not hold shows how fundamental the PNC is.

P of NC, Logic, Formal Systems, Entailment Truth, Tarski, Prior, Putnam, 6/ 2/94 BIG BIG

Title: Ill Logic

The logical PNC says that a sentence and its denial cannot both be true. Nothing in that statement refers to the "language" the sentence is in. When we say "Snow is white" is true if and only if snow is white, it is essential that the same notion of truth is understood by us to apply both to the sentence "Snow is white" and to the whole sentence. Call "Snow is white" sentence A and the longer sentence sentence B. (This last sentence, referring to both A and B is alleged to be in the meta-metalanguage. But in this last sentence we can use the word "truth" of both A and B. And that word does not change its meaning when we apply it to A or B alone, nor does the word "sentence.") We can say "A is true if and only if snow is white." Or "Sentence A is true, if and only if snow is white." On the assertive-redundancy theory of truth, the meaning of truth must be the same, because asserting B is the same as saying "B is true." But B contains the word "truth," and B is not guilty of equivocation.

But even on the thing-object (or quod-object) theory of truth, the meanings of "truth" and "sentence" have to be the same. The person asserting B implicitly knows that B is a sentence, is implicitly aware that B is a sentence deserving to be judged either true or false, just as A is.

Read all of what Putnam has to say on disquotation, both the chapter in R and R and that article you saw in the Philosopher's Index.

But what is a "sentence?" It is anything capable of being true or capable of being false. The PNC says that such a thing cannot be both true and false. The use of the language/metalanguage distinction allegedly gives us a "clear" meaning of "sentence" for the language (not for the metalanguage). But the problem is more than the fact that this "clarity" is bought at the price of irrelevancy to the ordinary notion of "sentence." The opponent is implying that we do away with the ordinary notion in favor of the "clear" one. But notice the difference between this replacement and Church's thesis. CT, if true, does not apply only to mathematical theorems as opposed to something called "metatheorems." CT is meant to cover all decision procedures. But Tarskian replacements explicitly exclude sentences in the metalanguage.

But the metalanguage is what philosophy is concerned about, in the sense of wanting to know what goals we achieve in our various modes of awareness. To substitute an artificial and deliberately restricted notion of sentence and truth is precisely to give up answering our philosophical questions. We want assertions like CT, that cover all cases of our ordinary notions, even if, as is contrary to fact, they cannot be proven. (That JofP guy seems to be saying CT, etc., can be proven.)

The language/metalanguage restriction is one important difference between the ways formal methods relate to logic and mathematics relates to science. Just as science constructs mathematical models, logic uses formal methods to construct models of languages. But logic's models are restricted in an essential way in which science's models are not restricted. Science can construct models covering the whole of its subject matter, e.g., the universe. Logic's model languages are always restricted to being subordinate to their metalanguates. E.e., the meaning of "truth" and "sentence" are defined only for fragments. Math uses ordinary language as a starting point for constructing its "formal" definitions. That starting point in ordinary language does not seem to hinder it from coming up with precise definitions. And ordinary language does not relate to its definitions as

a metalanguage to a language.

Math models in physics cover the entire universe, but do not say everything or every kind of thing that can be said about the universe. So if we define truth and meaning extensionally, mathematical physical models are in no way restricted. But formal systems as models of logical relations are restricted. They do not apply to all sentences, only to the sentences of the "language," not to the sentences of the metalanguage or to sentences like this one, since this one must be neither in the language, nor the metalanguage, because it refers to the metalanguage. Now, the preceding sentence is precisely the kind of sentence that the formal language guy needs, if he wants to make is would-be Tarskian points. But that sentence makes no sense whatsoever, unless "sentence," "applies to," "true of," etc. have the same meaning throughout and at every level, including the self-referential level; otherwise, we would have to say, not that the sentence is in the meta-meta-metalanguage, but in an infinite series of meta-metalanguages. Since the Tarskian wannabe has to use sentences like that, it does no good for him to claim that "sentence," "truth," etc. are too vaguely defined to be useful at that level, and so that he wants to replace them with better defined terms, using the meta-language/language structure. That does not let him off the hook. He still has to tell us what and why he is doing, using sentences in which "sentence" etc. are not restricted in meaning to this level or the next level down. The alternative to using that kind of sentence, is to make a blind act of will, the way the logical positivists chose a to restrict the use of "meaning". But even they needed to assuage their minds by making the claim that their blind act of will was done on the basis of a rational justification.

How does Prior know that the PNC is supposed to "entail" all things? Because he knows the meaning of "entail," i.e., because he is aware of what the relation of entailment is.

Logic, Formal Systems, Entailment, Math, 8/ 1/94

Article on entailment: Does the explanation of how we know the example of entailment, which will be a formal example, explain logical knowledge? No, formal methods are only a tool, albeit an indispensable one, in logic. What makes knowledge logical is a reference to human cognition or its results. Strictly "logical" relations are relations whose nature, whose form, is to be a reference to the known in its formality of being the known, in its character of being the known. I.e., relations whose nature it is to be relations to knowledge or the results of knowledge as such, where "as such" means the nature of the relation to X is that the relation terminates in X only because the relation's nature bears on the known and X is known. Thus a relation like greater than bears on quantity, a relation like shorter than bears on extension, a relation like sooner than bears on time, etc.

Formal methods are also a tool, but only a tool, in math. No what do logic and math have in common that makes this tool useful in both? What kind of subject matter do you need for formal methods to be a useful tool?

Formal systems, logic, Putnam, P of NC, Trinity, September 15, 1993

It is not whether the p of NC is in the language or in the metalanguage. It is not whether a language contains the corresponding formula. It is whether what the formula expresses, what the P of NC expresses, is obeyed by the sentences, any sentence, in any language.

The same with a formula for transitivity of identity and the Trinity.

Logic, Formal systems, 6-13-93, BIG at end

Rules of games cannot violate logic, but need not be rules of logic. We could construct formal systems we different rules than we do. E.g.,
for wffs in lower case you can substitute such and such; for variables that are consonants, you can substitute up to 4 such-and-suches. But we select the rules of our formal systems because we see that they map to the self-evidently necessary truths of logic. And we see that self-evidently. So formal systems do not eliminate the need for self-evidence.

And if they did elminate that need, they would do so only in logic, not in other domains.

Is modus ponens true because of the truth-table for ->? No, we set up the truth-table for -> to make modus ponens true. But on any complete set of bi-valued truth tables, one of the tables will make
modus ponens true. Yes, but the last sentence is a self-evident truth, or derivable from self-evident truths, about truth tables. It is because we no such self-evident truths about truth tables, that we know we can use them in logic. And there are other such, e.g., that there are 16 possible combinations, etc.

Trinity, formal systems, quantification, existence, 4-20-93

Could a notation whose marks had the same meaning as "God is good and God is goodness" really be a formal system? No, the formulas of a formal system are not designed to mean this, not meant to mean this. Rather, given sentences that mean things such as what "God is good . . ." means, formal syntax is supposed to represent X about such sentences. So what is X? Is it self-evidently clear what X is?

Why am I a priori skeptical about the construction of a formal system that would, say, allow saving noncontradiction, while permitting violation of transitivity of identity for relations that can be genuine formal relations and still be predicated directly of the essence to which they belong? Is it just that I see no successes attempting to solve philosophical problems by the methods of formal systems? Is it just a reaction against the imperialism of method that is practiced in the name of such systems? Or is it an intuition of the essential inappropriateness and even incompatibility between the nature of the problem to be solved and what is accomplished in such systems?

"First order, "second order," "empirical," "logical," etc. are not the only alternatives for explaining the usefulness and power of quantification and the function/argument syntax. Ontological analysis and the fact that being is first known and known by judgment is another possibility, and this posibility is a necessity. (Existence is logically included in knowledge by judgment, not concept.) As Putnam said, Frege is not to blame for making "exists" logical; subsequent interpreters did that.

If a formal L cannot describe its own relation to its objects, that is a limitation of formal Ls. When someone says a language cannot state its own relation to its objects, I reply that English does it all the time. If the opponent answers with talk about the "metalanguage," I respond by asking whether he means middle English, old English, or Latin. Why can't one sentence of English say something about the weather, and another sentence say something about how English expresses facts about the weather? Why must we sleep on the Procrustean

bed of the metalanguage/object language distinction? Answer: because someone is in love with that distinction and wants to force it on us. Why? Because of the a priori idea that it will produce clarity, when in fact it constantly produces obfuscation over and over again. But the opponent is in love with the dream of the clarity he imagines it creating.

Formal systems, frege, logic, judgment, existence, 3-24-93

In some ways concepts are like functions; in some ways they are not. A mathematical function gives a value of the same kind as the value in the argument place, namely, a quantity, a number. A propositional function gives a value of a different kind, namely, true or false. A mathematical function corresponds to an operation on the argument (Wittgenstein says it isn't an operation); a propositional function does not. We can say 2x = 4, to express the identity of the diversely objectified. In order to objectify a propositional function as true, we need to put it in quotes. "Fa" is true. (but we can say "that Fa is true"? No, that does not work in a full sentence. Or does it? "He believes it is true that Fa.")

Formal systems, C and D, 3-24-93

Is the clarity of formal systems applicable to curing aids, to ending the cold war, to controlling inflation? No, so commitment to formal systems in philosophy is not justified by their internal clarity, but by a "religious" commitment, like that of ideological liberals and conservatives.

Logic, formal systems, existence, Putnam, 3-24-93 BIG

Anscombe, in her commentary on the tractatus, says that Frege's analysis of judgment is the "right" analysis. I am not sure there is any such thing as the right analysis of judgment, where "analysis" means the right way to represent the logical relations in judgment by means of syntactical relations. But if Frege's is the right one, or if all "right" ones need to be logically equivalent to Frege's or consistent with it or . . . (whatever these concepts may mean), the reason is what is expressed by the two quotes from Maritain in section 3 of "Wittgenstein and Maritain." At least, those quotes explain why the function/argument element of Frege's notation is correct. In other words, Thomistic principles explain why Frege's anaylsis is a good one; and any other explanation would have to be consistent with the Thomistic one.

As for the other aspect, the quantifier as a predicate depending on prior predicates, the Thomistic principle that existence is known by judgment can have two meanings: First, if and when existence is known, it is known by judgment. Second, all judgments about particulars whose nature is other than beings of reason logically include knowdge of the existence of those particulars. Certainly the second, if true, is the explanation why quantification is a good notation; and all other explanations would have to be consistent with it. But does the first imply the second? The second is true whether or not the first implies it.

Formal systems, 3-17-93

Geach, in the article of Frege's concept of existence in God and the Soul" ("Form and Existence"), refers to the clarity that logic can bring. But a perfect example of the obfuscation that logic can bring is the application of Tarskian concepts to natural language. We are told that language cannot "refer to" itself, or at least that there is a tremendous philosophical difficulty involved in understanding how language can refer to itself. But in English, statements and words refer to other statements and words all the time. We are told, by implication, that "English" is not what they mean by language when they say that language cannot refer to itself. They mean the underlying linguistic structure, the metaphysical essence of language. Why, because they mean "language" in a sense that requires statements about other statements, statements about reference and truth, to be statements in a metalanguage as opposed to an object language. But that is a wholly artificial structure to be imposed on English, unless you think that structure must be imposed as a metaphysical necessity. Why is it a wholly

artificial structure. Because it is pure confusion, otherwise, to say that English cannot refer to English, which is what "language" ordinarily means. So as ordinarily understood, what is called "language" can certainly refer to itself. So the opponent is using "language" in a special, metaphysical, way. Why is he doing so? Because of alleged clarity that results. Clarity about what? About philosophical problems about ordinary language. But there was no problem about how language can refer to language until he introduced his nonstandard use of "language." So he has added obfuscation, not clarity.

By fiat you are trying to force me into looking at things through this structure, by force of will. Or, if I choose not to look at things through this structure, you will ignore me.

Logic, entailment, formal systems, 2-28-93

The way to start it: Define "or" (not "not") by bivalent values other than truth and falsity. Then claim that "p or q, and not p" entails that "q" has the positive member of the set of bivalent values. The opponent challenges this without going into all the details about formal systems. The challenge gives you the opportunity to explain necessity by way of cognition-dependent relations, and their self-evidence. The opponent then replies that truth-table methods eliminate the need for appeals to (or explanation by) self-evidence, logical relations, etc.

Necessary truth and formal systems, 2-13-93

In Notes2 of a recent date, I reply to the objection that my definition of a necessary causal relation relies on a contrary-to-fact conditional. I say that "if ..., then something both is and is not" means that the contradictory conclusion follows by the laws of logic. Of course, the premises of the reasoning from which it follows will have to contain other necessary truths, for the antecedent of the counterfactual to be shown necessarily true. The opponent will consider this a defect. My explanation does away with the reliance on counterfactuals only by relying on the concept of "necessity," which is the concept I was trying to explain.

But I was not trying to explain necessity in general; I was only trying to explain causal necessity. The opponent may reply that even necessity in general relies on counterfactuals. Necessity means the opposite is contradictory, which means that if the opposite were true, a contradiction would be true. No, the opposite may be directly a contradiction, rather than merely implying a contradiction.

Also, do I really need to "eliminate" necessity by defining it in relation to something else, e.g., counterfactuals; do I really need to "reduce" necessity to a certain use of counterfactuals? Again, the premises from which the contradiction logically follows will contain, together with the counterfactual assumption, necessary truths. So I don't claim to eliminate the concept of necessity.

Perhaps more to the point, however, or at least by way of illustration of the point, when I say "follows by the laws of logic," I mean for it to be understood that the laws of logic are themselves necessarily true. And among those necessarily true laws of logic is <u>modus ponens</u> itself, the very law that the opponent appeals to in accusing me of defining necessity by relation to counterfactuals. The referene to counterfactuals is germane only because I am using <u>modus ponens</u>, and I am using it because it is necessarily true.

What does it mean to say that MP is necessarily true? It means that, counterfactually, if it is not true, then something both is and is not what it is. And that means that its being not true <u>entails</u> that something is and is not what it is. Against this, the opponent will say that awareness of the necessity of MP does not require awareness of the logical relation of entailment (the supposed logical relation). She will say that it only requires awareness of how to apply the rules of a game with marks, the same kind of awareness required to apply rules

in games like checkers and bridge.

But I do not jump to the conclusion that my ability to apply rules in bridge informs me of truths of logic, of rules for valid inference, of the correct nature of judgments and propositions. I do not assume that knowing how to apply the rules of bridge is the kind of knowledge that answers the questions traditionally called questions of "logic," as opposed to questions of physics, medicine, psychology, etc. If MP is understood strictly as a formal arrangement of marks according to rules for the arrangement of marks, I must place an intepretation on rules like MP, or the rules from which the necessity of MP is derived, to understand MP as representing or functioning as or informing me about a necessary truth of logic. If, a la Hilbert, the formal interpretation of laws like MP did away for the need for the self-evidence of logical necessity, including entailment, then the laws of checkers should to the same thing for me. Rather, I so design, by conscious awareness, the rules for marks in a formal system, that I am aware that they can do at least some of the work I want logic to do, i.e., that I know logical relations like entailment do.

The bottom line is that I need contrary-to-fact conditionals to express the necessity of logical laws like MP. If MP is not true, then something both is and is not what it is. Either that, or I need the concept of necessity to explain counterfactuals. So one or the other cannot be eliminated and still keep the laws of logic necessarily true.

Logic, Formal Systems, Carroll's Paradox, 2-6-93

What kind of awareness is required to understand and apply the rules of a game like bridge, poker, or chess? For example, what kind of awareness is required to know that I win this hand because the rules state that spades are stronger suit than clubs? Whatever that kind of awareness is, it is that kind that is necessary, not only for doing the steps of a formal system, but for being aware of the value of formal systems.

Notice also that this way of putting the question, which only occurs to you now, is superior to the way that focuses on formal systems alone. Why? It is certainly superior because it is more general. But it is more general because it is more fundamental. That is, it is more fundamental because it does not focus on, it abstract from, characteristics peculiar to formal systems that are incidental with respect to the kind of awareness one needs to understand and apply the rules of formal systems, where "incidental" means causally incidentally, not causally necessary or not causative in regard to.

Logic, entailment, 1-25-93

Could there be a formal system in which the definitions of the operators did not parallel logical relations like conjunction, disjunction, or implication? Such a system would have to be multi-valued, since the definitions of the "truth" functions are just definitions in terms of any 2 mutually exclusive values, whether or not those values are truth or falsity. (But what does "mutually exclusive" mean? One has to be the negation of the other.)

But what if someone, say, someone in the 16th century, started off to construct a formal system in complete innocence of any attempt to emulate the laws of logic? For example, she may have been developing a board game. And let's say she came up with something that we would recognize as a law of detachment. For example, she may have defined the operator "^" such that when p^q occurs (either by landing on it or by a roll of dice) and p occurs (for similar reasons), we can use q as an occurence also. If she had used bi-valent tables to make these definitions, we could see that the occurence of "p^q" and of "p" entails by logical necessity the q occurs also. But we could also see a point that may seem similar but is really distinct: We could see that the relations her rules establish between "p^q", "p", and "q" are like, resemble, the relations between

the premises and conclusions of a logical entailment. For in both logical entailment and her rules, given certain antecedents, we can (or must) accept the consequence.

That these recognitions on our part are distinct, ie., that the relation of entailment we see between the elements of her rules and the relation expressed by the definition of "^" are not the same, is provable by the fact that other defintions can logically entail consequences, even though those definitions do not resemble the relation of entailment with respect to detachment. For example, if we give a bivalent table defintion of "*" such that when "p" or "q" occurs, "p*q" occurs, then, when "p*q" and the negation of "p" occur, we know that the occurence of "q" is logically entailed. But this relation is in a sense the opposite of "q"'s being entailed by "p" (or is it?).

So we cannot use mutually exclusive bi-valent definitions with out resembling logical entailment in certain respects. But what gives us license to use formal methods in logic is not just this resemblance but our awareness that the bi-valent definitions do in fact logically entail certain consequences. As a result, in consciously following rules, we are not just aware of following rules, but we are aware that the rules logically entail certain consequences. If we noticed that there was some resemblance short of logical entailment between a certain rule in a game and a logical relation, that recognition would not be sufficient if we did not also recognize that the application of the rule logically entailed its result.

That is the key. Recognizing a resemblance short of identity with logical entailment is not enough to justify formal methods in logic, we also have to be aware that the rules actually logically entail certain results. And any set of rules based on mutually exclusive bi-valent definitions will not only logically entail their results, but will resemble logical entailment and other logical relations in certain respects. So in any well-formed game, the rules logically entail their results, but not in any game do the rules resemble logical entailment in certain respects. For example, the relations defined by the rules of baseball or bridge do not necessarily resemble logical relation in those respects, thought they do logically entail certain results.

The cash value of "mutually exclusive" makes a parallel point, not for the logical relation of entailment, but for the logical relation of noncontradiction. It is not enough for the definitions of the formal operators to be bi-valent. For any game, bi-valent or multi-valent, when we assign a value, say M, to p, that assignment must exclude the opposite of M, even if M itself is a disjunction of opposite values, say T and F. So just as we must be able to recognize the rules as creating instances of logical entailment in their employment, we must be able to see the rules as instances of logical laws like noncontradiction. Likewise, there is no mean between assigning M to p and not assigning M to p.

Truth and Tarski and Limits of Formal Systems, 1-22-93

Tarski' definition of truth cannot possibly be useful in understanding truth for ordinary sentences. Tarski's account depends on his "Criterion of Adequacy" (see Representation and Reality, p. 67). That criterion makes the claim that certain sentences are provable in the metalanguage. Therefore, the metalanguage has to be defined rigorously; otherwise, there would be no useful notion of proof in the metalanguage. So three languages are involved. We start with ordinary language and define the metalanguage sufficiently to support the notion of proof and sufficiently for the metalanguage to define the language. But the concept of truth for ordinary sentences does not come into existence at a level removed from those sentences. And it could not come into existence at a level removed from those sentences. Any higher level we might construct, we would construct on the basis of the first level. Whether or not sentences on the first level are actually true, we would need to already have the idea of truth, and beliefs about truth, at that first level.

What Putnam shows in Representation and Reality is that Tarskian defintions cannot capture the notion of truth in natural languages, i.e., that p is true according to what p means in L. (And what does Tarski say about sentences with double meanings in L?

Logic, Self-evidence, P of NC, Quine, Putnam, May 15, 1994

It is not the insight into negation that is inexplicable, rather the failure to have that insight would really be inexplicable.

It so happens as a contingent matter of fact that there are necessary truths that we are capable of discovering, just as it so happens that the speed of light is constant in a vacuum or that motion is relative. The necessity of the truth is not contingent. But that we are capable of discovering that necessity is.

The logician need not recognize the preeminent place of the P of NC, but the philosopher of logic must.

Logic, May 15, 1994

Start with an example, analyze it in terms of knowledge caused by awareness of human constructs. After that, it is only a matter of sorting out and separating the extraneous questions about logical knowledge, e.g., criteria of identification, etc.

I have described a set of causal conditions, from which description it follows that, if and when those conditions obtain, we can <u>at that time</u> have knowledge of a logical truth and <u>later</u> can <u>know</u> that it is pathologically unreasonable to believe that we did not earlier have knowledge of that logical truth. (We cab know <u>2</u> things, can have two kinds of <u>knowledge</u>: a). . .; b). . .). Working backwards, those causal conditions are necessary <u>if</u> we are to have knowledge of logical truth. Working forwards, if those conditions hold, we necessarily have the kind of knowledge in question.

But it is also necessary that when we have that knowledge, we do not have it by deduction from knowledge of the existence of the conditions.

It is also necessary that those conditions cannot fail to hold, if certain other conditions hold (.e.g., other conditions such as are awareness of that for which "not," and "color", "red", "or," etc. are used. To the question, "But can the causal conditions in the first paragraph hold; do we know that they can hold, etc., we can answer: if we can know how we are using "not", "color," etc., the causal conditions in the first paragraph cannot not hold. And the causal conditions for knowing how "not," etc. are used, the causal conditions <u>necessary</u> for that knowledge, show that we can know that we know "not" only at that time (and later have knowledge that it is unreasonable to believe that earlier we did not know it) at the time that we have that knowledge <u>and by the fact that</u> we have the knowledge.

Logic, entailment example, March 20, 1994

The only error possible is a failure of <u>memory</u>, because what we have to understand to graps the truth are our own constructs. At the time, you <u>know</u>, you have knowledge. And later it can be pathological to think you were wrong then, pathological because unreasonable causally: it is unreasonable to believe the opposite of "I had logical knowledge then." What makes it unreasonable is what makes it unreasonable to believe that water only freezes in rooms with blue walls, etc., i.e., we would have to postulate more processes implying more causes than we have evidence for, or fewer than we have evidence for.

Start the answer to the punctiform phenomenalist here, at the intellectual level, not at the sense level. Then go to the sense level where we can "know" at a given time that it is unreasonable to believe the opposite of the propostion that I am now in contact with extramental existence.

Logic, September 21, 1993

Logic is the study of valid inference. But what is inference? Whatever else it is, it is a relation between propostions. But not propositions considered as psycholical entities. Rather, propositions considered as the states of affairs objectified by psycholocial entities, considered as objects we are made aware of by means of psychological entities. So the definition of logic as the study of valid inference leads right to the definition of logic as the study of properties and relations pertaining to objects of thought in their role as objects.

Logic, thing/object, validity, August 4, 1993

Logic concerns the laws of valid inference. But what is "valid inference"? It is a relation between propositions. But what kind of relation? A psychological relation? No. A relation between propositions as bearers of the logical relation, truth. Truth is a relation between what is objectified in a (psychological) proposition and what exists in reality. Validity of inference is a relation between the object objectified in this manner (All A is B) and the object objectified in this manner (all B is C). Walidity depends upon the relations belonging to A, B, and C <u>as objects</u>. That is, validity depends on whether we are objectifying all As and Bs or some As and Bs.

Universals, Sets, Logic, 6-18-93

Explaining universals by set membership is circular, because we have to use universals to define the members of sets. E.g., every person in this room. Even "in this room" relies on the universal term "room."

Existence, logic, EAP, Putnam, truth, etc. 6-13-93

Remember the programmer, Ed, who said "This doesn't match reality"? This shows both that reality is the opposite of a logical concept; it is that to which our logical constructs must be compared. But is also shows how reality can be mistaken for a logical concepts, since we objectify it as term of a logical relation, truth.

Adler-U, logic, math, 3-21-93

The chimps adding symbolicly on television. How many times in doing my checkbook or taxes have I <u>calculated</u> correctly but performed the wrong operation for the value I needed to get, i.e., I added when I should have subtracted or vice versa. The point is that the kind of knowledge required to know whether a value should be added or subtracted from another is of a different kind from the knowledge involved in knowing that a calculation is correct. The former kind of knowledge is reasoning, causal reasoning.

The opponent will say its just a more complicated algorithm, or a "higher-level" algorithm, from the algorithm for calculating, and calculating is also a kind of causal reasoning. But consider the example from the First of Michigan statement, where I couldn't figure out why the commission was added in one case and not in the other. The answer was that one case meant to show how much went back into my pocket, while the other case meant to show how much went out of my pocket; so the first case subtracted the commission, while the second case added it. Now this is not a matter of an arbitrary algorithm. Rather, the algorithm was designed because of the results desired and the nature of the steps needed to get that result. To show what went back into my pocket correctly, you cannot include the commission from the sale; to show what went out of my pocket, you must include the commission. These are necessities determined by the nature of the effect and of the means used to achieve the effect. The algorithm must reflect

those natures; reasoning demands this. So it is reasoning; not just calculation. Calculation just deal with abstract causal relations, adding to and taking from, regardless of the natures underlying the quantities added and subtracted, the natures that determine which abstract causal relation is relevant in each case.

"Understanding" the abstract causal relations of adding to and taking from is different from understanding the natures that determine whether to get a result of a particular nature you must add or subtract a quantity of one nature from a quantity of another.

Logic, entailment, 3-14-93

The best place to start appears to be a discussion of entailment, but how get from there to characteristics of objects and objects? Perhaps the objects known in three propositions can be said to have relations of entailment only as objects of human knowledge. Entailment is not a relation between states of affairs outside of the mind (but one state of affairs's resulting from another's is something that holds outside of the mind; still that causal relation is not what we judge to hold when we judge that an entailment is valid: we judge a relation between truths). Is the fact that inference or entailment appears to be something that pertains to the objects of cognition as such contradicted by the fact that computers can judge validity of certain proofs? First, entailment is not the same thing as validity of proof. And computers only go through the steps of a "formal" proof. But whether those steps are gone through by us or by a computer, in order for us to connect that process with what we know to be validity of inference, we have to be independently aware of what that relation is. Maybe Quine's presentation of Carroll's paradox shows this.

Maybe the computer example is a good one. The computer comes back with the marks "This inference is valid." We have to connect those marks with what we would mean by them? How do we know the connection between the computers marks and what we mean? We have to understand the steps in the program that the computer carried out. That is, we have to be aware of what the steps in the program are <u>and</u> of how the steps relate to logical principles whose necessary truth we are aware of.

The bottom line is that is being aware that x and y entail z, we are aware of the necessary truth of that assertion. (Also, maybe the absence of a decision procedure is relevant, i.e., the computer can carry out a decision procedure but cannot determine any other kind of logical relation.

Existence not logical, truth, 3-19-93

I tell Jesse defining existence by truth makes to be equivalent to being known. He replies by asking whether it was true that there were dinasaurs when there was no one around. When there were no knowers around, all there was was the state of affairs of dinosaurs existing. At that time, there was not also the logical relation of truth, which relation exists only in the apprehension of knowers. The (solely intentional) existence of the relation of truth presupposes the existence of statements. We can form statements by which we say that it <u>is</u> true that there <u>were</u> dinosaurs or that is <u>was</u> true that there are dinosaurs. But the latter formula (it was true that there are dinosaurs) is not meant to assert the prior existence of the statement that there are dinosaurs. It is meant to assert that the statement we can <u>now</u> formulate (there are dinosaurs) expresses an existence, a state of affairs, that did hold sometime in the past.

"There are dinosaurs" expresses a state of affairs that did hold sometime in the past. That does not mean we can define existence in terms of the truth of that statement. Rather, the reason we can speak of something's being true when there were no knowers around is that truth is defined relative to existence. So even conceding Jesse's point, on any interpretation of it, existene cannot be reduced to the truth of statement about the past.

5-26-88

Formal Systems

The problem of universals is not the problem of whether we should quantify over sets. In fact, the realist treatment of universals, diacritical realist, implies that we should NOT quantify over sets. Sets are logical entities; they have no extramental existence. Neither do universals; or neither does universality.

Natures exist only as natures of individuals. But our concepts relate to those natures in such a way that the characteristics those natures owe to matter, to component causality, are irrelevant to the relationship, do not enter into the relationship. Thus the kind of component causality that individuates natures must not enter into the subject who forms the concepts (psychological entities) by which we relate to natures such that what the natures owe to component causality does not specify (as a specifying cause) the relationship, or does not characterize the nature precisely as what terminates this relationship. Concepts are individual also, but not material. The only thing that "is" universal, is something that has existence as a cognized object only, because it has existence as a relation holding between cognized objects as a result of different ways in which they are cognized and as a result of differences between what the nature owes to matter and what characteristics of the nature enter into or terminate the relation by which concepts cognize those natures.

Formal Systems - philosophical limits of
3-27-89

The formal approach to philosophical problems has no successes. Not one. Hempel's disproof of the verification principle? First, I do not accept it as proof. Second, If it is is proof, it is a proof that another attempt to apply formal methods in philosophy is unsuccessful.
Rorty admits in The Linguistic Turn that there have been no sucessess. His later work can be interpreted as the claim that we shouldn't look for any successes, i.e., there reason there have been no successes is that there shouldn't be any, and we shouldn't look for them.

The point in his earlier work was that all the linguistic turn had done was to put all previous philosophy on the defensive. But the burden of proof had always been there, so what's new? Perhaps what's new is that "putting on the defensive" means all philosophy must henceforth be done this way even though this way has not yet achieved anything, ie., the belief that if there is anything to be achieved, it will be by these methods. But when and how has that belief been demonstrated. It's not a demonstation, its a program; its an act of faith in a program, an expression of a preference for a program; that's all.

Rorty's later work, "The Mirror of Nature," says, in effect, if there were anything to be achieved, it would be this way, but this very method shows there is nothing to be achieved.

It's time once again for philosophy to bury its skeptical undertakers.

Logic - Entailment
7-30-90

The paradox of contradiction entailing anything results from a use of SUBSTITUTION, a use that violates the laws of logic. Substitution is one of the operations essential to the use of formal methods in logic, that is, proving logical truths by using formal languages and abstract formulas on which you operate according to rules, rules which save the truths of logic. If you can't use substitution, you can't get anywhere. But if you can substitute a contradiction, you violate the rules of logic even if you do not violate a rule explicitly formulated for the formal system. This shows a limitation on formal method. There is nothing wrong with it, only it cannot capture all of what logic, that kind of knowledge called "Logic," is.

Math/Logic/Formal Systems

10-21-91

Why philosophical abstraction differs from mathematical. Ask, why is it so hard to do arithmetic in your head? To do that requires operating on symobls. You can do metaphysics in your head, but you cannot do metaphysics by operating on symbols. Metaphysics requires *understanding* that which words are used for, not just understanding rules for manipulating strings of words. Doing arithmetic in the head requires no understanding beyond the memory of mechanical rules for combining, replacing, and detaching strings of marks.
Symbolic logic is like a model, map, relative to logical essences, where "logical essences" means relations to objects of knowledge "as" objects of knowledge or terms of knowledge relations, where "as" means relations resulting from and for the sake of objects of knowledge being objects of knowledge. Or symbolic logic *deals with* objects that are models or maps relative to logical objects.
As such symoblic logic can reveal many important aspects of logical objects, just as maps can. But to think that that is what the understanding of logical objects consists in is to think that geology consists of cartography. Cartography can be very useful, even essential, in geology, but geological understanding does not consist in cartographic understanding.
Maybe I should say formal systems are like models or maps and by studying formal systems, symbolic logic studies something that relates to logical objects the way maps relate to the objects of geology.

Communication and Difficulties/ and Logic - entailment
7-30-90

After talking to Deely about paradoxes associated with conditionals. To avoid paradoxes, we need an Archimedian solution. That is, we need a place to stand; we need a foothold. For example, to talk about "entailment" or "Logically following from," we can't start by offering a definition that supposedly covers all cases. That only gets us into paradoxes.
Rather we can say: the following *sometimes* occurs, namely, that logical relations between p and q make it impossible for p to be true and q not to be true. That occurrence is what we have the phrase "logically follows from" in our language for. And such occurrences are what we study in logic. We use another definition of "if...then" as an aid to studying entailment, but entailment is what we are interested in.

Likewise, it sometimes happens that "if P then Q" is used to assert a necessary connection between P and Q, even if each of p and q is false. We don't need to say there is one use for counterfactuals, some Platonic essence of them.

These are examples of places to stand, footholds. The problem is that to find a foothold enabling you to avoid a paradox, you have to dig through 2500 years of manure (paradoxes). And once you find the foothold, you have to stand in the manure (i.e., you have to do the de jure unnecessary work of showing how the paradoxes, which de jure should not exist, can be avoided.)

In other words, you have to find the right place to take a stand, the right place to fight, and not waste time fighting the wrong battles. Once you have a foothold, the trick is to go out from it only as far as you are justified in going *and* that you need to go. The opponent will try to say that to do what you want to do or say what you want to say, you need to go farther out from the foothold than you are justified in going. The problem is that we can accept the opponent's statement of the problem and try to show that we are justified in going further than we really need to go. Thus, we might try to come up with a criterion for recognizing entailment in all possible cases, or with laws that entailment follows, etc., because we think we need to do this to answer the opponent. The reality is the opposite. The reason for the paradoxes in the eyes of the opponent is precisely that she thinks we need to go out further from the foothold than we really need to go.

Thing/object

7-25--91

When I attribute "man" to an individual, universality is a characteristic attaching to what I attribute but not entering into what I attribute. For it attaches to what I attribute from a persepctive that differs from the perspective in which I am attributing it. Universality is a logical relation describing what is known from the point of view of the knowledge relation by which it is known, describing the term of a knowledge relation from the point of view of the knowledge relation, not describing what the term must be in itself in order to be the term of a knowledge relation.

Universality is a logical relation attaching to what is known in order that it may be what is known, but it does not belong to what the term of the knowledge relation is prior to being known. It does not enter into what the term is known to be in itself. Abstraction is a logical relation characterizing being as term of a knowledge relation, but it does not enter into what the term of the knowledge relation is nonreflectively known to be, what it is known to be in itself. Therefore it is not in contradiction to the concreteness that we know being necessarily possesses whenever it is actualy exercised. Abstraction is a logical relation attaching to what is known in order that it may be what is known, but abstaction does not enter into what the term of the knowledge relation is known to be when it is so known, i.e, when it is known in the way characterized by abstraction. Otherwise, the term would never be the term, for it would be altered by the knowledge relation; and the term of the knowledge relation would be something else, the result of the alteration. Abstraction and universality do not enter into what is FIRST known about the term of the knowledge relation that endows the term with abstaction or universality. For if they entered into what is first known, there would be an infinite regress, since they are logical relations resulting from a knowledge relation. So if they are first known, there is another knowledge relation preceding the first.

They are features we can attribute to the known resulting from its being the term of a knowledge relation. But what is first known does not result from its being the term of a knowledge relation. So they do not enter into what is first known. They do not enter into what it must be in order that it become the term of a knowldge relation, namely, something other than what is described

by "a term of a knowledge relation."

Logic, entailment, inference, 3/9/95

Title: Inference. Simultaneous Awareness that All A is B and All B is C causes awareness that All A is C. Inference is a relation defined by reference to the causing of knowledge. Validity of inference is a relation defined by reference to truth. Knowledge and truth are not identical.

Logic, P of NC, February 20, 1995

It is sometimes said that only one thing is unique about the P of NC, namely, that without it, everything follows. Quote Russell on this. In fact the argument that everything follows from contradiction is invalid. And the argument showing why it is invalid also shows what is unique about the P of NC, ie., it expresses the work that the relation other-than or different-from does. Without that work, we can't make any inference that depends on a logical relation that, in turn, depends on negation. And all sentential or truth-functional relations depend on negation.

Paraconsistent logics use a relation other than negation in their paraconsistent portions. So far I have said nothing about "meaning". I could have said that the "meaning" of negation signs in paraconsistent logics is different from the "meaning" of the signs I have been using. I do not need to talk about meaning, but there is nothing wrong with than. as long as the following rules apply: 1)awareness of what negation (the relation other-than) is is not lexicological awareness of the happenstance that that relation is what a certain mark is used for; so awareness of meaning required for logical truth is not lexicological awareness. We can be lexicologically mistaken (e.g., by thinking "not" is used the way we use "or" -- and their can be behavioral evidence for this), and logically correct. 2) in non-lexicololgical awareness of meaning, the awareness is something "mental" is a psyghological sense, but that of which we are aware, the "meaning" need not be mental in that sense. Logical meanings may be mental in the sense that they are only objects of awareness, but they are not mental in the sense of . ...

I.E., Wittgenstein, Truth, Logic, February 20, 1995

In the Tractatus the identity is between a logical form and a real form. But in The Blue Book and the Philosophical Investigations, the identity the opponent wants is between the thing which exists outside the mind and the thing which exists inside the mind. Why else would the opponent want to say that Mr. Smith or the gun's report exist in our thoughts, unless she wants to say that what is within our thoughts is identical to what exists or is wished to exist outside our thoughts. But here there is no question of logical form.

Putnam, Meaning, Reference, Truth, Logic, Thing and Object, 10/21/94

When P says that reference is determined, in part, by the world, i.e., by what exists, he is implicitly affirming the doctrine of the identity of object and thing, ie., of object and what is more-than-an-object, i.e., what exists extraobjectively in the world. Or at least we can say that the identity of thing and object is a necessary condition for the truth of what P says about reference being determined by what exists.

Does word ôFö in Theory T refer? Huh? Do you mean is the sentence ôAn F existsö true? The last question seems to make truth prior to reference, i.e., reference would be defined in terms of truth. But the opponent would come back and say that in order for a sentence to be true, it must have a logical property by which it makes a claim about the physical world, say, rather than about mathematical objects or logical constructs. Yes, there must be such a logical property. But that is not the same thing as reference, if you mean by FÆs referring the fact that an F does indeed exists. Rather the logical property some terms in the sentence must have is one that enables it to merely make a claim about physical existence. That is, for the sentence to be potentially true or false, it must have a property which fixes its claim to be a claim about physical existence or whatever.

Whatever that property is, we do not have to answer all questions about it. Maybe itÆs what some call supposition or designation, or ôreferringö. But we need not know, for purposes outside of logic itself, whether the whole theory, e.g., of supposition is true.

Also, we need to distinguish the question of what kind of claim a sentence makes from the question of how we epistemologically know what kind of claim it makes, just as we must distinguish the question of whether a sentence is true from the question of how we know it is true.

Also, we must distinguish the question of what kind of claim it makes from the question of whether the existential quantifier has different functions. To know whether a sentence is true, I need to know what kind of evidence is relevant to its truth, i.e., what kind of evidence would exclude the opposite from truth.
The kind of evidence that is relevant to its truth is determined by the kind of claim it makes. But I can know, for instance, that ôThe human is a speciesö makes a diffeent kind of claim from ôThe human is a rational animalö without answering the question whether ôA species is a logical relationö talks about a
domain that exists in a different sense of existence than does ôA rational animal is a body.ö In fact, there are at least two kinds of questions about the existential quantifier that I do not need to know the answer to in order to know what kind of evidence is relevant to the above

claims of different kinds. For I can negatively anser the question whether ôexistsö has more than one logical function, while affirming that ôexistsö has more than one extralogical value associated with it, a cognition-independent value and a cognition-dependent, but not narrowly ôlogicalö value.

Logical Relations, 8-22-94

A relation whose nature is such that one of its terms, or its bearer, must have the characteristic "known" or some characteristic derivative from the characteristic "known,", e.g., truth. But doesn't that description apply to negation as well? And if we add that the relation is for the sake of knowledge, doesn't that broadly apply to negation as well? What if we say, not just that the term or bearer must have the characteristic "known" but that the term or bearer is that characteristic itself, for some derivative of that characteristic? If we say the latter, can we say that logical relations terminate in what things are, since our initial objects are identical with things?

Logic, PNC, Formal Systems, 3-17-95

The PNC looks like just another logical truth to the propostional calculus.
But that just *demonstrates* one of the limitations of formal methods, as
indispensable as the absolutely are, in logic.
Similarly, quantum mechanics and the space-time continuum have been
held to demonstrate the inevitable limitations of examining physical nature
by mathematical methods. Thinks of simultaneity. Or think of the paradox in
quantum mechanics of zero particles having non-zero energy. (See the
discussion of zero of this date, 3-17-95.)

Logic, PNC, 11-17-94

Title: Metalogic (a branch of metaphysics). The need for metalogic proves the need for metaphysics, defined as something more than empirical knowledge. and the need for metalogic is itself proven by the argument showing the fundamentality of the PNC vis-a-vis the argument that everything follows from contradiction.

PNC, Logic, Formal Systems, Putnam, 6-16-94 BIG

If the PNC means what it says, then to contemplate denying it (e.g., in the future because of science, or in a fomal system) is to contemplate affirming it and denying it. Because that's what it says, i.e., that you cannot affirm and deny the same sentence. If you try to get around this by invoking the meta-language/language distinction, you show the limitations of that distinction. We are, in effect, making a rule in our ordinary language that any proposition but this one can be affirmed and denied simultaneously. This one can only be denied. And that in itself shows that the PNC is unique; it is, after all, something special.

Or if, using the metaL/L distinction, you say, it's only the group of formulas to which the PNC applies that can be affirmed and denied, then you are saying that negation signs do not have the same function in that group that they have in the group to which the PNC belongs. Either that or the value you are both affirming and denying of them, e.g., what the word "truth" means, is not the same value that we affirm or deny at the PNC's level, or in its group. So

all you have done is change the subject in the group to which the PNC applies; you are using similar symbols for different purposes. And when you "affirm" and "deny" in that group, you are not really doing what affirmation and denial are at the PNC's level.

Logic, math, metalogic, formal systems, principle of non-contradiction, Trinity
Nov. 24, 94 BIG

In what sense are multi-valued logics governed (Causal Realism, p. 199), the same common principles that govern our discourse about extralogical things? For one thing, our knowledge of the truth (or validity or whatever) of statements within (or about or whatever) multivalued logics, presupposes the principle of non-contradiction as the term of a reductio ad absurdum. And our knowledge so presuppposes that because those statements could not be true (or valid or whatever evaluative concept we use) if they did not conform to the PNC.

Formal systems do not capture the centrality of the PNC, as my critique of the argument that everything follows from contradiction shows. Quote Russell about formal systems showing that the PNC is just another principle. My argument shows that many and perhaps most of those other principles do not work without the PNC.

Jan. 20, 95

One person can have exactly the same representative content in two different experiences and yet know, through what is represented by "This is a unique, unrepeatable, individual," that what she knows through each of those experiences is a unique, and hence distinct, individual. What makes this possible is the fact that "unique, unrepeatable, individual" is a universal concept, or rather a combination of three universal concepts.

As the above paragraph illustrates, logic is like metaphysics in that its concepts apply, or can be applied, to any object. Precisely because they can be applied to any object, their intelligibility does not depend on the content of this object or that, the features interior to this object or that. So we can understand these logical concepts without understanding the interior features of any specific object to which they apply. And since we can so understand them, we can represent them, express them, as relations to terms, which terms have no content other than being terms of these relations.

In this logical relations are like the objects of mathematics, where we can represent the terms of relations as unknown quantities. But in math, the goal is to make the values represented by those variables known. That is not the goal in logic.

Still the objects of math and logic are alike in another respect. We not only can represent the terms of logical relations as pure terms, represented as nothing more than terms of those relations. But also, in both math and logic, the relations "correspond" to operations, operations leading to results. And getting to those results by such operations is the business of these disciplines.

Other relations, e.g., similarity, can be understood without understanding the specific features of their terms other than as such terms. Thus we can say, "Assume that A is similar to B." But we cannot make progress concerning similarity by defining operations "corresponding" to this relation and then performing those operations. But that is what we do in math.

The operations, of course, and the roles of these operations in math and logic, are different. In math the relations are imagined causal operations. These imagined operations are used to objectify different quantities. We do not objectify two as the number of eyes a normal human has but as the result of adding one to one. It is this method of objectifying quantities, ie., as the result of these imagined causal operations, which operations are defined solely by their relation to quantitative values that abstract from all other features, that

defines math and makes the truths of math all necessary truths.

In logic the operations lead to the production of formulas, strings of marks, that "correspond" to truths about logical relations. They only "correspond" to truths about logical relations, because formulas play a different role in logic than they do in mathematics. The formulas of math are a tool in physics, but they are not a tool in mathematics. Rather, they and the knowledge of their truth is what constitutes mathematics. The formulas of formal systems and their derivation do not constitute logic. They are a tool of logic the way the formulas of math and mathemtaical derivations are a tool in physics.

But can we abstract from the use of formal systems in logic, consider the construction of formal systems for their own sake, and compare that activity of construction and the knowledge associated with it to the knowledge of mathetmatical formulas. Yes, and that is important, but we must keep in mind that this study does not directly inform us about the nature of logic anymore than the study of math directly informs us about the nature of physics.

In formal systems, we define operations that result in combinations of marks. In math, we define operations that result in certain quantitative values. In the resulting formulas of formal systems, variables are not replaced by constants. The purpose is not to replace a variable with a constant. If that were the purpose, formals systems would no longer be useful for modelling and representing logical relations. They can represent logical relations precisely because logical relations abstract from the specific content of their terms and thus apply or can be applied to all objects.

In math, the goal of the operation is to replace variables with constants. Math also uses formulas abstracting from specific contents, quantitative contents. But math does so in order to arrive at formulas containing specific quantitative contents. The quantity still abstracts from any association with non-quantitative characteristics, and so is formal relative to the characteristics studied by physics. But in math, the formulas express causal operations leading to results whose nature are not themselves causal. Because their nature is not themselves causal, ie., because they abstract from all causal characteristics except for these imaginary ones, the truths are necessary. No other causal factors are present to change the results. That which they abstract from and that which physics studies are precisely causal conditions producing changes that are irrelevant to mathematical causal relations, changes which therefore are not changes affecting math truths. So math truths are not subject to change.

Unlike the formulas of math, the formulas of formal systems do not express causal opertions (just as quantitative values are not causal relations). The rules of the system express causal operations resulting in formulas.

3x3 = 9. This is necessary while "The number of the planets is 9" is not necessary. Why? In the first case, the diverse objectification comes from the hypothesis of the carrying out of an imaginary causal operation, a causal operation whose positing does not require any physical causes whose existence is contingent, a causal operation that knowably cannot not yield one definite resutl (even before we know what that result is) because the components used, the operation of addition and numbers defined by the operation of counting, are knowably such that they must always yield the same value, even if we do not know what that value is. And Goldbach's hypothesis must always be either true or false, because we know in advance that a prime number must always be a prime number, and an numbers factorials must always be what they. Once they are X, they must always be X.

Jan. 21, 95

Non-contradiction article. What kind of knowledge do we achieve when we grasp the truth of my argument? Validity of my argument and the truth of its premises? Logical knowledge, since formal methods are only a tool ok knowledge and not the whole of it.

We think that, as philosophers, we get back to foundations, but the example of the treatment of non-contradiction shows that we do not get back to our own foundations. For Quine, Putnam, etc. assume they are saying something, while Aristotle shows that they are not.

Feb. 14, 95

Trinity, Logic, Formal systems, BIG

Assume my discussion of the Trinity works. The discussion is essentially meta-physical and ontological, not logical. But our knowledge, which we are capapble of having, that my argument works shows that we have an implicit grasp of logical principles that permit what would otherwise be violations of the transitivity of identity. We need not be able to articulate those principles, anymore than a person, say a child, who recognizes the validity of a syllogism (can chimps do this?) need be able to articulate a law expressing the validity of syllogisms of that structure.

The next step would be to try to articulate this principle. This would be entirely comparable to coming up with concepts like supposition and ampilation to express different causes of the truths, and our knowledge of the truths of appar-ently similar sentences, so that invalid inferences are known to be blocked by fallacies of equivocation. These concepts would be employed in the formulation of logical laws.

A final step would be to try to construct a formal system in which these laws could be arrived at by rearrangement of symbols according to rules of formation and detachment. This would probably be the kind of thing Chuck Kelly is doing. While this would be a very interesting and even important thing to do, doing it would not be necessary in order for us to possess the kind of knowledge described in the previous two paragraphs. And that illustrates the relationship of constructing formal systems to logical knowledge and ontological, metaphysical knowledge.

PNC, Formal Systems, Mar. 25, 95

The most fundamental form of the PNC for logic is that it is impossible for some object (quod) to be or not be (to have or not have) of some character (some characteristic). The impossibility of a sentence's being both true and false is just a case of this. A sentence is one kind of object and truth or falsity is one kind of characteristic. This thought comes out of reflection on the fact that a multi-valued logic or "paraconsistent" logic only works if a sentence cannot both have and not have the additional value, M, i.e., the value allegedly in addition to truth.

The opponent will say that the sentential form is more fundamental. Why? Because logic is supposedly the most fundamental. And logic is about the truth of sentences, since the truth of sentences is the goal of intellectual endeavor. But the preceding statement only holds if it is talking about sentences, period, not about sentences in language L or L1. The opponent's idea would be that the PNC holds for any language for which the formulas of system L hold. But what must be the case for <u>any</u> system L is that the PNC hold for the so-called "metalanguage," whether or not the PNC appears as a formula in L.

The PNC must hold for any metalanguage because it must hold for any sentence in any language that can have a truth-value. And it must hold in any system, not in the sense that the system contains it, but that the assignment of any value within the sysem cannot be accompanied within the system by the simultaneous non-assignment of that value. The formulas of any formal system constitute, together, just a model of the logical relationships that hold where the values of truth or falsity are possible, ie., hold for the sentences of any language.

It is correct that knowledge of the truth of sentences is the final cause. But it is the final cause because, in sentences, we objectify objects other than sentences and objectify those objects as having or not having characteristics. The reason contradictory sentences cannot achieve the goal of truth is that the objects they objectify cannot both have and not have the same characteristic. It is not that those objects cannot both have and not have the same characteristic

because, if they could, the sentences objectifying them would be both true or false. That is putting Descartes before the horse.

It is correct that the necessity of the principle arises from the use of the cognition-constituted relation of negation. But there is no reason why that relation cannot be used in the objectification of objects other than sentences and so used before it is used for sentences. In fact, that relation arises (causality other than final causality is the analysis here) as soon as we are aware of two objects that are in fact not the same: two fingers, two trees, a finger and a tree, etc.

Check out the truth table for negation signs in multi-valued logics. If the negation sign has the same meaning, i.e., still means the relation of negation, than the PNC holds, and the signs for the affirmed and negated values do not mean what "true" and "false" mean.

May. 30, 95

Why is what can correctly be objectified as other than X necessarily non-identical with what can be objectified as X (or by "X")? If by "necessarily" we mean why does it not have to stay objectifiable as other than X, maybe it does not have to stay objectifiable by "other than X." But it is necessarily the case that if and when something is indeed objectifiable by "non-X" that it is not also what can be objectified as X. Why?

Because if not, the what is objectifiable as non-X would at the same time not be objectifiable as non-X. It would not be <u>identical</u> with itself (so identity is primary). But that <u>seems</u> to just reduplicate the principle. And perhaps it does reduplicate the principle. The point is that that is just what negations do, that is their function, e.g., to negate what is objectified as X or what is objectifiable by X. As long as that negation holds, the opposite does not, by hypothesis; for negation amounts to the hypothesis that the opposite does not hold.

To really deny the PNC, a principle would have to allow a proposition to have value M and not have value M.

BIG:

My argument against contradiction implying everything has many implications. Think of how Chuck Kelly laid out the arguments as steps in a formal proof. Impeccable. That shows that awareness that the a formula resulting from such a proof is a logically valid formula is not <u>caused</u> by our awareness that each step in the proof satisfied the rules. For Kelly showed that that argument satisfied the rules, and we were both aware that it satisfied the rules. Yet we could still be aware that the conclusion was not logically valid. Why? because we were aware that one combination of premise (contradiction) and rule (disjunctive syllogism) was not logically valid. Rather, awareness of logical validity is caused by awareness of the fact that the primary rules are logically valid and are consis-tent with the premises.

Jun. 9, 95

The formal <u>language</u> approach makes <u>models</u> representing logical relations, not propositions true of logical relations by identity. These models are good, but there value is limited.

PNC, Jun. 9, 95

The formal system approach does not capture the fundamentality of the PNC. I.e, the PNC is not just one formula among others.

Logical truth, logical relations, logical inclusion, alternation, Jun. 27, 95 BIG

Maybe the necessity of p -> (p V q) does not derive from logical inclusion but from the fat that p V q differs from p solely by the addition of a CDO "V q". This way out, though, would have to explain the fact that q may make reference to a reality other than p does. We would have to say that the reality referred to enters the differentiation of objects in an incidental, a non-essential, way. The logical relation expressed by "V" makes it incidental what follow next. That is just the nature of what we express by "V". where "nature" means: that just is what we happen to express by "V". That is, alternation happens to be an open-ended logical relation where what comes next does not matter as far as content goes (assuming that the content is a content, and not a contradiction, i.e., assuming that the content does not violate some other logical relation; so it is non-logical content that is in question, since we are contrasting that to the logical relation of alternation). "Or" is the exact equivalent for "or something," where "something" this time is a logical placeholder for, by hypothesis, any ontological content.

Logic versus ontology

Is "something" a logical variable, or is it an ontological variable? Yes and no to both questions. Since it belongs in language it is logical and grammatical. But since logical relations terminate in non-logical values, the word-function of something is equivalent to "any non-logical value; any value that can terminate a logical relation, including especially non-logical values".

Logical Relations, Jul. 21, 95 BIG

The theory of logical relations in Causal Realism is meant to do two things. (A) Imply that if such logical relations occur, some truths cannot not be true. (B) Imply that, when we are aware of some objects, we cannot not know the necessity of those truths. I.e., (A) if there are relations with such and such properties, then truths diversely objectifying things in the following way cannot not be diversely objectifying the same thing. And (B) we are aware of certain objects, we cannot not be aware of relations with those properties holding between them; so that we cannot not be aware of the necessary truth of the identity of those objects.

PNC, formal systems, Aug. 11, 95 BIG

Formal systems are models that cannot capture the fundamentality and centrality of the PNC. In the propositional calculus, the PNC is just one proposition among others

The formal system approach makes models representing, sybolizing, logical relations; it does not make propositions true of logical relations by identity. To know the truth of propositions about logical relations, we do something more than construct and understand models. Those models are good things; they have value, but limited value.

Formal systems, Jan. 4, 94

A sentence, e.g., the principle of noncontradiction, conveys some extralinguistic value, some meaningT. Are the formulas of a formal system to be interpreted as conveying an extralinguistic value or not? If not, they are philosophically irrelevant, except as objects of study, just as any object can be relevant for philosophy to study. If so, it is irrelevant whether the formula is in the metalanguage, the language, or in some other language. It is what the language

conveys that counts. And the logical p of NC conveys that contradictory sentences of any language cannot both be true, ie., that what contradictory sentences convey cannot both be true, where true is a value that is not confined to this language, its metalanguage, or any other language. True is logically fundamental, as Putnam says somewhere in "The Meaning of Meaning" or in one of the other essays in that volume that I glanced at this Christmas.

Remember true "in language L" is not part of Tarski's definition of truth for language L.

Analyticity, meaning, convention, Ashley, Phil of Nature, Jan. 4, 94

Analyticity and necessity have little, if anything, do with convention, with stipulation, with invention and opposed to discovery. A proof is that the rules of a game, e.g., chess or monopoly, unlike the laws of logic and math, are not necessary and do not generate necessity. The laws of logic generate necessary consequences from the rules of games, but the rules of games themselves do not have, nor do they generate, necessity. So stipulation, as in making rules, is not what analyticity is all about.

Also, Ashley cites Harvey's syllogism as an example of demonstration in science. But the first premise, "Whatever fluid ..... circulates" is not a necessary or self-evident truth; it is just a verbal defintion of the word "circulates."

Logic, formal systems, Frege, existence, 4-23-93

Supposedly supplying a value for x in Fx, or quantifying over x, gives Fx the value: true or false. Actually, it only gives "Fx" the value true or false. It gives Fx (or Fa), without the quotation marks, the value of existing or not existing, or some other value than true. Maybe existence is not the appropriate way to describe the value. But if it is not, that only provides further evidence for the inappropriateness of the metaphor of considering a proposition a function of an argument. We cannot even name the value that the function Fx takes. And it should be Fx, not "Fx" that takes a value, since whatever value "Fx" has will depend on, as deriving from, the value Fx has, ie., what is expressed by "Fx."

Math abstraction, logic, formal systems, phil abstraction, 2-20-93 BIG

In math and logic, "abstraction" means, among other things perhaps, leaving aside the content of a <u>term of a relation</u> and viewing the term solely as term of a relation, and not as having any other content, i.e., no other content than as term of relations conceived as pure relations, relations that themselves do not have a content beyond that of being ways things other tham themselves, things, whose content is left out, are related. In philosophy, we recognize that things are material relations and terms of material relations, but these terms are not conceived as pure terms having no other content. And where math and logic view the relations as pure relations, not primarily as entities that are more than relations, the objects of philosophy are precisely viewed as objects that are more than relations, objects with a content making them more than relations, which content is precisely <u>not</u> to be abstracted from on pain of intellectual failure.

Wittgenstein and Maritain, 2-15-93

For publication, make the first section into a separate article: Truth and Logic in Wittgenstein and Maritain, and use the article to do a bottom-up definition of logical relations and, hence, logic according to M. Note the alternative to the "Laws of thought/abstract objects" dichotomy; note that formal method is an indispensable tool, like math in physics, but only a tool, like math in physics.

Logic, Formal Systems, Entailment, 2-9-93

In defining a necessacy causal relation, I use a contrary-to-fact conditional: If X exists and Y does not exist, X both is and is not what it is. Does this put me in the paradoxes of material implication, i.e., that a conditional is always true as long as the antecedent is false? No because the conditional would be materially true if the antecedent were false and consequent was false. But I am claiming that the consequent, that X both is and not is, must be true when the antecedent is false. Of course, that claim has to be justified. Even more fundamentally, can I say what that claim means without getting into material implication, since the claim uses a counterfactual?

What the claim means is that from the premise that X exists and Y does not exist, together with other true premises, it follows by the laws of logica that X both is and is not. For that is what has be shown to defend the claim, i.e., that the opponent cannot avoid the conclusion that X both is and is not, where "cannot" refers to premises the opponent wishes to hold true and to the laws of logic. In order to say this, do I have to be referring to the laws of logic other than material implication? No, I am specifically referring to the case where the consequent is shown true, so I mean whatever laws get the consequence that the consequent is true, whereas material implication does not determine whether the consequent is true or false. Certainly, the burden of proof is on the one who makes such a claim, but if he cannot carry that burden, the fault is in his argument, not in his use of material implication per se.

But notice that there seem to be those in philosophy who would immediately jump on the occurence of the counterfactual to criticize my position, for that reason, as being "scientifically disreputable." (The reference to science is like Frege saying that arithmetic totters, not that his theory of arithmetic totters; counterfactuals are disreputable by some theory of science. Science needs dispositions, tendencies, as Simon argues in Prevoir.) This only shows that they do not take the time to think about what their opponent is claiming.

Also, the "laws of logic" are supposed to be independent of the truth-value of the premises; they are supposed to say "If the premises are true, this conclusion is also true." Truth functional logic may appear to go against the spirit of this, but a truth-function, e.g., p V q, only enters logic as a premise that is itself assumed to be true, even though no assumption is made with respect to which its components is true. The same goes for p -> q. What makes that formula interesting and useful as a logical tool is that we can assume it to be true, without needing to know whether p or q is true. So the usefulness of implication defined materially simply says nothing at all against the fact that logic concerns entailments in which the conclusion must be true if the premises are true.

Sure, the relations exemplified by the formulas of a formal system are not specifically cognitional, but they are applicable to cognitional relations, just as mathematical relations are applicable to physical quantities.

But how far and under what conditions and with what restrictions are they applicable?

The formulas of formal systems are designed to represent certain logical relations, to model certain logical relations, to signify certain logical relations or logical structures, i.e., sets of logical relations. But notice that my critique of the demonstration that anything follows from contradiction does not say that one could not have a formal system that had the law of disjunctive syllogism but did not have the law of contradiction. It would be interesting, even important, if a system that denied contradiction could not have disjunctive syllogism. But my criticism is different. Without knowing in advance what is or is not true of formal systems, I know that if contradictions are permitted, disjunctive syllogism cannot do the logical work it is supposed to do; I know that disjunctive syllogism presupposes noncontradiction in the sense that, if contradictions can be true, the law of disjunctive syllogism is not true.

Also, how did that system of strict implication that Prior refers to keep disjunctive syllogism out? By fiat? Or by deduction, e.g., from the denial of the law of noncontradiction?

Not laws of thought, laws of objects of thought. But the objects are physical realities. Yes, but laws pertaining to them in their role of being objects, laws of them in their value as being objects. Laws of relations pertaining to them in their role of being objects.

My explanation of logical relations, my description of logical relations, is meant to show why some truths are necessary and why we cannot not know some logical relations when we know truths about things, including showing that we do not and cannot need criteria for identifying singular instances of these relations to know logical truths.

In the Tractatus, Wittgenstein asks a question about there being a 27-termed relation. Why would anyone, like Poinsot, think relations can only be two termed? What unexpressed assumptions are behind these conflicting approaches to relations? Poinsot would not countenance a 27-termed relation because the being of a relation is causally subordinate to the being of a thing in which it resides and which the relation, because the relation resides in it, links to some other thing. (But wouldn't Poinsot say there could be one similarity relation to multiple things?) When we say "aRbcd," however, the relation, designated by R, has a different status in our objectifications (not necessarily in our affirmations about reality). In our objectifications, it is not causally subordinate to a, b, c, or d. It, the relation, is instead our theme; it is formal; it is specifying of our cognitional act. Logically, i.e., in our objectifications, what ontologically are not relations are objectified relationally. Values that do not have the ontological status of relations inhering in subjects in reality, are objectified by linking things, like a, b, c, and d, relationally. But in doing so, we do not objectify it as if it were causally subordinate to the subject in which it exists. That subordination is signfied by explicit affirmations about the ontological status of relations; it is not signified by the logical way in which relations are objectified or in which nonrelations are objectified relationally. Rather than logically signifying them as subordinate, we make that which we objectify relationally a something to be discussed and analyzed in its own right; we make it the "subject"; we do not make it subordinate to some other subject.

Maybe some of the problems we consider problems "in" logic are really problems created by the limitation of a method used in doing logic, a problem with a tool, not with subject matter to which we apply a tool. For example, Russell's problems with sets may be of this kind.

9-3-92

Entailment and Logic

Title: An Empirical Discovery Concerning Entailment. I have discovered a case in which the truth of a premise or premises renders the truth of a conclusion necessary because of a relation or connection between the premises and the conclusion. It is no objection that I have not provided a criterion by which I can unfailing determine whether this situation holds when confronted with other cases. The discovery of a case in which there is an exponent for which the pythagorean relation holds in this case, e.g, $2^2 + 3^2 = 5^2$, does not require me to know whether it ever holds for any other squares, much less for any other exponents.

Using rules of substitution may justify substituting p and -p, but doing so violates rules of "logic." I can eliminate the word "Logic" and other apparently implied knowledge claims (for example, the apparent claim that I have a definition of "logic"). Substituting p and -p violates a law of truth. It renders the substitution untrue, but it does more than that. It takes a way my reason for believing the truth of the rules of inference I would need to draw other conclusions. The reason I believe I can use those rules of inference is that I believe the assertion that such and such a rule yields a valid conclusion is necessarily true, that is, I believe its opposite would be contradictory. And contradictions cannot be true.

As illustrated by what happens when I follow an apparently innocent rule of substitution here, formal methods are only a method for doing logic. They are the most powerful, useful, and extensible method yet found, but they are only a method. The reason they are a useful method is that we can perceive some sort of "connection," "correlation," "link," "similarity," "translation," etc. between the rules and premises of formal systems and the "laws of logic," whatever that might mean. I do not need to know what that means; nor do I need to be able to make more specific what "correlation," etc. mean here. For all I need to know is that some sort of link between the rules and something else (which I happen to call "laws of logic") is broken when I substitute contradiction. When I do that, something that was there all along is no longer there. I do not have to know completely what that something, a relation to X, is. Rather, I now have sufficient knowledge to motivate me to wonder further what that something is. But I am not guaranteed, nor need I be, of any success in finding out further what X and this relation to it are.

We must not confuse method with content, the content we are interested in when it comes to questions of truth and valid inference.

Logic - BIG

6-14-91

Knowing the laws of logic does not consist of knowing that a step in a formal system satisfies the rules or is valid in the system any more than knowing the laws of logic consists of knowing the laws of math or sciences, or that a particular invididual satisfies those laws. In math, science, as well as formal systems, we USE logic to make valid derivations. That does not make knowledge of math or science or fomal systems knowledge of logic. Machines can make substitutions in formal systems, but that is not the same as AWARENESS that the substitution is an instance of the rule covering substitutions. That awareness is grasping an individual as an instance of a universal. Can that grasp be explained extentionally. The extensionalist starts with a predicate, a mark, and a number of individuals. He says that the meaning of the predicate consists of its extentional mapping to all of the individuals. Now we move back from the domain of the individuals to the domain of the predicates, i.e., language. At that level we say that understanding the logical relations embedded in language consists of recognizing individual cases as satisfying rules. But is the meaning of the rules the extentional mapping of the rules to the invidual cases? Then we are expplaing the meaning of the rules by the individual instances and our awareness of the meaning of the rules by our awareness of the individual instances, rather than explaining our understanding of the instance by the fact that we grasp it as an instance of a rule.

Induction, probability, logic, logical knowledge, Feb. 14, 95 BIG

I discover a new mathematical or logical proof today. If it is short enough, then at the time that I discover it, I <u>know</u> its validity and the truth of its conclusion. The next day I may wonder whether it really was a proof, so I go through it again. Now, I again have <u>knowledge</u> of its validity and of the truth of its conclusion.

At some point, I will acquire another kind of knowledge. I will <u>know</u> that it is unreasonable to <u>believe</u> that yesterday and the days before I did not have knowledge of the validity of the proof and the truth of its conclusion. At some point, I will know that it would be pathological not to believe that yesterday and the days before I had that mathematical or logical knowledge. I do not have to be able to say when this other kind of knowledge began, however. That is, I need not be able to say when the point in question was reached.

But before that point, there is still another kind of knowledge possible. I can know that it is probable that I had that mathematical or logical knowledge the day before. That is, I can have certitude, caused by awareness of sufficient evidence, that it is more likely than not the I had that mathematical or logical knowledge yesterday and the days before. And as time goes on, I can have certitude that the likelihood of that knowledge having occurred has increased. And I can have knowledge that, as far as the evidence of which I am aware is concerned, even though I know there my be contray evidence of which I am not aware, it is more likely than not, and more likely today than before, that the math or logical knowledge in question occurred.

This certitude can be caused by awareness of causal factors, i.e., causes and effects, whose existence makes the occurrence of the knowledge in question (M) more probable. This kind of evidence, and the awareness of it, is strictly comparable to the evidence that, if I flipped a coin a thousand times yesterday, the results are more probably close to fifty-fifty than to, say, eighty-twenty. In both cases, it is awareness of sufficient causal factors that causes my certitude.

And as my certitude of the probability of M grows, another kind of subjective certitude can grow. I can <u>believe</u> more and more strongly that M actually did

occur. Perhaps "probable" and its cognates can be used with reference to this subjective certitude. But the probability described in the previous two paragraphs is probability as part of the content of the object of my subjective state. It is objective probability.

That our certitude of that objective probability is subject to the same kind of evidence as any induction is and does not add anything to the problem of induction. I can have certitude caused by evidence sufficient to exclude the opposite from truth that some non-probableistic proposition is true, e.g., that all water boils at 100 degrees centigrade. Or I can have certitude caused by evidence sufficient to exclude the opposite from truth that some probablistic proposition is true, e.g., that it is more likely than not that M occurred yesterday and that the likelyhood of M's having occurred the day before has grown.

But is it the objective probability that grows or the subjective? Does the probability of the coin flip being fifty-fifty change, or my judgment of it? The probability of the coin result grows (changes) relative to the evidence. That is, as I acquire new knowledge as to how many times the coin was flipped, I acquire knowledge of a new proposition as to how likely the fifty-fifty result was. Similarly, as each day passes, the causal conditions making it likely that M occurred on the previous days increase. My awareness of the newly increased causal conditions is sufficient to cause certitude of thet ruth of the proposition that the likelyhood of M's occurrence has increased.

If I check the proof successfully for twenty days, the causal factors contradicting the chance of M's not having occurred increase.

Jun. 11, 96 Big

Maybe this is the way to put it: We can know that "p" is sufficiently justified by evidence that it is unreasonable not to believe it or to believe that "-p". This formula distinguishes the concept of justification from that of being reasonable, but at the same time it relates them in a way that avoids having to get into justification to this degree or that.

Logic, Logical relations, Sep. 11, 94

Gewirth, p. 279 ff., refers to "specification" as a logical relation distinct from deduction for relating the truth value of propositions. He offers no explanation, as if he expects his readers to be familiar with the concept.

Noncontradiction, Quine, Putnam, logic, truth, etc.

Belief in the necessary truth of the principle of noncontradiction is not a matter of making an unwarranted prediction about what future science will or will not tell us. It is a matter of our now knowing what we are saying when we use negatives. If we do not now know that the cat's being on the mat" excludes the cat's not being on the mat, we do not know what we are saying when now we say that the cat is not on the mat. Certainly, negative terms can acquire different uses in the future, but those very differences would prevent them from being revisions of what we now mean to say when we assert the principle of noncontradiction. (You can't know you are saying what you do say now by using negatives.)

If I know what I am saying when I say that the principle of noncontradiction is not true, I should say that it is not true and true.

Logic, Nov. 20, 1992

In calculational logic, a "proof" is a string of marks such that each subsequent line . . . . Carnap seems to have wanted a definition like that for logical truth, i.e., a string of marks satisfying a definition that refers solely to

properties of the marks as marks. So you can use the failure of Carnap's definition of logical truth against the orthographic concept of proof (and vice versa) and hence against the concept of "logic" that depends on this concept of proof. We know logical truths are true the same way we know proofs are valid proofs, by awareness of logical relations to terms other than these relations.

LTA, analytic truth, necessary truth, Dec. 2, 94 BIG

The difference between "Bachelors are unmarried men" and "Tully is Cicero." In the second, there is only the contingent, lexicological relation differentiating objects. In the first, in addition to the lexicological relations, there is the fact that each of the lexicological parts is associated with a word-function that has a logical relation to the word-function of "bachelor," a logical relation making the identity necessary. So knowing that bachelors are unmarried men is not like knowing that Tully is Cicero.

Both "man" and "unmarried" are logically included in the word-function of "bachelor."

Necessary truth, self-evidence, LTA, logical and lingusitic relations, short book, Sep. 18, 94 BIG, Big

The difference between "Tully is Cicero" and "Every bachelor is an adult, unmarried, male." In "T is C" the diverse objectification consists solely of contingent lexicological relations; so the identity of objects is necessary but not knowably necessary, i.e., not self-evident. In "Every B is an a, u, m" there are diverse contingent, lexicological relations. But each of the lexicological units has a word-function with logical relations to the word-function of bachelor (a logical relation other than identity itself, as in "T is C". Such identity is not sufficient for self-evidence, the question is how is the necessary identity known?). Each of the lexicological units has a logical relation to the word-function of bachelor such that familiarity with each of the word-functions makes it impossible not to know that the identity of the things objectified by the word-functions is necessary by virtue of those logical relations.

Putnam, 1-23-93

Title: "Putnam and Classical Realism." Use P's reference to "since the 17th century to justify the reference to "classical." Send to Review of Meta and ask Jude, after it is accepted, if I can revise it based on P's own input.

State that it can appear that the burden of proof is fully on the person who claims there are ontological, regulative, necessary truths. In one sense, the burden of proof is there, and I fully accept it (even if other classical realists shun it). But in another sense, it is enough to hypothesize that change needs a cause. What makes this sufficient is that we can give a cash value to that hypothesis: it amounts to the hypothesis that change is a relation of dependence (as in the disposition is not distinct from the ground).

Relate classical realism to the 4 points of internal realism that P gave in class. Especially point out that there is more than one way for thoughts to conform to reality and that there need by neither a fixed number of "objects" or a fixed "kind" of object. Ontologically there are substance and accident, but we may not, and probably do not, know how many. And the ontological cut does not tell us how to take the empiriological cut. And even ontologically, there are different cuts in the sense that there is also the cut between causes and effects, created and uncreated, infinite and finite, material and immaterial, knowing and nonknowing, one and many, etc., etc. There are also degrees of knowledge, etc.

This title, by being broader than "The Meaning of 'The Meaning of Meaning'," (which could be a subtitle within the whole) could even give you a chance to talk about logic, i.e., in addition to the sacrilization of logic (which has always been around) there is a sacrilization of a tool of logic.

In conversation, P said words to the effect that, although there is much more to say about existence, nothing that we will add will contradict the statement that the function of "exists" is logical. I say it is, and can be, no more logical than "red," "round," "two-legged," etc. But what is at stake in saying that the function of exists in not logical? What is the cash value of saying

that?

What is at stake is achieving the goal of philosophy and of epistemology in particular. Epistemology evaluates, states what goal is achieved by theories, states of consciousness, sentences, names, inductions, etc. To understand the goal of language and awareness, we need to see that we use "exists" for a non-logical value? What value? For the causal condition that enables things to be the cause of the truth of our sentences, the causal condiition that constitutes the goal of our use of sentences. This is not a definition of "exists," because to define "cause" I would have to use "exists." But it is a true statement about "exists." Since knowledge of what exists is the goal of awareness and language, to evaluate awareness and language, we need to recognize and use the non-logical sense of "exists.

The alternative is to evaluate success in terms of sensibly distinguishable characteristics, whether understood as attributes of experience or of physical things. But sensible distinguishable characteristics are the means by which we become aware of what exists and of the natures of what exists. To evaluate in terms of them rather than in terms of the goal of knowing what exists is to measure success in terms of the means, not the end. The reason they are only means and not ends is that in their state as objects of sense experience, as opposed to their state as objects of imagination, sensible characteristics are known as characteristics of the action of the environment on us. Because we are aware of them as the action of the environment on us, we are non-inferentially aware of the existence of the environment acting on us <u>in the same state of awareness</u>.

The objecetion that hallucinations appear to be as really existing as do the objects of genuine perceptions bring up another equally important reason why we need to know that the value for which we use "exists" is nonlogical. We need to use inductive reasoning to distinguish genuine perceptions from halulucinations. To understand <u>both</u> how inductive is rationally justifiable and why the use of inductive reasoning does not lead to an inferential theory of perception, we need to know necessarily true causal principles. Knowing the necessary truth of those principles requires the use of "exists" for the value by which objects of genuine perceptions, as opposed to objects of mere imagination, hallucination, or conception,
from merely being objects of that form of consciousness.

To claim that we have no right to say that the science of the future will not causes us to revise the principle of noncontradiction (or the principle that a change happening to something would not exist without the thing to which it happens) is to say this: that which the science of the future may tell us about what things are will be that things are not what they are; that which the science of the future will discover about what things are will require that things are not what they are. In other words, to claim that <u>now</u> is to imply a contradiction now; so we must give up noncontradiction now, i.e., believe that negation is and is not negation now.

In <u>Representation and Reality</u>, P says Rorty gives up reference. Not really. So that statement of P's can be used as an <u>entree</u> for a discussion minimizing the importance of "reference" but not of extension, which Rorty certainly does not deny. Other statements of P's provide openings. The first chapter of RWHF says Kant first posed phil questions as they should be posed. Well, classical realism has answers to those questions that have not been tried, even though classical realism did not start off by asking its questions in the same way. The laziness of Thomists explains why classical realism's answers are not better known. Also, in either "Meaning Holism" or <u>Representation and Reality</u>, and perhaps in both places, P explicitly says he is talking about the theory of mental representations we have received from the 17th century!

Use the quote about Kant being the first to properly formulate the questions as an excuse to bring in the common assumption of rationalism and empiricism, which P may not have looked at in that way; for K's question arises, ultimately,

from that common assumption.

I do not know whether the universe is one substance. But I am aware of models of arguments which, if valid, would show, for instance, that each human being is a substance. Is the existence of such models sufficient to found the concept of truth? It should be. What if I am convinced for a long time by a proof that each human being is a substance? Then, I at least believe that the assertion that each human being is a substance is either true or false. But now, what if I find a flaw in the proof. Does "each human being is a substance" cease being either true or false? At that rate, nothing would become true until someone knows that it is true. But don't make a big deal out of the anti-realist concept of truth; not that much of what you need to say hangs on it. Draw the battle line elsewhere.