

# George Englebretsen's Contribution to the Rediscovery of Traditional Formal Logic

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## INTRODUCTION

"In two important senses, Englebretsen is not the inventor of the logic of which he writes, though he no doubt deserves the title of the most dedicated and meticulous expositor of it today. In the first place the logic in question is none other than the so-called 'term logic' usually said to have been invented by Aristotle, taught throughout the middle ages, toyed with by Leibniz, forgotten in the enlightenment and surpassed at last by the great developments in mathematical logic associated with names like Boole, Frege, Russell, Quine. So at least runs the textbook history that the average student of logic would learn today. Term logic figures in the contemporary mind as one of the discarded fashions of science, much like the Ptolemaic system in astronomy. Englebretsen does not claim to invent but only to rehabilitate this logic. And such an effort obviously requires a reassessment of its history, of which the present work provides an outline.

But the logic is not Englebretsen's own in a second way. The book is a sustained and systematic exposition of the life work of Prof. Sommers of Brandeis University, whose efforts have revealed the continuity of term logic from Aristotle to Leibniz and also its character an uncompleted project, with unlimited promise in its application to logic of natural language. Sommers' work comes at a crucial moment, just as the problems in applying formal mathematical structures to ordinary language are coming to be recognized. Sommers' unconventional approach, however, has seemed to many to be moving quickly in the wrong direction, toward the 'errors' of the past and he has thus acquired a reputation as the Ishmael of modern logic.

Professor Englebretsen's work is a systematic exposition and defense of Sommers' far-reaching contributions to logic, placing them in the context of a rectified history of the subject. Term logic is a project abandoned prematurely by logicians deceived by the appearance of security which the prestige of mathematics conferred upon mathematical logic. Recent logicians concluded too quickly that term logic was unformalizable, inadequate to reflect many of the actual inference structures of ordinary language, etc. The work of Sommers has demonstrated these claims to be false in the most appropriate way possible, by constructing a term logic of which they do not hold. Moreover Englebretsen has shown that Sommers' reply on behalf of term logic is not a mere riposte; it is a 'programme' of logic in the fullest sense. It contains a rigorously presented theory not just of the syntax, semantics and rules of inference for a term logic, but also a modal logic, a theory of predication, identity, singular terms, categories and ontology. In the reading of this book it is impossible not to get the idea that here is a vital programme for logic which is deserving of careful consideration and which is bound to lead to a re-evaluation of the traditional dogmas of mathematical logic."

From: Graeme Hunter - *Foreword to: George Englebretsen - Essays on the Philosophy of Fred Sommers. In Logical Terms* - Lewiston, The Edwin Mellen Press, 1990, pp. I-II.

## SELECTED BIBLIOGRAPHY

For the bibliography of [Fred Sommers](#) see the page dedicated to him.

1. "Knowledge, negation and incompatibility," *Journal of Philosophy* 66: 581-585 (1969).  
"Epistemologists and logicians have long ignored an important fact about the logic of knowledge statements. The fact is that there are three uniquely different kinds of negation operable upon such statements. The statement itself can be negated (it is not the case that a knows that p). The predicate can be negated (a doesn't know that p). And the propositional object can be negated (a knows that it is not the case that p). This paper is an attempt to reinforce the distinctions between these kinds of negations and to illustrate the logical relations which hold among knowledge statements differing only in the ways in which various combinations of these kinds of negation are present."
2. "On the nature of Sommers's rule," *Mind* 80: 608-611 (1971).  
"I argue here that recent discussions of Fred Sommers' 'rule for enforcing ambiguity' have been mistaken on one of two grounds. Either they misrepresent the sense of the rule or they misunderstand its intent. the rule is neither a sense rule nor a categorial rule, but a 'translation' rule relating senses of terms to categories of individuals. Rather than a test for term ambiguity the rule is a test for theory coherence. finally, I show that there are many possible ways of applying the rule."
3. "Elgood on Sommers's rules of sense," *Philosophical Quarterly* 21: 71-73 (1971).  
"I argue here that Elgood, like many of Sommers's critics, has misunderstood Sommers's rules of sense, particularly the "rule for enforcing ambiguity". While he confuses terms and things in his discussion of the rule, his primary error is his failure to recognize the difficult though important distinction between the spanning and predicability relations between terms and things. A typical counter-example by Elgood to the rule is considered and shown to be harmless once the spanning-predicability distinction is seen."
4. "Sommers' theory and the paradox of confirmation," *Philosophy of Science* 38: 438-441 (1971).  
"It is shown here how Fred Sommers' theory of predicability can be used to discern the 'natural' subject of any statement. If any two logically equivalent statements are confirmed in exactly the same way, and if the consideration of the set determined by its natural subject is necessary for the confirmation of any statement, then it can be shown that the two statements of the onfirmation paradox share a common natural (though not grammatical) subject."
5. "J. O. Nelson on logical notation," *Ratio* 13: 88-89 (1971).  
"The paradoxical nature of the confirmations of 'all ravens are black' and its contrapositive is not due to the logical identity of the two sentences. It results from the belief that universal categoricals are confirmed by picking-out items satisfying their subject terms. But, since 'non-blacks' is not a genuine sortal term, items satisfying it cannot possibly be picked-out. thus, what it would be necessary to pick-out for the confirmation of a sentence need not be what satisfies its subject term."
6. "The incompatibility of God' existence and omnipotence," *Sophia* 10: 28-31 (1971).  
"The Paradox of the Stone is a formally valid argument which purports to prove that God is not omnipotent. It is argued here that if the paradox is unsound, it must be because the first premise is false. By using some logical notions developed by Fred Sommers, it is shown that if this premise is false it is because its subject term ("God") fails to refer (God does not exist). thus, since the paradox is either sound or unsound, God is either omnipotent or exists but not both."
7. "Armstrong on disembodied minds," *Dialogue* 11: 576-579 (1972).  
"For D. M. Armstrong the existence of a disembodied mind is required in order to guarantee the contingency of mind-body identity. However, Armstrong's explication of disembodied minds in terms of mental states is at best confusing. While admitting the force of F. Sommers' attack on Strawson's theory of persons, which is equally effective against Armstrong, Strawson's theory, without disembodied minds, is defended as an alternative to Armstrong pseudo-materialism."
8. "True sentences and true propositions," *Mind* 81: 451-452 (1972).

"Susan Haack has held that the predicates 'true' and 'false' are univocally predicable of both sentence tokens and propositions. Using a theory of predication devised by F. Sommers I attempt to show that such predicates must be ambiguous over sentence tokens and propositions or, if Sommers' theory is correct, the Haacks' theory of sentences and propositions is incoherent."

9. "Vacuousity," *Mind* 81: 273-275 (1972).  
"It is argued here that F. Sommers' notion of vacuousity must be expanded to allow for statements presupposing false statements which may not be existential. the result of this is the enforcement of a distinction between vacuousity and category mistakenness, and, more importantly, a distinction between the spanning and predicability relations which hold between terms and things."
10. "Sommers on empty domains and existence," *Notre Dame Journal of Formal Logic* 13: 350-358 (1972).  
"After examining the customary ways in which quantificationalists have handled the problem of preserving theorem-hood in the empty domain (the ways used by Quine, Lejewski, Cohen, etc.), I introduce the attempt by Fred Sommers to eliminate quantification theory all together. Sommers' denial of quantification is based on his rejection of the 'Fregean dogma' (the belief that all predications must be to a singular subject). By eliminating quantification in the way suggested by Sommers I am able to show that none of the normal quantificational theorems are in any danger from the empty domain. The notion of an empty domain, of course, is no longer given in terms of a range of variable values. Finally, on the basis of his theory I give a proof, which Sommers has attempted unsatisfactorily, to the effect that necessarily something exists."
11. "A revised category mistake argument," *Philosophical Studies* 23: 421-423 (1972).  
"E. Erwin has shown that T. Szasz's rejection of the disease model of psychopathology is mistaken in that it is based upon the category mistake argument (there are no heterotypical predications by univocal predicates). It is argued here, however, that S. Sommers' 'rule for enforcing ambiguity' can provide Szasz with a revised category mistake argument which is immune to Erwin's attack."
12. "On van Straaten modification of Sommers' rule," *Philosophical Studies* 23: 216-219 (1972).  
"I argue here that R. van Straaten's four modifications of F. Sommers' 'rule for enforcing ambiguity' are based upon a misunderstanding of the basis of the rule and a failure to see the spanning/predicability distinction. The effect is that none of van Straaten's several counterexamples are telling against the rule. In place of van Straaten's modifications I offer the following simple but important changes in the rule: the restriction of things to individuals and the reading of 'makes sense to predicate' and similar phrases in terms of the spanning relation."
13. "Persons and predicates," *Philosophical Studies* 23: 393-399 (1972).  
"F. Sommers' 'rule for enforcing ambiguity' is a theory-critical tool. It can be applied to incoherent theories to render them coherent. In particular, it can be applied to Strawson's theory of persons. The result is an attributive theory which, unlike Strawson's, is coherent and has important advantages over idealistic, dualistic, and identity theories of persons. H. Chandler's attack on Sommers's rule and D. M. Armstrong's defense of an identity theory are given special consideration."
14. "Suggested truth-tables for a three-valued sentential logic," *International Logic Review* 8: 255-259 (1973).  
"Truth-tables for the normal sentential connectives are constructed on the basis of the concept of 'partial values'. On this view, every statement has a truth-value which is a function of an ordered pair of partial values. The first member is either T or non-T and the second is either F or non-F. The four combinations of partial values result in three possible truth-values: true, false, and empty."
15. "Locke's language of proper names," *Locke Newsletter* 4: 25-30 (1973).  
"It is argued here that recent discussions concerning the compatibility of Locke's theory of nominal essences with Geach's thesis (that each use of a proper name must presuppose the ability to use some corresponding general term) fail to appreciate the important difference between the generation of Lockean general ideas (from ideas of individuals) and the generation of Lockean general terms (not from proper names)."
16. "Epistemic logic and mere belief," *Logique et Analyse* 63-64: 374-378 (1973).  
"Drawing on results obtained in a previous paper, axioms for an epistemic calculus are laid down. It is then shown that the necessary conditions for mere belief (which, unlike belief, is incompatible

with knowledge) can be formulated in this system."

17. "Meinong on existence," *Man and World* 6: 80-82 (1973).

"I argue here that on one plausible reading Meinong's theory of objects, far from being mistaken in the way Russell thought it was, shows considerable insight into the notion of existence. In particular, Meinong can be seen as making an important distinction between what can be significantly referred to and what exists. This distinction is very close to one made recently by Fred Sommers."

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"For several years I was told, and believed, that while Russell's theory of descriptions might be flawed (viz. in the way Strawson showed), his rejection of Meinong's theory of objects, which led to the theory of descriptions, was undoubtedly correct. Now I doubt very much if this is so.

The "official" view is that Meinong had made the mistake of multiplying the senses of "exists" unnecessarily. According to this view, Meinong, since he held that the descriptive components of any meaningful sentence must refer to something, was forced to provide a special kind of existence, subsistence, for entities which are nonexistent but referred to meaningfully. Russell avoided this position by claiming that statements referring to nonexistent entities are meaningful but false (since they logically entail the existence of the entity referred to). I think the official view underestimates Meinong's philosophical abilities. Indeed, I think, rather than engaging in the philosophically dangerous task of multiplying kinds of existence, Meinong was expressing a keen insight into the nature of existential commitment." p. 80

18. "Presupposition, truth and existence," *Philosophical Papers* 2: 39-40 (1973).

"The Strawsonian concept of presupposition challenges the logician's insistence upon truth-functionality and bivalence. Nevertheless, these logical features can be retained by defining presupposition in terms of material implication and logical contrariety, which is not logical negation. Given this notion of presupposition, it can be seen that not all presupposed statements are existential, nor do all statements presuppose the existence of their subjects."

19. "Persons, predicates and death," *Second Order* 2: 67-70 (1973).

20. "The logic of negative theology," *The New Scholasticism* 67: 226-232 (1973).

21. "Essentiality," *Journal of Critical Analysis* 5: 112-117 (1974).

22. "Behaviorism and perception," *Man and World* 7: 149-157 (1974).

"After distinguishing the ontological question concerning persons (what is the concept of a person?) from the epistemological question (on what grounds does my knowledge of persons rest?) three kinds of behaviorism are cited as responses to the Cartesian answer to the epistemological question. Unlike physicalism and dispositionism, restricted behaviorism denies that knowledge applies at all to myself and goes on to distinguish behavior from bodily activity. On this theory behavior is taken to be interpreted bodily activity -- bodily activity seen as personal behavior."

23. "A note on contrariety," *Notre Dame Journal of Formal Logic* 15: 613-614 (1974).

"It is shown here that S. McCall's proposal, that in addition to the normal sentential operation of negation there is another, more traditional, sentential operation of contrariety ("Contrariety," *Notre Dame Journal of Formal Logic*, 8, 1967) is misguided. There is indeed a contrariety operator. But, it is a predicate operator rather than a sentential operator. The ability to explicate contrariety is just one of the advantages which an Aristotelian logic of terms has over modern sentential logic."

24. "More on disembodied minds," *Philosophical Papers* 3: 48-49 (1974).

"Although the concept of a disembodied mind is essential to an identity theory such as D. M. Armstrong's, it is based upon a faulty view concerning the contingency of certain identity statements."

25. "Brody on Sommers," *Philosophical Studies* 26: 149-150 (1974).

26. "Sommers on the predicate 'exists'," *Philosophical Studies* 26: 419-423 (1974).

"In a series of recent journal articles F. Sommers has developed a logic of terms which differs greatly from the usual logic now taught in the schools. However, Sommers has committed himself to a thesis proper to that logic but not to his: everything exists. It is shown here that such a thesis cannot follow from Sommers' previous work. Using his logic proofs that something exists and that

something does not exist are given."

27. "Erwin on the category mistake argument," *Second Order* 3: 47-53 (1974).
28. "Durrant on 'God'," *The New Scholasticism* 48: 251-252 (1974).  
 "In The logical status of 'God' (Macmillan, 1973) Michael Durrant argues that 'God' cannot be a proper name since there is no substantival term which could be used in making an identifying reference to God. However, this view, when coupled with Durrant's thesis that a thing exists only if it can be identifyingly referred to by use of a substantival, entails that God does not exist. If Durrant is to retain his belief in God he must abandon either his view of proper names or (better) his criterion for existence."
29. *Speaking of persons*. Halifax: Dalhousie University Press 1975.  
 "This monograph is an attempt to defend an attributist theory of the concept of a person. It is held that our ordinary concept of a person is the concept of a noncomposite (contra dualism), material (contra idealism) object, to which both Strawsonian p- and m-predicates apply. Personal identity is accounted for in terms of bodily continuity "and" sortal continuity. Finally, with the aid of F. Sommers' theory of linguistic-ontological isomorphism, it is argued that an ontological theory compatible with our theory, must reject any sort of spirit, including God."
30. "Sommers' theory and natural theology," *International Journal for Philosophy of Religion*: 111-116 (1975).
31. "Rescher on E!," *Notre Dame Journal of Formal Logic* 16: 536-538 (1975).  
 "In "Definitions of 'existence'," *Philosophical Studies*, vol. 7 (1957), pp. 65-69, N. Rescher rejected the definition of 'E!' given by H. S. Leonard in "The Logic of existence", *Philosophical Studies*, vol. 7 (1956) pp. 49-64. (...)  
 In this note I will first briefly show that Reseller's reason for rejecting (L) is unsatisfactory. Then I will show that (R2) must be rejected. Finally, I will make some remarks about the general attempt to formalize a definition of existence."
32. "Sommers' proof that something exists," *Notre Dame Journal of Formal Logic* 16: 298-300 (1975).  
 "It is argued here that F. Sommers' proof to the effect that necessarily something exists is wrong in principle and that when it is reformulated correctly it turns out to be formally invalid.  
 What is called for is an entirely new kind of proof, which the present author has supplied in a previous paper."
33. "Trivalence and absurdity," *Philosophical Papers* 4: 221-227 (1975).
34. "The Square of Opposition," *Notre Dame Journal of Formal Logic* 17: 531-541 (1976).  
 "The traditional Aristotelian square of opposition is examined here. Various restrictions on the square are considered. Finally, it is argued that while applicability of the square relations is not influenced by considerations of existence, analyticity, etc., it is restricted by considerations of category correctness. The work of F. Sommers is useful in showing this."
35. "Sommers' Tree Theory and possible things," *Philosophical Studies (Ireland)* 24: 131-139 (1976).  
 "A key thesis in F. Sommers' "tree theory" is that language and ontology are structurally isomorphic. In the process of building that theory Sommers outlined a notion of "levels of rectitude" for linguistic rules. According to this rules (sense rules, logical rules, grammar rules) are applied to a sequence of words in a strict order. In this essay we attempt to show that, given the isomorphism thesis, the notion of levels of rectitude can be extended to the ontology. The result is a strict ordering of several senses of "possible" as applied to things in the ontology."
36. "Aristotle on the subject of predication," *Notre Dame Journal of Formal Logic* 19: 614-616 (1978).  
 Reprinted in: A. Menne and G. Offenberger (eds.) - *Zur Modernen Deutung der Aristotelischen Logik* - vol. II, Hildesheim, Georg Olms, 1985 pp. 128-130.

"Aristotle's thesis that universals must always inhere in a primary substance, a particular, has been used recently as evidence that he, like many contemporary logicians, rejected the predication of terms to universal, i.e., nonsingular, subjects. Yet this would force Aristotle to treat quantifiers as ranging over bare, unsorted, particulars. But Aristotle took the notion of an unsorted particular as nonsense. His thesis about the status of universals can no more serve as evidence that he took all subjects as particulars than can his thesis that every particular satisfies some universal serve as evidence that he took no subjects as particular."

37. "Notes on the new syllogistic," *Logique et Analyse* 85-86: 111-120 (1979).  
 "Recently F. Sommers has developed a new syllogistic. While it inherits the naturalness and ease of the old one it also inherits the usual critiques as well. A new syllogistic must be able to answer all the charges usually placed against the old: inability to deal with relationals, negative terms, singular terms, etc. The doctrine of distribution and the notion of existential import for universals are frequently cited here. I argue that a proper understanding of the syllogistic law of identity illuminates both these areas. Syllogistic inferences claimed to be invalid by critics are shown to be enthymemes. In each case the missing premise is derived from the law of identity."
38. "The powers and capacities of God," *Sophia* 18: 29-31 (1979).  
 "It seems possible to argue that since either God can limit his power or he cannot, he is not omnipotent. Critics of such arguments claim that the important distinction between God's capacities (to do what is logically possible) and powers (to do what is in his capacity) is ignored. They would argue that though God cannot limit his power this is merely an incapacity -- not a failure of potency. However, God is incapable only with respect to what is logically impossible, which is so either because its description is formally false or definitionally false. 'God can limit his power' is not formally false. But that it is false by definition merely begs the question."
39. "Bryant on Sommers," *Critica* 7: 87-92 (1980).  
 "A recent attempt to make use of Fred Sommers' denial-negation distinction is shown to be misguided. The failure here generates other errors involving such important distinctions as spanning/predicability, vacuous/category mistaken, and essence/accident."
40. "Chandler on change," *Critica* 7: 81-85 (1980).  
 "Common sense, as Aristotle saw, demands an account of the world which admits both accidental and substantial change. In the first an object ceases to be how-it-is; in the second it ceases to be what-it-is. H. S. Chandler's recent critique of M. Loux's "Substance and attribute" suffers from a misunderstanding of this distinction. Chandler mistakenly concludes from the Aristotle-Loux theory that because an object is necessarily what-it-is, then it is eternally what-it-is."
41. "A note on predication," *Dialogue* 19: 627-628 (1980).  
 Reply to: Nicholas Griffin - *Do we need predication?* - *Dialogue*, 16, 1977, pp. 653-663.
42. "Noncategorical syllogisms in the *Analytics*," *Notre Dame Journal of Formal Logic* 21: 602-608 (1980).
43. "On propositional form," *Notre Dame Journal of Formal Logic* 21: 101-120 (1980).  
 Reprinted in: A. Menne and G. Offenberger (eds.) - *Zur Modernen Deutung der Aristotelischen Logik* - vol. II, Hildesheim, Georg Olms, 1985 pp.131-140.
- "There is a vast difference between the Aristotelian and contemporary accounts of the logical form of subject-predicate sentences. While contemporary logicians take both subjects and predicates to be syntactically simple (and build up sentences from them by adding quantifiers and sentential connectives), Aristotle took subjects to be syntactically complex (term plus quantifier) and predicates as well (term plus qualifier). Recent work by F. Sommers shows the advantages of the old view over the new one."
44. "Denotation and reference," *Philosophical Studies (Ireland)* 27: 229-236 (1980).  
 "The new syllogistic recently developed by F. Sommers requires a distinction between terms, on the one hand, and subjects and predicates, on the other. a subject is a quantified term; a predicate is a qualified term. so terms and subjects are logically distinct, with distinct sentential roles. Terms denote; subjects refer. the reference of a subject is determined by both the denotation of its constituent term and its quantity. these notions have important consequences for the idea of quantified singulars and for distribution theory."
45. "Singular terms and the syllogistic," *The New Scholasticism* 54: 68-74 (1980).  
 "It is generally held that singular terms have no place in Aristotle's syllogistic. A variety of reasons have been given for holding this view. Nevertheless, Aristotle did offer examples of syllogisms containing singular terms. It is suggested here that the reasons for denying singulars a place in syllogistic are unacceptable. Thus, singular terms are on a logical par with general terms. They can be subject terms (thus be quantified) and they can be predicate terms as well (thus be affirmed or denied of subjects). A proper understanding of how this is so comes only from a clear

understanding of Aristotle's theory of logical syntax. Recently F. Sommers has provided a syllogistic logic ("the calculus of terms") which shows, among other things, how singulars can be treated syllogistically."

46. *Logical negation*. Assen: Van Gorcum 1981.

Introduction 1; Some historical remarks 3; Negation in mathematical logic 19; Sommers' term logic 28; The symbolism for a term logic 38; Negation and falsity 47; Concluding remarks on the nature of formal logic 56; Index 61-62.

"This monograph examines the notions of negation found in classical, Stoic, and contemporary mathematical logics and argues that for philosophical purposes, and consonant with ordinary discourse, the notions of predicate denial and term negation (Aristotle's) are to be preferred over the sentential negation now favored. Arguments supporting this atavism are drawn from or based upon the work of F. Sommers. A final result of this investigation is new light on falsity."

47. *Three logicians. Aristotle, Leibniz, and Sommers and the syllogistic*. Assen: Van Gorcum 1981.

Preface VII; Introduction 1; *Three logicians*; Aristotle 9; Leibniz 28; Sommers 42; *The syllogistic*; Contemporary mathematical logic 67; Syllogistic logic 77; Concluding remarks 109; Bibliography 113; Index 116-118.

"In his *Introduction to Logical Theory* (London, 1952) P.F. Strawson attempted to show that traditional syllogistic logic was more reflective of various features of ordinary language than was modern mathematical logic. P. Geach, the best modern critic of traditional logic, responded to Strawson in "Mr. Strawson on Symbolic and Traditional Logic", *Mind*, 72 (1963). His brief remarks there show that Strawson's defense of the old logic is, at best, naive. Geach clearly believes that there just can be no sound defense of traditional logic. He even suggests that those who would persist in their allegiance to the old logic are either irrational or lazy. He says:

Many readers will vaguely think Strawson has *proved* that the traditional system with all its faults is philosophically less misleading than the new-fangled one. Those Colleges of Unreason where the pseudo-Aristotelian logic is presented as the only genuine logic, and those lecturers who would like to teach the philosophy of logic without having to learn any modern logic, may well thus have been supplied with a pretext for supine ignorance.

We believe that syllogistic logic is philosophically defensible. What Geach sees as its faults are either not faults at all or can be remedied. The result of applying such remedies is a new syllogistic - a logic which is broader and stronger than Aristotle's original. It is a logic competitive with the "new fangled" logic of today. This new syllogistic was envisaged, but not built, by Leibniz. The hope for such a logic lay dormant during the period when mathematical logic was being born and nurtured through its rapid maturity. But recently that hope has been revitalized, and virtually fulfilled, in the work of F. Sommers. The best general answer to Geach's overall charge is simply a presentation of this new syllogistic.

While the primary motive in presenting this essay is the defense of syllogistic against its modern detractors, we also believe that it is time for a concise introduction to Sommers' logical work. This work is scattered throughout a wide variety of journals and anthologies; and there is now no available account of it. Given the great originality of Sommers' ideas, and the importance of the issues he has chosen to deal with in logic, this void must be filled. Part of this essay is intended as a modest start at that task." (From the Preface).

48. "A note on identity, reference and logical form," *Critica* 8: 75-81 (1981).

49. "Predicates, predicables and names," *Critica* 8: 105-108 (1981).

"It is a canon of modern predicate logic that general terms are predicates and subjects are singular. Traditional logic, by contrast, took all terms to be fit for either the subject or predicate roles. The thesis, recently defended by T. Burge, that names are predicates amounts (once the prejudices of modern logic are abandoned) to the much weaker claim that names can be used as general terms."

50. "A journey to Eden: Geach on Aristotle," *Grazer Philosophische Studien* 14: 133-141 (1981).

"Peter Geach has charged Aristotle with the sin of corrupting logic by initiating a process which led to the view that a sentence consists logically of just two names. This charge can only result from a

clearly mistaken view of Aristotle's theory of logical syntax. Aristotle, unlike Geach, was careful to distinguish subjects from subject-terms and predicates from predicate-terms.

He took both subjects and predicates as syntactical complexes. Geach, following Frege, holds a very different theory of logical syntax which takes predicates, but not subjects, as syntactically complex."

51. "A further note on a proof by Sommers," *Logique et Analyse* 94: 271-272 (1981).  
"In a previous essay I pointed to a flaw in F. Sommers' proof (contra Lukasiewicz) that 'some a is a' is not a logical truth. Yet the failure of Sommers' proof is no reason to reject his view of 'some a is a'. Here I offer a revision of his proof to the effect that 'some a is a' is not a logical truth."
52. "On the terms of truth," *Philosophical Papers* 10: 89-92 (1981).  
"Correspondence theories of truth require a special relation between sentences and the world. Relying on suggestions first made by Leibniz, and later expanded by Sommers, it can be shown that the relation called for is simply that of denotation. Since denotation is primarily a relation between a term and things, sentences must be construed as terms. The things denoted by sentences are (pace Sommers) states of affairs."
53. "Natural syntax, logical syntax, and translation," *Australian Logic Teachers Journal* 6: 8-14 (1982).
54. "Predication old and new," *Critica* 14: 117-120 (1982).
55. "Do we need relative identity?," *Notre Dame Journal of Formal Logic* 23: 91-93 (1982).  
"F. Sommers has shown how statements of absolute identity can be viewed as having an underlying categorical logical form once singular terms are taken to be syntactically similar to general terms. This means that singulars can be quantified and can be predicted. The result is a logic which, unlike the predicate calculus, does not need a special 'identity theory' appendage. It is shown here that relative identities can be categorized as well. while 'a is b', 'a is the same x as b' is treated as 'some x which is a is b'."
56. "What in the world is the truth about logical space?," *Philosophical Inquiry* 4: 52-61 (1982).
57. "Aristotle on the Oblique," *Philosophical Studies* 29: 89-101 (1982).
58. "Leibniz on logical syntax," *Studia Leibnitiana* 14: 119-126 (1982).
59. "Aristotle and Quine on the basic combination," *The New Scholasticism* 56: 244-249 (1982).  
"Quine's 'basic combination' is a sentence joining a singular to a general term. The position as the singular is referential -- that of the general is predicational. Singulars and generals are unfit for each other's position. This contrasts with Aristotle's view, which takes such sentences to join a subject and a predicate. A subject is a quantified term -- a predicate is a qualified term. Yet the terms themselves are syntactically homogeneous -- fit for each other's position. One motive behind the Quinean view is the belief that: (i) subjects refer, (ii) singular refer to individuals, (iii) universals cannot be referred to. So, since generals cannot refer without referring to universals, generals are unfit for subjects. the Aristotelian account of logical syntax also avoids Platonic consequences, but not at the cost of an unsupported singular/general distinction."
60. "Reference, anaphora and singular quantity," *Dialogos* 41: 67-72 (1983).  
"Several ideas from Sommers are added to those from Donnellan, Vendler, Leibniz and Scholastic logic to provide a syntactic account of the attributive/referential distinction."
61. "Presumptions of reference," *Philosophical Papers* 12: 9-11 (1983).
62. "Presupposition and existence," *Philosophical Papers* 12: 1-8 (1983).  
"It is argued that sentences with subjects which are names or descriptions neither materially imply nor presuppose existence. Following a suggestion by F. Sommers it is claimed that in most, but not all, contexts 'a is b' is accompanied by the presupposition 'every b exists'. from these two, 'a exists' follows syllogistically. This thesis is then extended to account for the apparent implications of sentences containing extensional verbs such as 'knows'."
63. "Feldman and Sommers on Leibniz's Law," *Dialogos* 43: 91-96 (1984).  
34. "Following suggestions made recently by F. Sommers it can be shown that Leibniz's law is in fact a principle of term substitutability. Terms are the same if and only if they are intersubstitutable for one another. More importantly for Leibniz's general program for syllogistic is the fact that this principle is but a special case of the dictum de omni."
64. "Notes on Quine's syntactical insights," *Grazer Philosophische Studien* 22: 149-157 (1984).
65. "Logical form and natural syntax," *Indian Philosophical Quarterly* 11: 229-254 (1984).

"Fred Sommers' recent work on logic has succeeded in the construction of a 'new syllogistic', comparable in expressive and inference powers to the standard predicate calculus. Modern logicians committed to the standard system have begun to counsel grammarians concerning the logical syntax of natural language. A quite different view of this syntax, one requiring far fewer concessions from grammarians, is provided by a phrase structure grammar based on Sommers' logic."

66. "Freeman on induction/deduction," *Informal Logic* 6: 26-27 (1984).  
 "It has recently been claimed that logicians make the deduction/induction distinction on the basis of explicit or implicit illation signs supplemented by recourse to traditionally assigned forms. A view of logic which takes all arguments initially as deductive according to some standard theory (e.g., syllogistic, first-order predicate calculus, etc.) allows invalid arguments to be judged according to a supplementary theory of induction."
67. "Logical structure and natural syntax," *Journal of Social and Biological Structures* 7: 219-234 (1984).
68. "Opposition," *Notre Dame Journal of Formal Logic* 25: 79-85 (1984).  
 "Using ideas first presented by F. Sommers it can be shown that there are certain laws which are confused with the law of excluded middle but which, unlike the law, fail to apply universally. Distinguishing among the various types of logical opposition involved in these laws permits a richer account of opposition in general, including opposition for singular sentences. Also, such distinctions allow for a more sophisticated account of vacuousity."
69. "Quadratum Auctum," *Notre Dame Journal of Formal Logic* 107: 309-325 (1984).  
 Reprinted in: George Englebretsen (ed.) - *Essays on the philosophy of Fred Sommers* - Lewiston, Edwin Mellen Press, 1990, pp. 133-147.

"Drawing on ideas presented recently by F. Sommers a variety of distinctions are made between different kinds of logical opposition. The principles governing these logical distinctions can be used to augment those governing a traditional square of opposition. The result is an augmented square of opposition useful for the analysis of not only normal categorical sentences, but vacuous sentences, singular sentences, and even compound sentences."

70. "Syntactical complexity," *Philosophical Inquiry* 6: 119-126 (1984).
71. "Anselm's Second Argument," *Sophia* 23: 34-37 (1984).
72. Zur philosophischen Interpretation der Logik: ein weiterer aristotelischen Dialog. In *Zur Modernen Deutung der Aristotelischen Logik. Vol. II*. Edited by Menne Albert and Öffenberg Niels. Hildesheim: Georg Olms 1985. pp. 112-127
73. "Quine on Aristotle on identity," *Critica* 17: 65-68 (1985).
74. "Defending distribution," *Dialogos* 45: 157-159 (1985).  
 "At least one recent defender of the doctrine of distribution has conceded too much to the opposition. Friends of distribution must recognize the crucial distinction between denotation, a semantic feature of all terms, and reference, a semantic feature of quantified expressions. They must also be prepared to apply their doctrine to every kind of term -- including relationals."
75. "Logical primitives," *Indian Philosophical Quarterly* 12: 371-380 (1985).  
 "Recent work on a logic of terms by F. Sommers shows that there are a small number of natural language formatives which are sufficient for the generation of all logical formatives. The logically primitive formatives are the particular quantifier, term negation, sentence negation and sentence conjunction. Cases where less primitive formatives cannot be defined shed light on a variety of apparent logical paradoxes."
76. "On the proper treatment of negative terms," *Journal of Critical Analysis* 8: 109-115 (1985).
77. "Negative names," *Philosophia* 15: 133-136 (1985).  
 "E. M. Zemach's otherwise superb defense of the formal symmetry of names and general terms includes a mistaken view about the nature of negated names. While agreeing with his symmetry thesis I argue that he fails to appreciate (1) that the referents of negated names are not logically impossible, and (2) that the negation of a name is not a name."
78. "Semantic considerations for Sommers' logic," *Philosophy Research Archives* 11: 281-318 (1985).  
 "During the last twenty-five years Fred Sommers has developed a series of inter-related theories of language structure, ontological structure, logical syntax, and truth. Each theory has naturally

contained valuable suggestions concerning semantic issues. But Sommers has not yet offered a specifically semantic theory. I attempt here to fill that gap by sketching a theory of semantics based upon his logical theses. The theory holds that terms, as used in statement making sentences, have both denotation and signification. Terms denote objects and signify properties. Terms, when quantified, refer to some or all of their denotations, and, when quantified, characterize the subjects to which they are predicated as having or lacking the properties they signify. The semantic, syntactic, and ontological theses presented in this theory are contrasted with those found in classical, Scholastic, Leibnizian, Fregean, and Quinean theories."

79. "Geach on logical syntax," *The New Scholasticism* 59: 177-184 (1985).

80. "A note on truth and existence in Leibniz," *Manuscripta. Revista Internacional de Filosofia* 9: 7-9 (1986).

"Leibniz was able to connect the notion of truth for a sentence with the idea of existence for individuals. Words and sentences are taken to both denote individuals and signify concepts. If a true sentence two conditions must hold. The concept signified by the subject and the word denoted by the sentence must be the actual word."

81. "Czezowski on wild quantity," *Notre Dame Journal of Formal Logic* 27: 62-65 (1986).

"It is well known that if singular sentences are to be fully incorporated into a syllogistic logic, singular subjects must be quantified. Leibniz argued that such subjects are both universal and particular. Similar (but not identical) views have been advanced in this century by Copi, Sommers and Czezowski. but the latter has argued that singular quantity is unique, distinct from the two classical quantities. It is shown here that this is an illusion."

82. "Singular / General," *Notre Dame Journal of Formal Logic* 27: 104-107 (1986).

"Modern logic takes the difference between singular and general terms very seriously. It insists that sentences with general subjects have a much more complex logical syntax than sentences with singular subjects.

This is partly because modern logic always treats general terms as predicates and never treats singular terms as anything but subjects. The insistence that the logic of singulars is different from the logic of general propositions is also partly due to modern logic's demand that the logical form of any sentence be a reflection of its truth conditions. 'Socrates is wise' is true just in case Socrates is wise. But 'Some philosopher is wise' is true just in case there is at least one thing which is such that it is a philosopher and it is wise. So the modern logician requires a great deal of semantic information to be reflected in syntax. But how does a logician decide how much semantic information should be so reflected? Surely not all. There's just too much. Just that which determines truth? 'John is a bachelor' has as one of its (necessary) truth conditions that John is a male. Yet the modern logician does not require this bit of semantic information to be revealed syntactically."

83. "On some alleged semantic correlations," *The New Scholasticism* 60: 490-500 (1986).

"The Fregean replacement of the subject/predicate distinction with the argument/function distinction led to an emphasis on the singular/general distinction for logic. Only singulars could be subjects; only general terms could be predicates. Singulars refer; predicates are true of. Ultimately the Fregean syntactic distinction is semantic. The old subject/predicate is not. A semantic theory based on the old logic of subjects and predicates can allow the semantic, syntactic and ontological distinctions their proper places."

84. Logical polarity. In *The new syllogistic*. Edited by Englebretsen George. New York: Peter Lang 1987. pp. 305-311

"Both statements and terms can be negated. They come in positively/negatively charged pairs. This polarity is reversible for terms (for any negative term a semantically equivalent positive can be defined) but not for statements. An account of why this is so is offered here."

85. Natural syntax and Sommers' theory of logical form. In *The new syllogistic*. Edited by Englebretsen George. New York: Peter Lang 1987. pp. 245-272

"F. Sommers has challenged the Fregean theory of logical syntax. In particular, he has denied the idea that natural language has no logic. It is possible to articulate a theory of logical syntax for natural language. It construes sentences as concatenations of subjects and predicates. A subject is a quantifier plus a term; a predicate is a qualifier plus a term. Surprisingly, such an analysis accounts not only for categoricals but singulars, identities, rationals and truth-functions."

86. *The new syllogistic*. Edited by Englebretsen George. New York: Peter Lang 1987. Preface IX; Introduction 1; 1. The calculus of terms by Fred Sommers p. 11 (reprinted from *Mind*, 89, (1970); 2. De Morgan and Sommers by Peter Swiggart p. 57; 3. Back to Leibniz or on from Frege? by B. H. Slater p. 87; 4. Review: *The logic of natural language* by Peter Frederick Strawson p. 99 (reprinted from *The Journal of Philosophy*, 79, (1982); 5. On the semantics of Sommers' 'Some S' p. 105 by Richard M. Martin p. 105 (reprinted from *Mind, modality, meaning and method* (1983); 6. Sommers and modern logic by John Bacon p. 121; 7. Proofs and pronouns: extending the system by Michael Lockwood p. 161; 8. Algebraic rules for syllogisms and antilogisms by W. H. Friedman p. 213; 9. The two term theory of predication by Aris Noah p. 223; 10. Natural syntax and Sommers' theory of logical form by George Englebretsen p. 245; 11. Some practical and theoretical features of Sommers' cancellation method by Richard Purtil p. 273; 12. Some problems with TFL [Traditional Formal Logic] by Charles Sayward p. 283; 13. Truth and existence by Fred Sommers p. 299; 14. Logical polarity by George Englebretsen p. 305; Notes on the contributors p. 313; Bibliography p. 315-322.

"This anthology brings together essays by F. Sommers, his defenders and critics concerning his new system of logic based on a traditional logical syntax (the "new syllogistic"). The essays include presentations of the logic, explorations of some of its historical antecedents, examinations of the symbolic algorithm which accompanies it, and discussions of such key topics as pronominalization, truth, syllogistic inference, existence and term-negation."

87. Truth and existence. In *The new syllogistic*. Edited by Englebretsen George. New York: Peter Lang 1987. pp. 299-304
88. "Morris on identity," *Analysis* 47: 92-93 (1987).  
"T. V. Morris's recent account of how non-trivial identity statements can be informative fails. It generates the kind of infinite regress he himself has cautioned against."
89. "Subjects," *Studia Leibnitiana* 19: 85-90 (1987).
90. "La théorie des catégories de Sommers: une nouvelle introduction," *Dialogue* 27: 451-473 (1988).  
"Fred Sommers is best known now for his work on term logic. But this work can ultimately be traced back to his tree theory, which he developed in the Fifties and Sixties. That theory centers on the thesis that (1) ordinary language has a specifiable structure, (2) there is an ontological structure determined by the categories of things, and (3) the two are isomorphic. This essay is an attempt to recover the main ideas of the tree theory -- ideas whose potency has yet to be fully exploited."
91. "Preliminary notes on a new modal syllogistic," *Notre Dame Journal of Formal Logic* 29: 381-395 (1988).  
"The new syllogistic developed recently by F. Sommers is given a modal extension. In such a modal syllogistic modal expressions are allowed to modify both terms and sentences. Models for such modalities are in terms of domains of discourse (totalities relative to which a sentence is used). Some preliminary discussion of rules for proof and some sample syllogistic proofs are provided."
92. "A note on Leibniz's wild quantity thesis," *Studia Leibnitiana* 20: 87-89 (1988).
93. "Formatives," *Notre Dame Journal of Formal Logic* 30: 382-389 (1989).  
"An answer to the question of 'sentential unity' (What makes a sentence a single linguistic unit rather than just a string of words?) is one of the goals of any theory of logical syntax. A 'Fregean' theory claims that a sentence is a function (unsaturated expression, containing gaps) whose gaps are filled with either arguments (saturated, gap-less) or other functions which have already been saturated. A 'Leibnizian' theory construes a sentence as a syntactically complex subject (quantified term) plus a syntactically complex predicate (qualified term). Subjects and predicates just naturally fit one another to form sentences. An 'Aristotelian' theory takes a sentence to consist of a pair of terms connected by a binary formative expression (functor), whose only role is to connect terms to form more complex expressions (e.g., sentences). After an examination of the formal nature of such functors, it is argued that this third sort of theory not only answers better the question of sentential unity, but it also provides a better account of the nature of logical constants in general."
94. *Essays on the philosophy of Fred Sommers. In logical terms*. Lewiston: Edwin Mellen Press 1990. Contents;  
Foreword by Graeme Hunter I; Introduction III; I. A reintroduction to Sommers' tree theory 1; II.

Sommers on the subject of a sentence 33; III. On the philosophical interpretation of logic: another Aristotelian dialogue 43; IV. A introduction to (a Sommers-like) logic 63; V. Remarks on the semantics of terms and sentences 109; VI. Quadratum auctum 133; VII. On the logic of phrasal conjunctions 151; VIII. Compound terms 159; IX. Preliminary notes on a new modal syllogistic 169; X. Existing things 189; XI. A brief note on psychologism 197; Bibliography 205; Index of names 229; Index of terms 233.

95. "The myth of modern logic," *Cogito* 4: 150-158 (1990).
96. "A note on copula and qualifiers," *Linguistic Analysis* 20: 82-86 (1990).
97. "Cartesian syntax," *Philosophical Inquiry* 12: 59-64 (1990).  
"The "Cartesian" theory of logical syntax was most fully formulated by the Port-Royal logicians. A brief survey of their work, especially the *Logique*, shows that they took a statement to have a deep structure analyzable as a predication. It is a joining or separating of two terms by a positive or negative copula. Complex terms were also viewed as (implicit) predication. The logical syntax of predication requires no recourse to semantic distinctions among terms, nor does it distinguish atomic from molecular statements."
98. "An algebra for logic," *Canadian Journal of Rethorical Studies* 2: 104-140 (1992).
99. "Plus and Minus," *Critica* 24: 73-116 (1992).
100. "Laying the cards on the table: negation theory and contradiction," *Linguistic Analysis* 22: 96-99 (1992).
101. "Linear diagrams for syllogisms (with relationals)," *Notre Dame Journal of Formal Logic* 33: 37-69 (1992).  
"A system for diagramming syllogisms is developed here. Unlike Venn, and other planar diagrams, these diagrams are linear. This allows one to diagram inferences which exceed the virtual four term limit on nonlinear systems. It also can be extended (by the use of vectors) to inferences involving all kinds of relational expressions."
102. "L'utilisation de modèles lineaires dans l'enseignement des entiers relatifs," *Instantanés Mathématiques* 30: 16-18 (1994).  
with G. Boulet and M. Francavilla.
103. "A propos of nothing," *Linguistic Analysis* 24: 32-38 (1994).
104. *Something to reckon with: the logic of terms*. Ottawa: Ottawa University Press 1996.  
With a foreword by Fred Sommers; Preface; Introduction 1; 1. The good old days of the bad old logic (or, Adam's Fall); Aristotle's syllogistic 9; Scholastic additions 16; Cartesian interlude 23; Leibnizian insights 30; Nineteenth-century algebraists 41; 2. A modern success Story (or, Frege to the rescue); Frege 53; Bradley and Ramsey raise some doubts 64; Russell and Wittgenstein 69; Strawson, Geach, and Quine 78; 3. Coming to terms with Sommers 99; The Calculus of Terms 99; The logic of natural language 122; The truth 135; The laws of thought 142; 4. It all adds up 149; Plus/Minus 149; Truth and what 'there' is 185; A new system of diagrams 188; Conclusion 239; Bibliography 243; Index of names 269-274.
105. "The unifying copula," *Logique et Analyse* 159: 255-259 (1997).  
"Bradley's 'Paradox' can be avoided by paying the price of Frege's 'Paradox'. Recently R. Gaskin has tried to avoid both by introducing a kind of "Fregean copula," which would be at once a saturated sentential element and a sentential unifier. Yet Gaskin's solution turns out to concede too much to Bradley, generating its own infinite regress. The best way here is simply to reintroduce Aristotle's logical copula."
106. "Religious discourse and Sommers' theory of truth: a response to Hans H. Penner," *Method and Theory in the Study of Religion* 9: 249-258 (1997).
107. *Line diagrams for logic: drawing conclusions*. Lewiston: Edwin Mellen Press 1998.  
Preface; Introduction 1; I. Reasoning with diagrams 7; II. Syntax and diagrams 13; III. A word about truth 17; IV. Diagramming categoricals and singulars 19; V. Compound terms and negative names 29; VI. Compound names 37; VII. Syllogistic inference 41; VIII. Relationals 47; IX. Reflexive and personal pronouns; 57; X. The dictum de omni 63; XI. Statement logic as a special part of term logic 67; XII. Diagramming unanalyzed statements 77; XIII. Final remarks 85; Appendix 87; References 99-105
108. *An invitation to formal reasoning. The logic of terms*. Aldershot: Ashgate 2000.

Co-author: Fred Sommers.

Preface X; 1. Reasoning 1; 2. Picturing propositions 25; 3. The language of logic (I) 49; 4. The language of logic (II) 77; 5. Syllogistic 109; 6. Relational syllogistic 139; 7. Statement logic 163; 8. Modern predicate logic 213; Rules, laws and principles 253; A note on further reading 259-260.

The book "introduces the discipline of formal logic by means of a powerful new system formulated by Fred Sommers.

This system, term logic, is different in a number of ways from the standard system employed in modern logic; most striking is, its greater simplicity and naturalness. Based on a radically different theory of logical syntax than the one Frege used when initiating modern mathematical logic in the 19th Century, term logic borrows insights from Aristotle's syllogistic, Scholastic logicians, Leibniz, and the 19th century British algebraists.

Term logic takes its syntax directly from natural language, construing statements as combinations of pairs of terms, where complex terms are taken to have the same syntax as statements. Whereas standard logic requires extensive 'translation' from natural language to symbolic language, term logic requires only 'transcription' into the symbolic language. Its naturalness is the result of its ability to stay close to the forms of sentences usually found in every day discourse. Written by the founders of the term logic approach, *An Invitation to Formal Reasoning* is a unique introduction and exploration of this new system, offering numerous exercises and examples throughout the text. Summarising the standard system of mathematical logic to set term logic in context, and showing how the two systems compare, this book presents an alternative approach to standard modern logic for those studying formal logic, philosophy of language or computer theory."

109. Preliminaries for a term-functor logic. In *Variable-free semantics*. Edited by Böttner M. and Thümmel W. Osnabrück: Secolo-Verlag 2000. pp. 90-99
110. Two important logical insights by Lewis Carroll. In *Reflections on Lewis Carroll*. Edited by Soto Fernando J. Shelburne: The Lewis Carroll Society of Canada 2000. pp.
111. Postmodernism is irrational. In *Postmodernism*. Edited by Maus Derek. San Diego: Greenhaven Press 2001. pp. 152-155  
 "Postmodernism is a philosophy that significantly diminishes the role of supposedly universal truths like rational thought and logic. The result of this is a society in which "willful stupidity" to the realities of modern life is an acceptable side effect of a more tolerant attitude toward all ideas."
112. "On the concept of mental health," *APA Newsletter in Philosophy and Medicine*: 162-164 (2001).  
 "The "business" of mental health is a growth industry. It ultimately rests on a number of key concepts. In particular, it depends on the concept of mental health (or, correspondingly, mental disease). Getting clear about concepts is a philosophical -- not psychiatric -- task. Using the conceptual-category theory developed by F. Sommers, it can be shown that the key concepts are confused. Mental illness, as T. Szasz says, is a myth. Fashionable postmodern views on mental health are also examined and found wanting."
113. "Protagoras and Humanism," *Humanist in Canada* 138: 14-15 (2001).
114. "Syllogistic: old wine in new bottles," *History and Philosophy of Logic* 23: 31-35 (2002).  
 "In the late nineteenth century there were two very active lines of research in the field of formal logic. First, logicians (mostly in English-speaking countries) were engaged in formulating a generally traditional logic as an algebra, a part of mathematics; second, logicians (mostly on the Continent) were busy building a non-traditional logic that could serve, not as a part of, but as the foundation of, mathematics. By the end of the First World War the former line had been pretty well abandoned while the second continued to expand. However, that old abandoned line, stretching from Aristotle, through the Scholastics and then Leibniz to the nineteenth century algebraists, had not been completely forgotten. One of those logicians who has recently worked on the restoration (and, importantly, the extension) of that line is Fred Sommers. His Term Logic preserves a number of traditional insights (especially involving the theory of logical syntax), while also enjoying a power to account for formal inference at least comparable to that of the standard logic now in place."
115. Trees, terms, and truth: the philosophy of Fred Sommers. In *The old new logic. Essays on the philosophy of Fred Sommers*. Edited by Oderberg David S. Cambridge: The MIT Press 2005. pp.

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"During the past fifty years Fred Sommers has developed bold and original ideas concerning the sense structure of natural language and how it reveals ontological structure, a powerful and fully expressive version of term logic, and a revitalized theory of truth by correspondence. This essay shows how all these ideas are mutually related to one another. Together they amount to a unified, coherent theory of mind, language and the world. Sommers's work in these areas has influenced research in philosophy of language, logic, and cognitive psychology."

116. *Bare facts and naked truths. A new correspondence theory of truth.* Aldershot: Ashgate 2006. Contents: Preface IX. Part One: Introduction; 1. À la recherche du temps perdu 9; 2. The big MAC attack 37; Part Two: 3. Terminism 79; 4. Facing the facts 1070; 5. Giving the world Its due 141; 6. A nice derangement 153; Conclusion 167; Bibliography 171; Index 189.

"The aim of the present essay is to outline a theory about truth. Since a number of concepts are involved in the concept of truth this means that I shall have to offer clarification, of one sort or another, of a large number of concepts and conceptual clusters. Some of these involve what there is, existence, reality, and the like (so my project is partly metaphysical); some involve knowledge, belief, perception, and so forth (so my project is partly epistemological); others involve sentences, terms, propositions, statements, saying, and so on (so part of my project is in the philosophy of language -- semantics). To illustrate briefly what I've been saying, consider some of the semantic concepts with which we shall be dealing. The terms of art needed to talk about such things as sentences, statements, facts, stating, saying, and what is stated are all plagued by ambiguity (and much else besides). To disambiguate them, trace out their different senses, is to analyze the multiple concepts they can express. Thus a sentence might be either a sentence-type or a sentence-token; a statement might be either a sentence or what is expressed by a sentence; a fact might be either a true sentence, a true statement, a truth expressed by a sentence (or by a statement), or what makes something (a sentence, statement, and so on) true; to state might be to utter, to express, to signify, or to do something else; to say might be to utter or to state; what is stated might be a sentence, a fact, or something else. So here we have just a portion of a large cluster of concepts that is implicated in any account of truth and is in serious need of clarification, analysis, disentanglement -- and I have yet to focus on the concept of a concept. An appropriate way to make progress here is to try to formulate a detailed, specific theory of truth. Along the way, the clarification of various concepts will help push along the development of the theory. Reciprocally, the theory, as it gets formulated, will help shed light on various key concepts and at least show the way to the clarification of others."

117. "Making Sense of Truth-Makers," *Topoi* 29: 147-151 (2010).
118. *Philosophical Logic. An Introduction to Advanced Topics.* New York: Continuum 2011. Co-author Charles Sayward. Contents: List of Symbols X; 1. Introduction 1; 2. Sentential Logic 13; 3. Quantificational Logic 52; 4. Sentential Modal Logic 74; 5. Quantification and Modality 93; 6. Set Theory 103; 7. Incompleteness 130; 8. An Introduction to Term Logic 139; 9. The Elements of a Modal term Logic 166; References 176; Rules, Axioms, and Principles 177; Glossary 184; Index 195-198.

"Post-Fregean mathematical logic began with a concern for foundational issues in mathematics. However, by the 1930s philosophers had not only contributed to the building and refinement of various formal systems, but they had also begun an exploitation of them for primarily philosophical ends. While many schools of philosophy today eschew any kind of technical, logical work, an ability to use (or at least a familiarity with) the tools provided by formal logic systems is still taken as essential by most of those who consider themselves analytic philosophers. Moreover, recent years have witnessed a growing interest in formal logic among philosophers who stand on friendly terms with computer theory, cognitive psychology, game theory, linguistics, economics, law, and so on. At the same time, techniques developed in formal logic continue to shed light on both traditional and contemporary issues in epistemology, metaphysics, philosophy of mind, philosophy of science, philosophy of language, and so forth.

In what follows, students who have already learned something of classical mathematical logic are introduced to some other ways of doing formal logic: classical logic rests on the concepts of truth

and falsity, whereas constructivists logic accounts for inference in terms of defense and refutation; classical logic usually makes use of a semantic theory based on models, whereas the alternative introduced here is based on the idea of truth sets; classical logic tends to interpret quantification objectually, whereas this alternative allows for a substitutional interpretation of quantifiers. As well, a radically different approach, fundamentally different from any version of mathematical logic, is also introduced. It is one that harkens back to the earliest stages in the history of formal logic but is equipped with the resources demanded of any formal logic today." (pp. 1-2)

119. *Robust Reality. An Essay in Formal Ontology*. Frankfurt: Ontos Verlag 2011.

"Because I owe so much to Fred Sommers, I offer the present book as a feeble attempt to fulfill his wish to provide a full account of the tree theory, of the structure of language, its relation to ontology, and the many fruits that can be harvested from it - especially when watered by logic and ripened in the sunlight of truth." (p. XIII).

"In this essay, we have examined systems of formal ontology hinted at by Aristotle, attempted by Ryle, and one fully articulated by Sommers. Each took some formal aspect of language to provide a guide to the formal structure of the ontology. More particularly, each concentrated on semantic relations as key to that structure. This contrasts with more recent theories that take the syntactic forms dictated by modern mathematical logic as the proper guide to ontology. Sommers' semantic-ontological tree theory proved fruitful. For example, it highlighted the fact that term ambiguity, which requires different senses of a term to have different locations on the language tree, is most commonly the result of following rules - rules that "enforce ambiguity" on some terms. Moreover, the theory permitted a rational way to look at the order in which various rules governing language apply - "levels of rectitude".

Given the isomorphism of sense structures for the terms of ordinary language and the inclusion relations among categories of things, the notion of levels of rectitude could be extended to rules governing ontology as well. The key notion of spanning, which holds or fails to hold between a (sense of a) term and thing, helps enrich our understanding of how things can constitute not only sets but categories and types.

In examining the tree theory, with its focus on terms, one can't help noting that much depends on the idea that predication is essentially a relation between a predicable term and another term, which is also predicable. It was this idea, that statements could be parsed as pairs of terms standing in the relation of predication, that led Aristotle away from the view that statements consist of names and verbs. Giving up that grammar-based view freed Aristotle to view statements as consisting of pairs of terms joined together by a logical copula doing the work of predication. Only then was he able to develop formal logic, a term logic, the syllogistic." (pp. 143-144).

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