xxxLogic article, short book, from voice, July 7, 2004

Perhaps start the whole logic article by pointing out that Fregean methods in philosophy have not reduced philosophical disagreement or paradox. That fact provides motivation for, and justification for, reflecting epistemologically on Fregean methods themselves. Not reflecting epistemologically in the sense of casting doubt on them, but in the sense of understanding what does or does not go into knowing that a step in a formal proof is valid. In other words, having a better understanding of what Fregean methods can or cannot do for us, what we can expect them to accomplish or not to accomplish. This paper will undertake that kind of epistemological reflection on Fregean methods with the intent of contributing to an ultimate understanding of why they have not reduced philosophical disagreement and paradox. For whatever the answer to that last question is it cannot be that there is anything lacking in Fregean methods themselves. They are not only valid they are extremely powerful, as more than a century of logic has more than amply demonstrated. But their intrinsic value and power only makes the question of our failure to be able to use them to reduce philosophical paradox in disagreement more urgent. Only makes answer to the latter question more important and necessary.

Jan. 20, 95

    <u>One</u> 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 <u>directly</u> 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 con-stants. 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 <u>change</u> 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.

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 any 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 _identical_ with itself (so identity is primary). But that _seems_ 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 _caused_ 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 consistent with the premises.

Jun. 9, 95

The formal _language_ approach makes _models_ 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 <u>addition</u> 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 <u>is</u> 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 <u>logical</u> relation; so it is <u>non-logical</u> content that is in
question, since we are contrasting that to the <u>logical</u> relation of
alternation). "Or" is the exact equivalent for "or something," where
"something" this time <u>is</u> a logical placeholder for, by hypothesis, any
ontological content.

Logical Relations, Jul. 21, 95 BIG

The theory of logical relations in <u>Causal Realism</u> 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.

Oct. 30, 95

Bochenski/O'Rourke dissertation: Peter Rutz (Basel Switzerland Opus Dei priest), Zweiwertige und mehrwertige Logik (Bivalent and Polyvalent Logic), defended July 7, 1970 at University of Friburg ("free-burg"). Many libraries in Switzerland will have it. Look for it through the internet.

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.

Pena, Aug. 31, 94

Good example to use against his postion: Gewirth, <u>Reason and Morality</u>, p. 197.
The dictator uses contradiction for his own purposes. But he does not counte-
nance contradiction at the level of his own purposes.

Meaning, Putnam, Linguistic theory of the analytic, Jan. 28, 94

P's discussion of meaning presupposes the linguistic/and or psychological
account of analytic truth. [And he sometimes seems to confuse the
"necessary," in the sense of necessary conditions for being aware of what a
word is used for, with the necessary in the sense of necessary conditions for
being X (where X is that which a word is used for).] But to be aware that
"Red is a color" is necessarily true, I need an awareness (a psychological
state) of what red is and what color is. But I do not need any other
awareness of what these are than the awareness I need to be aware, e.g., that
"the color of blood is red" is true, or even just means what it means. And I
sometimes have such awareness of what red and color are, because that
awareness is a necessary condition of the awareness, which I sometimes have,
of the meaning of, or the truth of, "The color of blood . . ."

      But "necessary" in the last sentence does not refer to analyticity; it
refers to a causal condition for awareness of either necessary or contingent
truth. There seems to be a confusion in P of where the adjective "necessary"
enters the discussion, is to be placed in the discussion.

      And the whole discussion of necessary and analytic truth is after-the-

fact in philosopy. P refers to philosophers who still try to make something of analytic truth, to do something with it. But that is, in the first instance, irrelevant. I do not have to first prove or justify their existence, and then use them. In fact, I could not do that first, and it would be irrelevant, if I could. I first show that the opposite of some proposition is contradictory. Only later can I be interested in how the kind of knowledge described in the last sentence comes about.

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.

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 <u>true</u>, 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 <u>entailments</u> in which the conclusion must be true if the premises are true.

9-17-92

Logic

    Example of a logical truth: whatever is said of all is said of one; whatever is true of all is true of one.

    In the <u>Tractatus</u>, 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.

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.

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 AWARE-

NESS 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.

xxxSommers, 02-11-02

The following notes are taken from comments written in the margins of "the logic of natural language."

p. vii. "Articles could not do justice to the neoclassical alternatives that I was advocating."

p. viii. "Modern logic uses the forms, 'Px' and '-Px', to represent predicates thereby inflating to oppositions

of contrariety and contradiction so fundamental to the classical term-theoretical standpoint." Point out that

I am not entering into this problem; I am just assuming the classical modern position for the sake of my

argument.

On p.xi he seems to say that the basic logical particles consist of more than signs for negative quality. But

doesn't he say at the end of chapter 9 that signs of opposition are the basic logical signs? Also on this

page he points out that the scholastics with the first to construe "Socrates it is..." As "every Socrates is...".

P. 14. "Frege himself did not think of his logical language as contributing to empirical linguistics; it seems at times that he had to great contempt for natural languages to credit them with a logical syntax." If so, he was right. They have no "logical syntax" because they are not calculation machines, and that's all there is to logical syntax.

P. 138. "There are a number of reasons for the failure of traditional formal logic to develop an adequate logic of relations, none of them do to any intrinsic advantage of a logical syntax of modern predicate logic over traditional formal logic. One of the main reasons was its failure to achieve a formal notation for representing categorical propositions -- relational and non-relational alike -- that was felicitous for a logical calculus."

P. 141. "Usefulness for logical reckoning" of "a formal notation." See the top of p. 144.

P. 143. He gives an example of an inference using an apparently redundant pleonastic, trivially true, truism. "Every 1 is 1." Some people may find this counterintuitive or the very least awkward. But modern logic does exactly the same kind of thing what it recognizes inferences like "if p, then p." As valid inference is on a par with other inferences. From a "formal" point of view (mechanical) you really can distinguish cases like this, either the modern cases of redundancy or the use of the truism for a traditional premise. And that is good for developing formal systems.

P. 146. At the crosses. Again a good example that the real issue between traditional formal logic and modern predicate logic is solely one of good or bad, powerful or not powerful, "techniques."

P. 173. At the Cross. Good example that the rules he needs for his model of thought always make such models imperfect. If I can prove that universally, can show that thought is not a calculation process. Maybe the implicit awareness of self evident inference principles in the awareness of the premises proves this. yyy

P. 175, Further down: "exploiting the similarities of logic to of arithmetic...".

P. 176. "A notation that makes it possible to do logic in an arithmetical way."

P. 61, at the Cross. A big, big statement to the effect that all of these different forms of syntax have the same truth conditions. Again, a confirmation of my use of "what numbers must not be" to argue against their being such a thing as logical forms or logical subject's. Once we "get beyond the circumstances under which the proposition is taken as true" all these theories are merely different logical tools, grammar its constructed for some purpose, in particular the purpose of calculation. To try to absolutize any of them is to try to have a tool with no limitations. Only God's knowledge as no limitations, and therefore he does not need any tools. If we need tools, is because we are limited, and so our tools must be limited also.

P. 341. Good on the distinction between translating (modern logic) and transcribing (traditional logic) sentences of natural language. And the footnotes good on the syntactical character of quantification.

P. 342. "Transcribes the vernacular for logical reckoning"

P. 1. "For logical purposes, be parsed"; "logical syntax of natural language"; "logical syntax of a sentence"; "logical subject"; "logical predicates". His use of these phrases to start off paragraph seems to imply that there are such things. But later in the paragraph he says "such regimentation put sentences into logically useful patterns." That's more like it. It's not that these things actually exists but a question of useful ladies of translating sentences for logical purposes. And what he means by logical purposes, and what he should mean by logical purposes, is made clearer by the later phrases "logical reckoning call for more then this sort of belief that t of the to book, calculation mechanically.

For on the next page he says "logical syntax is the syntax of an artificial language constructed for the purpose of a formalizing deductive reasoning." He is quoting somebody else, but later on certainly agrees.

But the very next sentence seems to imply that there are such things as logical syntax and logical form.

"According to the construction us these are needed to make perspicuous the logical form and to facilitate logical reasoning." "Logical form," no. "Facilitate logical reasoning," means mechanical calculation.

Page 4. Uses the word "logistic." "The logistic advantage enjoyed by Fregean systems of logic." Later on this page there is a good sentence affirming is apparent belief in the existence of logical form.

Remember the difference in usage between "referring" and "denoting." See p. 6.

P. 10. "In the traditional syntax for logic all predicates, including those whose terms are relational, are 'monadic'. But maybe they are neither monadic or polyadic. May be these are and valid categories. Compare "the color red is neither odd nor even."

P. 14. "Frege himself did not think of his logical language as contributing to empirical linguistics; it seems at times that he had to great contempt for natural languages to credit them with a logical syntax." If so, he was right. They have no "logical syntax" because they are not calculation machines, and that's all there is to logical syntax.

P. 15. Note the reliance on the term "syntactical" on this and the following pages.

P. 16. Maybe there can be quantity without expressions like "some" or "all," Just as every sentence is modally characterized whether it's mode is made explicit or not.

P. 1 8. Russell quote: "... Did so for technical reasons." That is, for purposes of facilitating computation.

P. 19. This has implications for Rescher. The truth conditions for "all 1 is 2" is the truth of "this 1 is 2," and "that 1 is 2." But note the parent redundancy in the last statement. But truth condition for... Is the

truth of... If statements like that are taken as definitions, they are circular. And he might take it as a definition at the bottom of this page.

P. 21. "The question of the existence of certain syntactical forms is something that we are learning to view in a scientific light. For we have, if only in principle, certain criteria for judging the adequacy of linguistic theories when they postulate the existence of some class of syntactical objects."

P. 23. This does not prove that quantity is while, but does prove that the whole issue is irrelevant. That is, we can construct a calculus the translating natural language either way, that is, either Frege's or Leibniz's. Therefore neither way expresses an essential "logical" property of natural language or of anything else. Recall the essay "what numbers must not be". The argumentation is the same. Precisely because all of these conflicting theories do equally well at handling numbers, no one of these theories can express the essence of numbers.

P. 27. Simon explains propositions with no reference to logical subject or logical form. If there is a "logical structure," it is only in need for dual objectification, at least dual objectification.

P. 28. Is this a good example for thing-object analysis?

P. 29. "The reason we do not bother specify the quantity of "Socrates is wise" is precisely because either one will do."

P. 33. Aristotle on substance not having a contrary.

P. 34. A good example of the fact that logical relations can have <u>visible</u> syntactical and semantic analogs.

P. 34, at the triangle. Doesn't this example rely too much on contingent features of grammar? Couldn't way construct a grammar that did what he says shouldn't be done? OK, he seems to say so that the

bottom of p. 43 in the top p. 44.

P. 35. Here "form" just seems to mean "is equivalent to."

P. 37. Quotes Dummett as saying that ontology does depend on the philosophy of language. Further in the quotes Dummett says Frege's symbolic language is logically perspicuous. Really, its calculationally perspicuous.

P. 37. At the triangle. A clear example that a "logical subject" is nothing more then a form of expression that is a grammatical or syntactical form.

P. 38. "The recognition of their validity is taken as a fact "that may be left at the intuitive level"." This seems to be an admission that, and the context he and Frege are talking about, they are abstracting from an analysis of how we grasp that step in an inference is valid. In other words, they are leaving room for precisely what I am trying to do.

At the circle. And example of a very common reasoning structure. But causally can distinguish. That is, the truth of "something" is and effect.

P. 39, at the Cross. Here "logical subject" seems equivalent to "syntactical form."

P. 39, At the circle. "Existential generalization is for the Fregean a primitive rule of inference whose validity is left to the intuitive level." Goes on to say the opposite for Leibniz who can show that 1 follows a syllogistically from the other. But my point is how do we intuitive that a syllogism is valid?

P. 39. The uses "thing" as a predicate for the first time.

P. 40. "For Frege the application of the ontological category term "object" is dependent upon the linguistic category term "proper name" and not conversely." See above remark from p. 37.

P. 41, At "big". "Traditional formal logic which does not discriminate subject from predicate on semantic grounds." That is, it discriminate them only on syntactical grounds, while and Frege they necessarily have different semantics.

P. 42, at the triangle. "In modern predicate logic, negation is always sentential and scope and predicate light "is unwise" is not an expression on its own right." Do I need to be cautious about this when I caught about negation at the beginning of my argument in use both forms of the principle of noncontradiction? Maybe I need a footnote.

P. 44. "But one must agree with some bad and ontologically independent grounding of the subject-predicate distinction is untenable." So must derive ontology from logic rather than vice versa.

P. 46. "Father of" and "between" are not terms. They are relational expressions that enter into terms. Here are terms are understood in the traditional sense of either subject or predicate, indifferently.

P. 47. Note that the thing-object analysis can accommodate both the modern and the traditional. See the Italy article.

"In modern predicate logic, be a symmetry between individual symbols and predicate letters is written into the formation rules and any evidence of a symmetry that assumes the canonical status of the forms of modern predicate logic must be dismissed as planted evidence."

P. 48. U-turn: "the fact that philosophers of caliber of Strawson Dummett are enmeshed in the same question-begging procedure is proof, it anywhere needed, of the whole of the doctrine of atomicty on contemporary logical theory... the Tractatus of Wittgenstein is only one example of play major philosopher in the fall of its dogmatic embrace."

At "no." "The features of atomicity is subject to confirmation or disconfirmation in a developed linguistic

science." From empirical point of view, perhaps. But not from the ontological point of view illustrated by Simon.

P. 50. Note that in all that's, individuality seems logically (that is, intellectually) prior to universality. And that is contrary to fact. Summer seems to provide a defense of the thesis that a universal is what the intellect first grasps. That may be one of the implications of his theory that the pronoun refers back to something described by predicate.

At the crosses. Here "reference" definitely means that a referred to thing exists. But logical truth is a goal extraneous to a sentence itself. The logical properties of a word or sentence are what we put into the word or sentence. We do not put truth into a sentence; reality does. Likewise, we cannot put reference in the sense of real existence into our use of a word. We can put a claim of existence into our use of a word; but only reality can give that for which we use a word real existence.

If a sentence is contingent, as existence statements must be, I can know the sentence's logical properties without knowing that the sentence is true. That is what makes the sentence contingent.

P. 51. "And perhaps it may be acknowledged that only those who think of reference in a tendentiously Fregean way will find anything really odd about this." Yes, yes, yes.

At the second "good." He notes that Russell's idea of reference was broader than that of the contemporary Fregean that he criticizes.

At "?". Both "some 1 is 2" and "all 1's are 2's" are about all the 1's.

P. 52. At "OK." "This takes seriously the idea that only in the context of the whole proposition may we speak of the reference of its subject."

P. 53. "And to most contemporary philosophers of failure to refer is tantamount to a truth-value gap." So for them truth depends on reference, not the other way around. So for Strawson, truth depends on reference not the other way around.

P. 54. "It is then also natural to hold that a condition for a proposition having a truth value is that it's logical subject refers to an object. We may call that's the referring condition for having a truth value: unless its object word actually refers to objects be atomic sentence cannot be used to make a statement and one who understood sentence is said not to have asserted a proposition."

P. 55. "Cause, purporting to refer and being about are not tied to truth conditions in the way that referring is."

P. 57. He seems to say that for Geach definite descriptions refer as do proper names.

P. 59, at the Cross. "Definite reference to individual begins with and is semantically dependent on an indefinite epistemic reference to that individual." So universal is what is first in the intellect. For you cannot make definite references unless you have first made an indefinite reference.

P. 60, at the Cross. "To be allowed to speak of the existence of the thing in a non-actual domain is one thing. To say that in "a ghost is in the attic" a ghost refers "intensionally" to a ghost is another." The seems to confirm what I say about intentional existence not being the same as cognition-dependent existence.

At "big". "Some 1 is No. 2." "1" denotes to every 1, but "some 1" refers only to some 1.

At the triangle. What can different "logical forms" mean but that 1 and 2 have some different features of a logical nature. A very harmless claim. For as the paragraph goes on to say "for purely logical concerns" we could avoid the distinction. That is, the different features do not have the cash value they are thought to have for some assumed logical goal.

At "yes." A terrific quotation from Searle to support my view that reference is of no "logical" interest whatsoever.

P. 61, at the Cross. A big, big statement to the effect that all of these different forms of syntax have the same truth conditions. Again, a confirmation of my use of "what numbers must not be" to argue against their being such a thing as logical forms or logical subject's. Once we "get beyond the circumstances under which the proposition is taken as true" all these theories are merely different logical tools, grammar its constructed for some purpose, in particular the purpose of calculation. To try to absolutize any of them is to try to have a tool with no limitations. Only God's knowledge as no limitations, and therefore he does not need any tools. If we need tools, is because we are limited, and so our tools must be limited also.

P. 66. Unlike in "what numbers must not be," the theories summers is comparing may not be completely equivalent. Each will have some advantages that the others do not. So none of them is the "essence" of logical form, because, unlike the case of numbers where there is such a thing as numbers, there is no such thing as logical form and logical subjects.

P. 138. "There are a number of reasons for the failure of traditional formal logic to develop an adequate logic of relations, none of them do to any intrinsic advantage of a logical syntax of modern predicate logic over traditional formal logic. One of the main reasons was its failure to achieve a formal notation for representing categorical propositions -- relational and non-relational alike -- that was felicitous for a logical calculus."

Note that Maritain and offered a theory of truth, years after he wrote "formal logic," that would be independent of the subject-predicate for name-predicate syntactical forms.

At the circle. He goes on to say that traditional logicians were unable to read universal categorical propositions as equivalent to hypothetical propositions. No, they always recognized that universals concerned possible being, but correctly they did not identify that fact with logical form. See Maritain and

on supposition.

P. 140. "This advantage of modern logic over traditional logic could only be a practical one and not a theoretical one." From what he goes on to say, "theoretical" seems to refer to questions like whether you really have to have the Fregean understanding of atomic propositions. But theoretical vs. practical could also refer to something else. Formal systems always have one perceived advantage, the practicality of calculation. But that does not give them the kind of theoretical advantage that would make them the basis for a metaphysics. That is just another U-turn.

P. 141. "Usefulness for logical reckoning" of "a formal notation." See the top of p. 144.

P. 142. Big quote: "the only serious problem facing traditional formal logic is that of logical reckoning."

P. 143. He gives an example of an inference using an apparently redundant pleonastic, trivially true, truism. "Every 1 is 1." Some people may find this counterintuitive or the very least awkward. But modern logic does exactly the same kind of thing what it recognizes inferences like "if p, then p." As valid inference is on a par with other inferences. From a "formal" point of view (mechanical) you really can distinguish cases like this, either the modern cases of redundancy or the use of the truism for a traditional premise. And that is good for developing formal systems.

At the Cross. "This substitution principle is the rule corresponding to dictum de omni: what is true of every 1 is true of (what is) an(or any) 1." Great quotation for showing that substitution does indeed involve inference. Note the difference between the substitution rule and the logical truth it "corresponds" to. Would summer's syllogistic defense of substitution, or syllogistic presentation of substitution, solve my problem about instantiation? I am thinking of some thing like the reasoning: whatever performs acts of a particular type has the ability to perform acts of that particular type. Men perform acts of the rational type. Men have the ability to perform acts of the rational type.

P. 144. Emphasize that the most powerful aspects of Frege's methods were not the details of his own particular formal system but the use of a computational method, something other formal systems could also employed. But logical recognition is not the same as recognition of computational success, the correct application of computational rules. If summer's system that come before Frege's, it would have been thought to be the right one for exactly the same reasons that Frege's was considered to be the only right one.

P. 145. Perhaps criticize Maritain and and, for example, Geach and Strawson and Dummett for thinking that the problem between modern and traditional logic was at the level of logic proper rather than at the level of the epistemology of logic. Or at least criticize Maritain and for making it looked as if, or for not making an explicit, clear, that...

P. 146. At the crosses. Again a good example that the real issue between traditional formal logic and modern predicate logic is solely one of good or bad, powerful or not powerful, "techniques."

P. 147. "Methods of proof". He is talking about methods of computation and calculation. There follows a great quote to show how philosophers are guilty of the U-turn where mathematicians are not.

P. 147

Further down. "I shall show how to give it a subject-predicate (non-phrase/verb-phrase) analysis of vernacular sentences that corresponds exactly to the structure, and modern predicate logic, of a sentences that translate them." But then may be the issue about true logical subjects and logical forms is an even up the level of syntactical differences. Ask Chuck what the cash value of this statement is. "We shall see that quantificational translations of relational sentences have a definite, albeit covert, subject-predicate structure." He's referring to translations into modern predicate logic.

P. 148. Identity or lack of identity between what is objectified as "a tail of some horse" and as "a tail of some reptile."

P. 149. Where summers shows Frege's "Fx" is equivalent to a subject-predicate structure, I show that Maritain's identity theory of truth, originally stated in subject-predicate form, can be stated in "Fx" and "Rxy" terms.

P. 150. Awareness that an argument is valid by the rules of a computational method (1) presupposes awareness of logically necessary truths used as inference principles, implicitly used as inference principles, and (2) is not identical with the implicit awareness of logically necessary truth. That is, awareness of educational validity is not the same thing as awareness of necessary truth but presupposes it.

P. 151. Several times he seems to assume that there is such a thing as an underlying logical structure for sentences.

P. 153. He has been discussing questions of priority of one view of sentences, or a sentence structure, over another, priority of one kind of subject over another kind of subject, one kind of sentence over another, one kind of predicate over another, etc. But there is another kind of priority that philosophers can diffuse with all the above. The question is whether term logic has logical priority, priority in developing a logic, but whether it has epistemological priority. The epistemological priority of term logic is not that "all propositions say something about something." The epistemological priority is that to show why, or how, we know that an antecedent implies its consequent, we must ultimately use syllogism's linking the terms of the antecedent and the consequent. If we can't link their terms, our knowledge of the truth of a hypothetical does not have epistemic necessity.

P. 155. He says he wants "a theory in which neither type of proposition is viewed as analytically prior to the other but both are viewed as structurally isomorphic. A theory in which terms of propositions are the elements of abstract structures governed by laws that can be interpreted to hold indifferently for categorical propositions or for compound propositions."

If his method of doing traditional formal logic had been discovered before Frege's new way of doing logic, the details of a 20th-century philosophy would have been radically different. But the same basic mistake would be present that has always been present since Plato.

P. 156. Quine's ontological relativity shows the irrelevance of logic to metaphysics. For ontological relativity would be (of certainly) true if a logical and the empirical where the only two points of view. Only on that hypothesis would ontological relativity be even relevant to metaphysics.

P. 156, At the circle. On his account these should be equivalent, but obviously they are not so material implication is irrelevant to existential truths, that is, existential identities between things and objects. And see the top of p. 157.

P. 157. Why not the first also?

P. 159. "The carrying out of the program commits us to and ecology us states of affairs and, more particularly, to a Wittgenstenilan world.... Only the latter idea allows us to carry on with the program of giving compound propositions to categorical form while allowing for a diversity of states, cases or facts." At the cross. "Our own standpoint is that... Share a common structure which makes one or the other style of analysis possible but that neither analysis is necessary or even desirable." He is talking about the strategy of analyzing hypothetical propositions as categorical subject-predicate propositions.

At the top. "Structure"? Causal structure? teleonomic cause?

P. 160, at the crosses. Here the defends, or thinks the defends, his idea of a common structure. But the fact that a common method is possible does not show an underlying logical form. It only shows that an even more comprehensive grammar is possible. But the limits of this grammar as a clue to anything else are shown by the use of the "if the elements are... Then... It is..." Statements.

At the circle. "The parity and mutual independence of term and propositional logic implies that syncategordmata which seem respectively specific to terms and to propositions must have important formal affinities." Of course, this too shows my point that the affinities are syntactical, and so the differences are also syntactical.

P. 161 , at the top. "We have no need of negative and compound state of affairs in accounting for the truth of negations and compound sentences.

At "Rescher." "The semantic thesis appropriate to a neoclassical logic of terms of propositions plus limits the correspondence of true sentences to state of affairs noted by elementary affirmative sentences." That's is my criticism of Rescher. "Negations and compound sentences are themselves non-denotative but are interpreted as affirming or denying the existence of the states denoted by their elementary component sentences.

P. 162, at the crosses. Am I am "object" person as opposed to a "state of affairs person"? No, that is a false dichotomy. The fundamental state of affairs is the existence of what he calls "objects." And he has a good example in what follows to show the false dichotomy.

At the circle. Does this apply to the grue paradox?

P. 162, At the triangle. Again, material implication is irrelevant to the identity of objects in existence.

At the blue circle. Metaphysical conclusions from logical premises?

P. 163. He explains why the logic of propositions and truth functions came to have primacy over the logic of terms. He goes out to say that he is affording either kind of reduction. But adds that the conduct of expressions joining terms and sentences have important affinities. So we trying to cover itself by saying,

one hand he is going to do something that might look like reduction, but on the other hand he is not really doing reduction.

Not on p.: instead of trying to the right conclusions from Sommers work, philosophers are liable to do the opposite. Their liable to say that Sommers just adds to the tools we have to try to use logic to solve the philosophical problems. Just as Milton Fisk said that he could you so and so's modal logic to develop a philosophy of necessity in history, others will say that Sommers work gives them options for solving philosophical problems that they did not have before.

Of course, some philosophers will want to reply to taking away logic as the basis for solving philosophical problems "what do we do now? We thought we had a way to deal with these questions. You have taken that way from us; so we're left with nothing." Obviously this is not a satisfactory state to leave them in.
P. 165. Characterizing "the distinction between logical and extra-logical expressions." You can't distinguish the expressions other than by distinguishing that which they express. And you can't do that by "criteria" for identifying individual's. Causal analysis shows that there does occur cognition-dependent objects that are logical. But the philosophical use of that concept is not to identify individuals. It is to do further causal analyses.

P. 166. "The class of atomic sentences cannot itself be fixed independently of the class of categoremata." We don't have to know how to "effects" the categoremata, only have to know, causally, that language for public objects, existents, precedes and produces language for cognition-dependent objects.

P. 167. He says that in natural language each elementary sentence has two terms. No, each elementary truth is known by recognizing the identity of at least two "terms," not terms of language but terms of the thing-object relation, two relata.

At the top: concerning Deely. How can cognition-dependent objects be primitive unless there exists a cognition of something,x, on the basis of which other objects of cognition dependent? Does not want so

say that beings of reason are formed on the basis of, on the model of, real being? Doesn't that undercut Deely's interpretation of Poinsot?

P. 170. We can consider negations times to have a sense that does not depend on laws; laws depend on it. Or vice versa. Either way contradiction is not imply everything. For if negation is defined by laws, we can use disjunctive syllogism to get "q". Or we can get "q" from disjunctive syllogism, but we know that disjunctive syllogism is not a necessary truth or that it does not define the same meaning for negation signs, sense of another law and the set of laws defining negation signs is broken. So if we break the other law, we get "q" because negation does not mean what it meant before; and disjunctive syllogism does not mean what it meant.

The opponent will say that that is his point. Without the principle of noncontradiction, other laws will get to anything. But they only get to anything if they still work as before. And they don't work as before if the meaning of negations signs. has changed.

P. 173. At the Cross. Good example that the rules he needs for his <u>model</u> of thought always make such models imperfect. If I can prove that universally, can show that thought is not a calculation process. Maybe the implicit awareness of self evident inference principles in the awareness of the premises proves this.

P. 175 , at top. "If... Are terms or relations". Notice the shift of "categories," "domains," or "universes" from terms, which are means of objectification, to relations, which are the objectified.

P. 175, Further down: "exploiting the similarities of logic to of arithmetic...".

P. 176. "A notation that makes it possible to do logic in an arithmetical way."

P. 177, at the Cross. Material implication: the logical has not only suppressed the ontological, it has suppressed the epistemological. It is because "1 implies 2" that "not both 1 and not 2" is true. Entailment

is epistemological. Likewise, it is because of the truth of statements using terms as traditional logic does, that the connection between the antecedent and consequent of the hypothetical is true.

P. 183. Two kinds of rules: rules of transformation and rules of derivation. On the next p. he adds laws of derivation.

P. 195. The focus on studying the various advantages and disadvantages of the various models of inference can distract us from looking at what goes on in inference epistemologically. Sure, psychology is perilous, but logical modeling does not replace it. If a philosophy of logic is the philosophy of studying various models of thought, it is not the epistemology of logic, which still needs to be done.

P. 197. Great quotation: "the Fregean may objects that "something exists" cannot even be expressed in the standard language of modern predicate logic. But this only means that the formation rules of modern predicate logic are, and that respect, deficient."

At the "?" "Support Quine's view that the correct interpretation of quantifier is objectual and not substitutional."

P. 201."Whenever... Has a truth value, then... And .... Or... are true." He seems to be saying something similar to what I say about the law of excluded middle. I say it applies to anything that has a truth value. But his way of claiming that a sentence does not have truth value is very different from mine. I must make sure they are not confused. Mine is a causal analysis saying that whatever they may be, causes necessary for a sentence to have truth value are not present.

P. 202. "The idea that relational expressions like "loves" are to place predicates has no place in classical linguistics or classical logic."

P. 204. "According to that rule, inference with two or more premises proceeds in algebraic fashion by cancellation of middle elements."

P. 205. "The logical vocabulary of basic logic consists of signs of opposition. And it suggests that inference proceeds by cancellation and substitution according to the dictum that traditional logicians have always considered to be fundamental and at the basis of deductive reasoning."

We start with an extra-logical value. To negate it, to get the opposite, we don't need any additional extra-logical value; just need a cognition-dependent object. So he implies that negation is the basic cognition-dependent object. Aquinas does the same thing. To find Aquinas's quotation to that effect look in Regis's "epistemology."

"There is also the psychological question of how we reason..."

P. 206. "... The question is legitimate and alternative logistical systems with different logical syntax is will one day receive confirmation or disconfirmation as models for the deductive process actually taking place as we move from premises to conclusions." Perhaps, but they are only models, and no model is perfect. And if logic enters the empirical questions about how we reason, it does not answer the ontological questions about how we reason.

"It is far more likely that the actual procedures we use in getting from the premises to the conclusion are closer to the model of cancellation then to the model of instantiation and generalization familiar to the practitioner of modern predicate logic."

P. 208. "Traditional formal logic has no apparatus for regimenting sentences in a manner that makes truth conditions perspicuous. This may be thought of as a disadvantage; nevertheless, for that very reason, traditional formal logic does not find itself forcing standardized truth conditions on sentences of the same logical form."

P. 210. "Our account of... Does not construe its logical form existentially." Again, there is no such thing as logical form, only what is causally required epistemologically to grasp truth, as shown by Simon.

P. 212. At the Cross. An example of possible existence.

P. 213. "The amplitude of a term in a statement is determined by my knowledge of the meaning of that statement..." This is what I want to say about the reference of a term.

P. 216. Great quotation: "It is in any case to be avoided by a theory of logical signs that is based on some idea of what logical signs have in common. When expressions as different as "or" and "there exists" are both included in the list of the formative elements all logical language, the philosopher has actually given up trying for unified understanding of the logical formatives."

P. 224, at the top. Good example showing that substitution is in inference or at least requires an inference.

At the bottom. This is goes on why "the planets are nine" does not imply that "the number of planets is the square of 3" is not a necessary truth.

P. 284. Perhaps this example shows that is more likely that Aristotle's doctrine of "primary" subjects is based on his doctrine of substance than vice versa.

P. 286. "The algebraic representation could be usefully exploited in exhibiting such common features as commutivity."

P. 291. Again, like Aquinas, negation is primitive and prior to other logical notions.

P. 292. Perhaps he us. In logic "exists" as unrestricted amplitude precisely because real existence is not logical; so existence for realities as the same logical properties as existence for other "objects." He does not to give a good way of handling "every tiger exists" in terms of an amplitude that is not restricted to the

domain of realities. As a result the sentence is not redundant.

P. 306. "The consequences -- for metaphysics, for logic, for the philosophy of language -- of a decision on the question whether the categoremata are charged or uncharged, are widely ramify in virtually uninvestigated. But the decision cannot be made in isolation; it depends on which organon of logic we choose to accept."

P. 312. "Decidability is, of course, a characteristic of statements that accrues to them in virtue of the abilities of those who make the statements."

P. 313. "Dummett defined realism as the "belief that for any statement there must be something in virtue of which it or its negation is true"."

P. 314. "It is one thing to say that the law does not apply in a given case or over given domain giving reasons to withhold truth values from the sentences that appear to violate the law." (I would say that I do not have to give reasons to withhold the truth values. Whatever the "reasons", that is, the causes why a sentence fails to have truth value may be, I do not have to know what they are. If a sentence violates the principle of excluded middle, there is a failure of truth value someplace.) "it is quite another thing to assert conjunction of negations that Dummett cannot but see as an overt violation of the classical sentential law of excluded middle. It is therefore it never really possible for Dummett to say that Jones was neither brave nor not brave: the must instead argue for a truth value gap, never a like matter since nothing less than a theory of meaning is required for the judgment that a prima facie meaningful statement is neither true nor false." (Again, I do not want to have to provide a theory of meaning or anything else. I know that it excluded middle is violated, some cause necessary for a sentence to have truth value, whatever that cause may be and I do not need to know, is missing.)

P. 316. He is not really saying what I am saying. He is saying that both sentences can have the truth value of being false. I am saying that truth value was never achieved.

P. 319 "the curious doctrine that the absence of 1's is reason enough to except "every 1 is 2" leads to curious theses in the theory of meaning." Then on p. 321 he says "it is not just harmless paradox to say that the absence of 1's is reason for the truth of "every 1 is..."." In the footnote the then draws a parallel with material implication. In material implication the absence of truth in the antecedent makes the whole thing true. In the universal categorical the absence of existence for the subject allegedly makes the whole thing true."

P. 323. "So we have both the rejection of the logical law of excluded middle and the semantic law of bivalence."

P. 326. "We need to be able to distinguish between denying <u>of Socrates</u> that he is wise and denying <u>that</u> Socrates is wise. If the first is reduced to the second, then we have no way of saying anything negative <u>about Socrates</u>. For the second is not about Socrates that all but about the proposition that Socrates is wise. Of that proposition, it says that it is not the case.

P. 334. "Terms like "existent" and "occurent" differ from terms like "striped" and "dangerous" and not really characterizing their subjects." Yes, there is a big difference between "exists" and other grammatical predicates. But saying that there is a big difference is one thing, articulating the difference and its consequences is another. improper articulation deprives us of understanding human knowledge, because it deprives us of metaphysics.

P. 335. His critique of on to on exists being predicate is reminiscent of Maritain and Cajetan. But are "domains" the best way to talk about possible and actual existence? There is no need to be absolute by saying that it is the "best" or "the only" way. Domains are a concept of a very, very powerful tool. But all tools are limited. Again, is "is exists a predicate" a question?

P. 336. "It is, to repeat, essential to the point of view that I am advocating to say that "there are tigers" is

construe oval as a sentence of the subject-predicate form. It is not essential to my point of view to insist on any thesis involving possible world semantics or metaphysics." Again, is "is exists a predicate" a question?

P. 338. "A theory of reference appropriate to the logical syntax of traditional formal logic is an attractive alternative to the contemporary theory."

P. 339. "The syntax of the sentence like "Socrates is why use" does not differ in the central respects from that of a sentence like "a man is why use" or "every man is why use" so far as the form of the subject is concerned."

P. 340. "We have lately discuss some of the implications for logic and for metaphysics of the contemporary treatment of negation as a sentential operator or "connective."

"Restriction of the vocabulary for expressing logical form to the logical particles" a quotation from Katz.

P. 341. Good on the distinction between translating (modern logic) and transcribing (traditional logic) sentences of natural language. And the footnotes good on the syntactical character of quantification.

P. 342. "Transcribes the vernacular for logical reckoning"

P. 43. Good argument that Frege's "terms" are not really terms.
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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.

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 <u>essential</u>
that the <u>same </u>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 <u>all</u> 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 <u>this</u> 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, 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. (States of affairs we are
aware of and so states of affairs endowed with properties that derive from our
awareness of them.) 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.

Logic, Formal systems, 6-13-93, BIG at end
Very often the following kind of situation occurs in philosophy. We have our attention fixed
on an object that is only deceptively relevant, and actually not relevant, to the philosophical
problem. For example, we contemplate a tri-valued logical system as an object. We think
that in doing so we are helping to solve problems about quantum mechanics. We overlook
that we still have to use bivalent logic to do logic. Focusing on certain properties of the

object, we are blissfully unaware of properties, the central properties, without which there would be no focusing on the object, and even no object, that is, without which the object could not be constructed.

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 occurrence also. If she had

used bi-valent tables to make these definitions, we could see that the occurrence of "p^q"

and of "p" entails by logical necessity the q occurs also (just as any arbitrary rules in games

entail conclusions by logical necessity. 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.

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. But reliance on truth tables requires us to know that they exhaust all the possibilities for combinations of these bi-valent values.

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 modus ponens 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 modus ponens, 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 entails 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 do 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.

xxxLogic - Entailment, 7-30-90

12-27-00

To be aware of the validity of an argument, we must be aware, cognizant, not just of the rule but up the truth of the rule. And cognizant of it in a manner that does not require arriving at its truth by deduction from other rules. Or from other premises, whether the other premises are rules or not. But can a

machine have that kind of awareness?

August 8, 1997, Limits of formal systems BIG

Other examples of the limits of formal systems from the point of view of their
usefulness for inquiries demanding ontological analysis: The way the problem
of universals is defined (see Poinsot article). Routely p. xi, the
irrelevance of extensional logic to a priori reasoning. Quine on
regimentation (the sacrilization of logic).

May 20, 1997

According to Rescher and B... Tarski argued that no language can talk about
its own relation to its objects because doing so produces paradoxes. But at
most this proves that some uses of a language to describe its relation to its
objects produces paradoxes. We talk about the relation of English to its
objects all the time, and we use English to do so without producing paradoxes.
     Does the fact that such paradoxes sometimes occur prove anything special
about the fact that these paradoxes occur when using a language to describe
the language's relation to its objects? It might prove that if this were the
only time that statements in everyday language produced philosophical paradox,
but this is not the only time that philosophical paradoxes result from the
statements of nontechnical language. And Tarski's solution to these specific
paradoxes generates its own paradoxes.

Formal systems, self-evidence, meaning, October 23, 1996

Recognizing that the opposite of a self-evident propostion is contradictory is
not like applying the rules of a formal system. Understanding the rules of a
formal system, we see that we should write the negative sign before formulas
of the form p & -p, and we see that we should not put the negative sign before
formulas of the form p V -p.

But grasping that there are no square circles means grasping that the
statement 'Squares are not circles" is always true, that square circles cannot
exist. And grasping this, unlike grasping how we should form formulas in a
formal system, does not involve a version of Platonic essences, but a
knowledge of the meanings of "square," "circle," "exists," and "not."

And that does not involve a mental entity called "meaning," or at least not an
illegitimate mental entity. If mental entities are required at all, they are
(1) not themselves the meanings but that by which we relate to the meanings
and (2) are no more than are required for understanding the words in any
statement, not just the words in a necessary truth. Nor, if meaning is not a
mental entity, is it any sort of additional entity other than the referents of
words.

If grasping a necessary truth is not applying the rules of a formal system,
but the grasp of a truth, of what is the case, neither can it be finding a
model for a formal system. We don't start with a formal truth and then find
that it applies to the world of being; we see directly that a truth applies to
the world of being.

This theory of necessary truth requires no special epistemological theory,
that is, no theory that is not required for the knowledge of truth in general,
of any truth.

Course idea, only in Thomism, Aug. 22, 96

An alternative to tthe dichotomy between logic concerning laws of thought
(psychologism) and logic concerning relations between abstract entities
(Platonism):
logic concerning objects of thought as objects (diacritical realism,
Aristotelianism, cognitivism). See Baker and Hacker, <u>Language</u> . . ., pp. 28-
29.

xxxLogic, Nov. 20, 1992

In calculational logic, a "proof" is a string of marks such that each subse-
quent 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.

April 30, 2003

Pena, Aug. 31, 94

Good example to use against his postion: Gewirth, <u>Reason and Morality</u>, p. 197.
The dictator uses contradiction for his own purposes. But he does not counte-
nance contradiction at the level of his understanding of his own purposes.