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I

Introduction: On Contemporary Philosophy of Language

GERHARD PREYER AND GEORG PETER

I propose to consider whether anything, and if so, what can be inferred from the structure of language as to the structure of world.

(Bernard Russell)

Logical form has been a central concern of the analytic tradition in philosophy from Frege and Russell to the present. The logical form of a sentence is thought to reveal both the structure of the thoughts we are expressing, and the structure of the world we think about if our thoughts are true. Thus, investigation into logical forms has played a central methodological role in investigations into the nature of the mind and into the nature of reality. However, the concept of logical form has not received as much attention as might have been expected from the central role it has played in philosophy in the analytic tradition. This book aims to help redress this by bringing together essays on logical form written from a variety of different theoretical perspectives in linguistics and philosophy. The book is divided into three thematically unified parts. The first part is concerned with issues to do with the nature of logical form. The second part is concerned with issues to do with logical form, intensionality, events, and semantic content. The third part is concerned with issues to do with logical form, belief ascription, and proper names. These parts are all in one way or another concerned with logical form. A brief synopsis of the essays in each part follows.

Part I brings together essays by Stephen Neale, Ernie Lepore and Kirk Ludwig, Paul M. Pietroski, Jeffrey King, Peter Ludlow, Robert May, and R. F. Fiengo.

In his essay, Stephen Neale elaborates a proposal of a semantic theory such as for English in a particular way. In the first step he reconstructs and prepares a formal instrument—formalism and notations—given in Whitehead’s and Russell’s *Principia*, assuming a more ‘rudimentary’ Tarskian truth definition for L. From this account it is no dramatic step from the Theory of Description in the *Principia* to a systematic theory of quantification in natural languages. Neale shows in a second step that the use of a formal language which contains advices of restricted quantifications for the analysis of descriptions is not in any conflict with the general assumption that descriptions are incomplete symbols. Therefore Neale argues we can capture Russell’s result of analysis ‘descriptions are not singular terms’ and ‘sentences containing definite descriptions have quantificational truth conditions’ and it is not conclusive to eliminate descriptions or define such expressions in a contextual way. The so-called gap between surface syntax and logical form has—following this theory—nothing to do with descriptions itself. Implementing restricted quantifiers shows that the syntactical and semantical similarities of expression such as “every”, “some”, “a”, “the”, etc. are obvious in the scope of a description of formal notation. Yet Neale discusses also some common interpretative errors of understanding Russell’s theory, in particular the criticism that the logical form analysis cannot give us an adequate contribution to the semantics of natural languages. In their essay, Ernie Lepore and Kirk Ludwig argue that one conception of logical form that has played a central role in the analytic tradition that stretches back to Russell is best understood a conception of semantic form as it is revealed in an interpretive truth theory for a language. The logical form of a sentence on this conception is determined by the semantic types of its primitive elements and their mode of combination as it relates to determining the conditions under which the sentence is true. The logical form of a sentence is revealed by its “canonical proof” in an interpretive truth theory for a language and two sentences in the same or a different language are said to be the same in logical form just in case there are interpretive truth theories for the languages of the sentences in which there are proofs of T-sentences for them which have the same structure. On this approach, logical forms are not reified, and the notion of sameness of logical form is treated as conceptually basic. Lepore and Ludwig discuss also the relation of this conception of logical form to the project of identifying logical constants, reviewing two approaches, one of which takes topic neutrality as central, the other recursion, and argue that the aim of identifying logical constants for the purposes of classifying valid arguments is largely independent of that of identifying the logical form of sentences. They urge an ecumenical

approach to extending talk of logical constants beyond where it is currently well-grounded.

The logical form of a (natural language) sentence depends in part on the semantic contribution of relevant syntax, and this contribution is not exhausted by the ordering that syntax imposes on lexical items. According to one view, syntax makes a minimal—or “contentless”—contribution to truth-conditions: each phrase combines (1) an expression semantically associated with some function, and (2) an expression semantically associated with some element in the domain of that function; so the semantic correlate of syntactic combination is simply function-application, as in standard formal languages. But recent work suggests that phrases are concatenations of predicates, satisfied by those things that satisfy both constituents. In his essay, Paul M. Pietroski argues that, on this view, which is motivated by certain eventish hypotheses about the logical forms of natural sentences, the semantic correlate of syntactic combination is predicate-conjunction. If this is correct, and syntax makes a substantive semantic contribution, then the meanings of sentences are not determined by the meanings of words, in the way that the sum of two numbers is determined by those numbers and the addition function. Given eventish hypotheses about logical forms, one might think that natural language syntax makes a further semantic contribution via the relation between argument structure and thematic roles. In so far as these aspects of meaning are covert, sentences of natural language do not manifest their logical forms. But one can still maintain that syntactic structure determines logical form—or at least those aspects of logical form that we are currently in a position to study. Pietroski shows that it could be useful to make a terminological turn to speak of semantic forms as properties of natural sentences, and this we can also conclude from Davidson’s event analysis. In his essay, Jeffrey King sketches a framework within which claims about the logical form of some class of sentences, or the analysis of some notion, can be taken in two importantly different ways. He notes that in making claims about logical form (or in offering analyses) philosophers have not been careful to distinguish the two ways their claims can be taken. He provides examples of claims about logical form (or correct analyses) made by philosophers, and he shows how these may be understood in the two ways he distinguishes. King’s aim in distinguishing two sorts of claims about logical form is to achieve conceptual clarity and, more importantly, to make clear that the different sorts of claims have different implications, are subject to different sorts of objections and have to be defended differently. Thus, King claims that the resolution of a variety of debates in different areas of philosophy would be facilitated by philosophers

making clear which sort of claim about logical form they are making in a given case.

Current theories of logical form within linguistic theory are typically taken to provide structures that are the input to the semantical component of the grammar. So, for example, logical forms are supposed to be the structures over which we give recursive characterizations of truth when we attempt to provide T-theories for natural languages, or (alternatively) logical forms are taken to be the input to some form of model-theoretic semantics. It is only rarely suggested, however, that one can also define logical inferences directly off of the kinds of logical forms that are proposed within linguistic theory. Inferences, it is widely assumed, must be handled semantically—typically via a model-theoretic semantics. In his essay, Peter Ludlow argues that an extremely broad class of inferences can be defined over logical form representations in natural language and that it can be done by syntactically specifying environments that are upward entailing and downward entailing. The key idea, borrowed from the work of medieval logicians on the “dictum de omni e nullo” is that most of the classical inference paradigms can be reduced to two inference rules, one corresponding to upward entailing environments and the other corresponding to downward entailing environments. Ludlow first shows that for certain formal languages upward and downward entailing environments can be syntactically defined—even formal languages with the full expressive power of generalized quantifier theory. He then argues that there is good reason to suppose that all the relevant properties of those formal languages can be argued to hold in natural language and to be reflected in the LF representations that are posited within current versions of generative grammar. The conclusion is that a program of ‘natural logic’—giving a syntactic characterization of natural language inferences—is not only feasible but very promising. In their essay, Robert May and R. F. Fiengo present a new analysis of the logical form of ‘identity statements’ which builds on Frege’s intuition, which remains clearly enough in mind, but they consistently distinguish themselves from him in the analytical resources they employ in order to analyze these statements. For this purpose they introduce the logical form, including ‘The Assignment Principle’ of a speaker’s belief in the redescription and the translation of identity statements. A communicative value condition follows from the given account, because an interpretation of such statements has to share the prior belief expressed in a translation sentence. This is only possible if both speaker and interpreter share a language with a given analyzable structure, and in this situation reference is not a semantic feature of names but of syntactic expressions. Just such requirements lead us to an introduction of an

assignment relation, and therefore May and Fiengo also give us objections to the rigid designation such as Kripke has used in his analysis.

Part II brings together essays by James Higginbotham, Richard K. Larson, Barry Schein, Norbert Hornstein, and Jason Stanley. For an understanding of the logical and semantic features of reported speech, it is necessary to analyze the tense construction in natural language. Yet significant questions emerge such as “Is tense anaphoric?”, “Does tense express relations between implicit arguments?” In his essay, James Higginbotham defends the proposal, within an explicitly quantificational theory of tense, that the principles governing sequence of tense are a special case of anaphora between open positions in predicates. The tenses themselves express binary relations between events or times; thus simple sentences such as “John ran”, are construed as placing some event of John’s running prior to the speaker’s utterance. Events themselves are taken up as proposed originally by Davidson. Anaphoric relations can in general be optional or obligatory, depending upon the linguistic forms involved. The phenomena for which Hans Reichenbach created the notion of “reference time” are, Higginbotham believes, a special case of anaphora; and, following Michela Ippolito, he assumes that the imperfect tenses are essentially anaphoric. What we observe in the case of sequence of tense, however (as first discussed in contemporary terms by William Ladusaw) is that anaphoric tense is in general optional for embedded relative clauses, but obligatory for embedded complement clauses. The obligatoriness is not therefore a matter of tense form, but of containing context; here Higginbotham examines the question why this should be so. After reviewing proposals that he has advanced elsewhere, and their relation to the recent account of Toshi Ogihara, he argues that the obligatoriness of tense anaphora cannot after all be explained by metaphysical conditions such as he and Ogihara have earlier proposed, but instead should receive a syntactic treatment in the spirit of suggestions of Tim Stowell, on the one hand, and Alessandra Giorgi and Fabio Pianesi on the other. He applies his proposal to the peculiar properties of present-tense complements to past-tense superordinate predicates, the so-called “double-access” cases illustrated by examples such as “John said that Mary is pregnant” in English (and similar cases in Italian). He proposes that, because of the special complementizer structure of embedded clauses, the present tense of the complement clause is interpreted twice over, once as asserting that the time of John’s speech overlaps the time of the (purported) pregnancy, and once as asserting that it overlaps the time of the speaker’s report of what John said. For this syntactic suggestion Higginbotham supplies also an explicit semantics.

Phenomena of intensionality were first discussed by Frege (1893) in the context of sentential complement constructions, and indeed effects of intensionality are not generally observed with non-clausal complements. These results raise a simple question, namely, is intensionality connected with a particular grammatical environment, or is the semantic phenomenon a more general one? In his essay, Richard K. Larson discusses the following two opposing views. Sententialism holds to a grammatically conditioned view of intensionality and intensionalism holds that intensionality is quite general in occurrence and is to be found in a wide range of constructions. More exactly, he examines three putative cases of intensionality effects in non-clausal complement structures: (i) so-called intensional transitives, (ii) adverbial modifiers, and (iii) adjectival modifiers. Larson argues that, in each case, recent work in syntax and semantics casts doubt upon the claim that these structures provide evidence for intensionality divorced from clausal complementation. Intensional transitives can be argued to be a form of concealed clausal structure, and hence simply a case of clausal complementation after all. By contrast, adverbial and adjectival modifiers can be shown to be non-intensional in the crucial range of cases. Larson's conclusion is that the more restricted, sententialist picture appears sustainable.

Analyses descending from Davidson's (1967) logical form for action sentences appeal to thematic relations such as Agent, Patient, Theme, Goal, Location and Instrument, to relate events to their participants. In his essay, Barry Schein notes speakers' partial understanding of nonsense (*The blog looked the clob out of the droom, You keated the marbles onto the board when you keated the board with the marbles*) and argues that their content is invariant under lexical innovation and across the verbal lexicon. Alongside their robust grasp of thematic relations, speakers' judgements and verbal behaviour also demonstrate that there can be alternative descriptions of the same event. Sometimes, at least, the Carnegie Deli sitting opposite Carnegie Hall is the same event as Carnegie Hall sitting opposite the Carnegie Deli, Herb's body vibrating is the same event as his body's parts vibrating, and sometimes drinking some beers in an hour is the same event as drinking a beer for an hour. These modest observations lead to the unexpected result that logical form distinguishes scenes and the events they are scenes of and that temporal adverbials, *In an hour* ('In(*e*, 1 hr)') apply to a concealed, plural definite description of events. If speakers' recognition of robust events and thematic relations was not enough to justify this last refinement to logical form, the telicity conditions that such temporal adverbials impose are shown to derive from the conditions under which the definite description successfully refers to some events. Until the

1990s, Chomsky's theory of logical form and Davidson's interpretive truth theory were not overlapping paradigms. But do our minimalistic proposals show a "Davidsonian shadow"? In his essay, Norbert Hornstein provides a syntactic argument for a Neo-Davidsonian analysis of the clause in terms of thematic roles. The claim is that treating thematic roles as features fits well with the Davidsonian analysis of the clause in terms of events and participants of events while the Fregean analysis of the clause fits nicely with the analysis of thematic roles as relational/positional properties of arguments. Hornstein presents some arguments concerning scope and binding in favor of the featural analysis of theta roles and this in turn supports the Davidsonian view of the proposition as an event-centered set of conjuncts whose arguments are related to the proposition via its thematic structure.

Extra-linguistic context appears to have a profound and varied effect on semantic content. If we adhere to relatively straightforward linguistic intuition about semantic content, we seem to be leading to the conclusion that facts about the non-linguistic context play many different roles in determining it. That so many different constructions betray this sort of sensitivity to extra-linguistic context understandably leads to pessimism about rescuing the straightforward intuitions while preserving any sort of systematicity in the theory of meaning. One central strategy in defending the systematicity of semantics against the threat posed by context-dependence is to reject the semantic significance of ordinary intuitions. In his essay, Jason Stanley explores a different line of defense, by arguing that what appear to be very different effects of extra-linguistic context on semantic content can in fact be due to the same source. As a case-study, Stanley considers the effects of context on three apparently very different kinds of constructions, quantified noun phrases, comparative adjectives, and mass terms. Stanley argues that all three apparently very different effects are due to the same fact about the logical form of nominal expressions. Stanley concludes by drawing some consequences of his analysis for the theory of reference for natural kind terms.

Part III brings together essays by Bernard Linsky, Lenny Clapp and Robert Stainton, Robert Matthews, Marga Reimer, and Reinaldo Elugardo. In his essay, Bernard Linsky contrasts Russell's notion of logical form which underlies his famous theory of descriptions, with two different contemporary accounts. Russell's views on logical form were influenced by his logicist aim of reducing mathematics to logic, and by his ontological views on propositions and the ultimate constituents of the world. Linsky points out that Russell's distinction between apparent and real logical form should be distinguished from

producing a recursive account of truth conditions for natural language, which is the basis for the Davidsonian interpretive truth theory described by Lepore and Ludwig. Russell's notion of the structure of propositions should, according to Linsky, also be distinguished from the syntactically motivated structure called "LF" by the other contemporary approach to logical form. Linsky particularly discusses Stephen Neale's view in his book *Descriptions* (1990). LF structures are intended to capture syntactic regularities, and they are less directly motivated by the semantic or ontological considerations which drive other accounts. A comparison with Russell's own notions of scope and incomplete symbols illustrates these aspects of the LF account of logical form. Linsky argues also that metaphysical views on the constituents of propositions were integral to Russell's notion of logical form, and that they override some of the linguistic considerations that inform more recent accounts. Moreover, Russell's notion was particularly involved with his theory of logical types. In their essay, Lenny Clapp and Robert J. Stainton begin by exploring Russell's rejection of propositions. In his 'Philosophy of Logical Atomism' and elsewhere, Russell maintains that propositions are 'obviously nothing'. Why he asserts this is not entirely clear. One may assume, however, that Russell reasoned as follows: If propositions "are", then they must be facts, but if propositions are facts, they cannot be false (or true, for that matter). Hence, seemingly Russell concludes, propositions are not facts, and hence "are not". Given this, they cannot be a constituent in a belief-relation. Therefore, Russell concludes, belief reports cannot state a relation between an agent and a proposition. While keeping an eye on exegesis, Clapp and Stainton's central concern is as follows: do Russell's arguments threaten the contemporary consensus about the logical form of belief reports which maintains that they do state a relation between an agent and something such a proposition? Their conclusion is that Russell's arguments do indeed rule out certain non-linguistic accounts of propositions, hence these cannot be the objects of belief. Nevertheless, despite what Russell himself probably believed, Clapp and Stainton show that his arguments leave Higginbotham-style Interpreted Logical Forms quite untouched; these can both "be" and not be facts. The ILF account of belief reports is therefore supported on metaphysical grounds.

Most philosophers embrace a relational conception of belief according to which belief is a relation which relates a believer to a semantically evaluable, causally efficacious particular that is the 'object' of belief, that is, the belief. It is difficult to find even the most cursory defense of this conception. Relationalists, as they might be called, presume that the relational nature of belief, and indeed the relational nature of all propositional attitudes, can simply be read

off the relational logical form of the sentences by which we ascribe them. In his essay Robert J. Matthews argues that the case for the relational conception is not so easily made. It is difficult to find any plausible candidate that can be at once the semantical and psychological ‘object’ of belief. The logical form of belief ascriptions is indeed relational, but it does not follow that belief itself is a relation. Belief could, consistent with the relational logical form of belief ascriptions, turn out to be a monadic property of believers. Matthews sketches a measurement-theoretic account of belief ascriptions that has just this consequence. The belief predicate ascribes a certain belief state to a subject by relating that subject to a semantic object that indexes that belief state, in very much the way that a numerical measure predicate ascribes a physical magnitude to an object by relating that object to a number that indexes that magnitude.

What is the logical form of a sentence containing an ordinary proper name in the subject position? What, in other words, is the structure of the proposition expressed by such a sentence? According to one currently popular view (Millianism), the proposition expressed in such cases is a singular one, one containing the name’s bearer as a constituent. On such a view, the semantic value (or propositional contribution) of a name is simply its bearer. According to another somewhat less popular view (Descriptivism), the proposition expressed is a “general” one, one containing “concepts” (rather than objects) as constituents. On the Russellian version of such a view, ordinary proper names are semantically equivalent to definite descriptions, of which the latter are to be analysed in accordance with Russell’s theory of descriptions. In her essay, Marga Reimer claims that both accounts of names are flawed, as neither can provide a plausible rendering of the proposition expressed in “all” of the relevant sorts of cases. Thus, for instance, while a Millian account has trouble handling identity sentences involving co-referring names, a Russellian account has trouble handling cases of the sort made famous by Kripke. Reimer accordingly proposes an alternative account, one according to which the proposition expressed by a sentence of the kind in question varies with the (contextually constrained) communicative intentions of the speaker. For instance, in the case of sentences of the form “ $a=b$ ”, a name typically functions in accordance with a (roughly) Russellian account. In contrast, when a name occurs in a sentence used to describe a counterfactual scenario involving the name’s bearer, the name typically functions in accordance with a Millian account of names. In this way, Reimer argues, semantic function mirrors communicative intent. The orthodox view of proper names is that they are unstructured, single-valued, referring terms. Tyler Burge once defended a very unorthodox

view of names: at the level of logical form, proper names are predicates, that is, general terms, in their own right. Reinaldo Elugardo defends Burge's view by arguing that predicative uses of proper names are not parasitic on their referential roles, as some philosophers have said in response to Burge's arguments. He examines two general strategies—a descriptivist approach and a causal-theoretic approach—to explain away their apparent predicative uses and argue that both strategies fail. His aim is to show that the Predicate View has a lot to recommend it and that it deserves another look.

Our contributions show a new open-minded view of co-operation between theorists of language. Following a broader philosophical perspective on logical form, the book contains new essays in the philosophy of language which bridge grammar and semantics. The collection brings together contributions by philosophers from diverse points of view, and as such, it illuminates the lively and ongoing debate which the concept of logical form still arouses within contemporary philosophy, and shows us a way to the future. The project was first initiated by the periodical *Protosociology: An International Journal of Interdisciplinary Research*, J. W. Goethe-University, Frankfurt am Main (www.rz.uni-frankfurt.de/protosociology). We wish to express our thanks to all contributors who have made their results available. Without their encouragement and support the work would not have been possible. In particular we thank Peter Momtchiloff and Ernie Lepore who encouraged us to undertake the project.