

Martin Stokhof: from formalization to philosophical reflexion

Edgar Jose Andrade-Lotero*

October 31, 2011

The following pages are written with one special and one particular purpose in mind. The special purpose is to show Prof. Dr. Martin Stokhof, who was my mentor and my supervisor throughout my studies at the ILLC, the great esteem in which I—but I believe I speak for all of his students—hold him both as a philosopher and as a person. The particular purpose is to achieve the special purpose by unraveling an interesting change of mind that befell upon Martin: from hard core formal semanticist to one of the most acute and systematic critics of formal semantics, as well as a Wittgenstein scholar in his way to worldwide recognition.

The present reconstruction of such a change of mind is carried out with a bit of imagination and a great deal of speculation; this is a story of a beautiful mind on the basis of an interpretation of a number of his publications. Consequently, every claim made here is tentative. I do not claim to present a full-fledged thesis nor do I know for sure that Martin supports the claims that I make here. Moreover, any obscurity and lack of precision are only mine.

Our journey starts in the 90's, when a group of Dutch scholars are on their way to gain worldwide fame as ingenious and thorough scholars developing brilliant formal systems in the study of the semantics of natural language. They are collectively known as L.T.F. Gamut¹ and their book, *Logic, language and meaning*, vols. 1 and 2 published by the University of Chicago Press in 1991, is nowadays used as a standard textbook in logic and semantic courses in renowned universities around the world.

Two formal developments in the study of the semantics of natural language earned Martin and Jeroen Groenendijk—with whom Martin wrote his joint PhD dissertation as well as over twenty research papers—a place in the Gamut and a name in the formal semantics community. One is the semantics of questions, which extended the tools of first-order modal logic to deal with questions, that is, “the ‘thing’ which is being asked, and which, as a consequence, may be (partly) answered.”² The other one is Dynamic Predicate Logic: a reaction to non-compositional logical representations of

*Faculty of Natural Sciences and Mathematics, Universidad del Rosario. With thanks to Catarina Dutilh for her useful comments.

¹The word “Gamut” comes from putting together the initials of Groningen, *AM*sterdam, and *UT*recht, that is the Dutch cities where the members of this group worked at the time.

²The quote continues: “This object can be viewed as the semantic content, or sense, of an interrogative. In what follows, the term *question* will be reserved exclusively for this latter use. Of course, several people

discourse—such as Kamp’s Discourse Representation Theory³—that proposed instead a dynamic representation complying with the principle of compositionality, which they dubbed Dynamic Predicate Logic.⁴

The publications written by the duo composed by Martin and Jeroen ensured them a reputation in formal semantics and linguistic circles. It was a very creative, thorough, and productive couple. So much so that, as an anecdote, Martin recalls that once in a conference someone came up to him and asked with a tone of surprise: “Are you really Martin Stokhof? I thought that ‘Martin Stokhof and Jeroen Groenendijk’ was the pseudonym of a single person.”

Now, the first link of the chain of ideas that, in my view, constitutes the development of Martin’s thought, can be traced back to Gamut’s argument to adopt an intensional model-theoretic approach to semantics, against extensional approaches. Such argument goes as follows:

The intensionalist stream of thought holds that such a position [i.e. that of the extensionalist, such as Quine or Davidson] is inspired too much by purely philosophical motives, and that it pays too little attention to the requirements of an empirically adequate semantic theory of natural language. [...] If our aim is an empirically adequate semantic theory for natural language rather than a semantic theory that meets some independent philosophical constraints, the obvious way to proceed is to use an intensional semantics (Gamut, 1991, vol. 2, p. 146).

The gist of these “philosophical motives” or “independent philosophical constraints” consist in the requirement that an account of language should not rely on ‘obscure’ entities, such as meanings or intensions, if it is to constitute a legitimate explanation. Gamut claims that such a constraint is unwarranted on the face of the task at hand, viz., an empirical study of natural language. Note that this reaction presupposes that the model-theoretic languages used to carry out a study of the semantics of natural language are mere instruments to classify and systematize intuitions—which constitute the purported empirical domain of a semantic theory of natural language—and that thereby these instruments can provide a legitimate explanation without being accounted for as legitimate constituents of the world as described by the empirical sciences.⁵ However, such presupposition was hardly ever made explicit, let alone justified. I believe that this state of affairs was not satisfactory for Martin, and some reaction to it started to grow in the back of his mind.

In “Could semantics be something else?” (1999) we find the first explicit reaction to the dominant attitude among working semanticists, exemplified by the argument put forth by Gamut as discussed above. Martin asserts the following:

When in 1980, on the Third Amsterdam Colloquium, Johan van Benthem read a paper with the title ‘Why is Semantics What?’ [...] I was puzzled: Wasn’t it obvious what semantics

have doubted that there are such things as questions in this restricted sense of the word. To establish that there are, and to argue that they constitute the primary domain for a logical and semantical theory is one of the main aims of this chapter” (Groenendijk and Stokhof, 1997, p. 1).

³See Kamp and Reyle (1993).

⁴See Groenendijk and Stokhof (1991).

⁵Note that this is not the only way to interpret the role of model-theoretic (or otherwise) languages. There are at least three other ways to interpret them and which one we should prefer is an issue that stands in need of justification. See, e.g. Stokhof (2002a).

is? Why did our concept of it stand in need of justification? Later, much later, I came to appreciate what Van Benthem was doing in this paper (and in some others). Questioning the ‘standard model’, the assumptions on which the working semanticists silently agree, Van Benthem opened up a space of issues to be discussed, questions to be asked, routes to be explored, that had been hidden from view by the unreflective endorsement of just one possible, albeit fruitful way of doing semantics [...] The present paper present a ‘counterpoint’ to Van Benthems considerations. His suggestions for putting semantics on a proper footing are primarily concerned with the logical and mathematical aspects of the trade. But there is also another way of viewing the question after the status of formal semantics: the philosophical one.

Martin’s puzzlement perfectly illustrates the attitude of most working semanticists towards their enterprise: they take for granted a concept of semantics in such a way that it does not seem to stand in need of justification. When alternative ways of doing semantics present themselves in the practice of these working formal semanticists, it only takes a small step—though not everyone is prepared to take it—to start wondering about their justification: why should we prefer this way of doing semantics over that one? To be sure, there are alternative routes to addressing the issue of justification, among them an internal—i.e., to inquire after the logical and mathematical aspects of these ways of doing semantics—and one external—i.e., to inquire after the philosophical presuppositions and justifications of these ways. The latter is the route chosen by Martin.

How to conduct such reflection about the external justification of a particular way of doing semantics is nicely illustrated in “Why compositionality?” (2005). This paper, co-written with Jeroen Groenendijk, explores the status and some of the justifications put forth in the literature of one of the most important principles in semantics, namely the principle of compositionality, and draws some consequences for the very status of formal semantics.

The overview of the argument is as follows. To begin with, Martin and Jeroen note that a proper definition of the principle of compositionality depends on prior definitions of syntax and semantics:

Unless we have independently motivated constraints on syntax and/or semantics, i.e., particular do’s or dont’s concerning the nature of syntactic structure, constituenthood, rule formats, or concerning the nature of meanings, their internal structure and possible interactions, the principle of compositionality is not an empirical hypothesis. Rather, it must be viewed as a methodological principle, one that represents a choice to do semantics in a particular way [... In other words, only when] additional, independently motivated constraints on syntax and/or semantics are formulated, compositionality can be treated as a property that syntactic constructions and the corresponding meaning assignments may or may not have.

Since formal semanticists subscribe to a wide range of syntactic theories and model-theoretic systems, and they choose one among many on the basis of practical reasons, they do not subscribe to the empirical reality of these syntactic theories or models. Consequently, the justification for choosing this syntax and this semantics over these others “is not empirical, but rather resides in the ‘fringe’ benefits of doing semantics in this way: elegance, perspicuity, a precise mathematical formulation.”

But this claim has far-reaching consequences, for “it should be noted that the purported empirical character of compositionality essentially depends on the nature of these

independently motivated constraints: if the latter are not empirical then neither is the question of compositionality.” In other words, the kind of justification for choosing a syntax and a semantics endorsed by formal semanticists, though referred to only in an implicit fashion, determines the status of the principle of compositionality, and given that justifications are not empirical, the principle itself cannot have an empirical status.

Consequently (and, for the sake of brevity, bracketing out the discussion of some assumptions, such as the infinity of language and the conception of linguistic competence as an individual property), if we describe language as compositional, the resulting system is an abstraction and the discipline that studies this system becomes more of a theoretical enterprise than an empirical one:

We can describe language as if it were compositional and infinite, and competence as if it were individual, as long as we realise the ‘as if’ we are working with. To put it differently, we can, if we wish, if it is useful, practical to do, if it leads to normally explicit and elegant theories, describe language compositionally. But the resulting system is not one which we can regard as a characterisation of the object of individual competence. Compositionality is a formal property, an attractive one and often a useful one, of an entity that itself is an abstraction. There is nothing wrong with that, but it does raise new questions concerning the relationship between this type of semantics (linguistics) and actual language use (including cognitive aspects).

In short, formal semanticists make assumptions in practice that have as a consequence that their object of study is more of a theoretical system, rather than an empirical reality that they pretend to study by means of their formal tools.

After 1999 we find no work on formal semantics on Martin’s list of publications. Instead, he seems to have focused on two interrelated fronts. One of them concerns a thorough philosophical analysis of the assumptions behind formal semantics. In this regard we find, among many other papers, “Meaning, Interpretation and semantics” (2002a), in which different conceptions of semantics are distinguished and challenged on the basis of the phenomena of radical interpretation and normativity of meaning; “Hand or hammer? On formal and natural languages in semantics” (2007), in which two basic assumptions with far reaching consequences are identified and criticized, namely, the assumption that meanings are determinate independently of their expression in language and that they are accessible independently of their expression in language (both assumptions are traced back to Frege); “The architecture of meaning: Wittgenstein’s *Tractatus* and formal semantics” (2008), in which the almost ignored legacy of Wittgenstein’s *Tractatus* for formal semantics is identified and used as a Trojan horse; “Abstractions and idealisations: the construction of modern linguistics” (2011)⁶, a controversial paper in which the ‘subject matter’ of generative linguistics is shown to be constructed on the basis of contentious assumptions; “The role of artificial languages” (pear), in which differences and commonalities between the role of artificial languages in philosophy of language and in formal semantics are scrutinized, leading to a criticism of the assumptions on which these roles are based.

The common thread of these papers is the following: the true object of study in formal semantics is not a natural kind, but a theoretically laden conception of meaning and language. These papers have the clear influence of Martin’s own interpretation of

⁶This paper was wrote with Michiel van Lambalgen.

Wittgenstein's work. It is no secret that Wittgenstein's views are at odds with a formal account of language and meaning, thus it is not surprising that Martin's endorsement of Wittgenstein's views had led to such a radical change of mind. It is Martin's interpretation of Wittgenstein's work that constitutes the second front of his current concerns, to which we now turn.

It seems to me that one of the best introductions to Wittgenstein's *Tractatus* can be found in Martin's *World and Life as One: Ethics and ontology in Wittgenstein's early thought* (2002b). In my view, this book shows that Martin had completed his transition from 'formalizer' to 'true philosopher' without any loss of the formal and methodological thoroughness that once characterized him as a formal semanticist. Not only do we find in this book a clear and precise introduction to the historical backgrounds of the *Tractatus*, its ontology, its pictorial theory, and its conception of language, logic, and necessity. But we also find a lucid argument showing that the ontology of the *Tractatus* is shaped by a conception of logic and language—"the tractarian world is the world as it appears in language and thought"—and, more importantly in the present context, this interpretation of the ontology is formulated on the basis of an interpretation of the ethics that Wittgenstein can be said to endorse at that time. This argument, as well as the resources it appeals to, are far from formalizations or investigations into mathematical properties of logical systems: it is a full-blown philosophical argument that shows deep concerns with ethics and human action in everyday life.

It seems that Martin found his way into Wittgenstein's views first through the *Tractatus* and not through the *Philosophical Investigations*. We might be able to find the reason for this in a short piece that Martin wrote for the ILLC Magazine (august 2006), entitled—with a characteristic Dutch sense of humor—"A Mild Case of Schizophrenia?". Speaking about the two titles that influenced his thinking, namely Montague's "Universal Grammar" and Wittgenstein's *Philosophical Investigations*, he says:

Wittgenstein's *Philosophische Untersuchungen*, on the other hand, utterly failed to impress me when I first encountered it. I remember reading the first 30 or 40 sections in my second year and finding it uninspiring, a collection of rather obvious observations that seemed to lack a point. It was only many years later that I picked it up again and slowly began to realize what it had to say. At first I was merely fascinated by its strangeness, later I began to see what consequences it might have for our understanding of language. And only subsequently did I appreciate how Wittgenstein's vision of language ties in with his thinking about thought, action, and value.

At the moment we find few works—and they are written in Dutch—that directly bear on Martin's interpretation of Wittgenstein's later thought. But the richness and dept of his interpretation can be found in the works of his PhD students that did work on Wittgenstein: Harry Stein's dissertation *The Fiber and the Fabric* (1997), which won the Erasmus Study Award of the best PhD dissertation in 1997; Erik Rietveld's *Unreflective Action* (2008); Tine Wilde's *Remodel[li]ng Reality* (2008); and Chantal Bax's *Subjectivity after Wittgenstein* (2009).

One might think that once Martin decided to devote his efforts to an interpretation of Wittgenstein's works his interest in formal semantics would shade off. And it did so in a sense. But in another sense he is still very much interested in formal semantics, if only as a philosophical reflection on the enterprise he once embraced with enthusiasm.

In the ILLC Magazine already quoted he remarks:

Does the success of formal semantics, Montague-style, really prove Wittgenstein wrong? Are we committed to reject semantics once we acknowledge the acuity of some of Wittgenstein's observations? I do not think so. The real insight that can be had here, I venture, relates to the nature of semantics, not to its content or its form. What exactly that means is something that I have been thinking about for some time, and will probably continue to do so for many years.

I believe that one of the main lessons of Martin's transformation is to show that one thing is to carry out formalizations and another is to carry out a philosophical reflection on a topic. I can find no better way to praise this lesson than by quoting one of Russell's appreciations about his young pupil's approach to logic: "He doesn't want to prove this or that, but to find out how things really are."⁷

References

- Gamut, L. (1991). *Logic, Language and Meaning*, volume 1 and 2. The University of Chicago Press.
- Groenendijk, J. and Stokhof, M. (1991). Dynamic predicate logic. *Linguistics and Philosophy*, 14(1):39–100.
- Groenendijk, J. and Stokhof, M. (1997). Questions. In van Benthem, J. and Meulen, A., editors, *Handbook of Logic and Language*, pages 1055–1124. Elsevier/MIT Press.
- Groenendijk, J. and Stokhof, M. (2005). Why compositionality? In Carlson, G. and Pelletier, J., editors, *Reference and Quantification: The Partee Effect*, pages 83–106. Stanford: CSLI Press.
- Kamp, H. and Reyle, U. (1993). *From Discourse to Logic, Introduction to Modeltheoretic Semantics of Natural Language, Formal Logic and Discourse Representation Theory*. Kluwer Academic Publishers.
- Potter, M. (2008). *Wittgenstein's Notes on Logic*. Oxford University Press, Oxford.
- Stokhof, M. (1999). Could semantics be something else?: Philosophical challenges for formal semantics. In J. Gerbrandy, M. Marx, M. d. R. . Y. V., editor, *JFAK 50. Essays Presented to Johan van Benthem on the Occasion of his Fiftieth Birthday*. Amsterdam University Press, Amsterdam.
- Stokhof, M. (2002a). Meaning, interpretation and semantics. In Barker-Plummer, D., Beaver, D., and van Benthem, J., editors, *Words, Proofs, and Diagrams*, pages 217–240. Stanford: CSLI Press.
- Stokhof, M. (2002b). *World and Life as One: Ethics and ontology in Wittgenstein's early thought*. Stanford University Press, Stanford.

⁷See Potter (2008, p. 50).

- Stokhof, M. (2007). Hand or hammer? on formal and natural languages in semantics. *The Journal of Indian Philosophy*, 35(5–6):597–626.
- Stokhof, M. (2008). The architecture of meaning: Wittgenstein’s Tractatus and formal semantics. In Levy, D. and Zamuner, E., editors, *Wittgenstein’s Enduring Arguments*, pages 211–244. Routledge, London.
- Stokhof, M. (To Appear). The role of artificial languages. In Fara, D. G. and Russell, G., editors, *The Routledge Companion to Philosophy of Language*. Routledge, London/New York.
- Stokhof, M. and van Lambalgen, M. (2011). Abstractions and idealisations: the construction of modern linguistics. *Theoretical Linguistics*, 37(1–2):1–26.