It is now a quarter of a century ago that Wolfgang Stegmüller wrote his monograph ‘Das Wahrheitsproblem und die Idee der Semantik’ (1957) which dealt with Tarski’s and Carnap’s foundational work in the field of semantics. While this book is about the definition of the basic semantical concepts in artificial formal languages there is an article written a year earlier (1956) in which Stegmüller addresses himself specifically to the relation between logic and natural language. Here he gives a logical analysis of the standard structural expressions in language that are still of primary concern for current semantics: quantifiers, pronouns, articles, etc. The motives for such an analysis at that time were mainly philosophical: the aim was to expose the misconceptions and pitfalls of traditional philosophy arising from the disregard of various systematic semantic ambiguities in everyday language. Or as Stegmüller puts it:

Über sie [i.e. einige nicht triviale Fälle von Vagheit in der Alltagssprache] Klarheit zu gewinnen, ist schon deshalb von außerordentlicher Bedeutung, weil Unkenntnis über sie zu schwersten philosophischen Verirrungen führen kann, nämlich entweder der Unterlassung von berechtigten Fragestellungen, oder, was weit häufiger vorgekommen ist, der Formulierung von falsch gestellten Fragen, denen gegenüber man dann nur die Wahl hat, entweder überhaupt keine oder nur sinnlose Antworten zu geben.

So logic was to regiment language. Sentences involving the copula and the above-mentioned structure words are assigned one or more unambiguous formal representations in an already interpreted formal language, usually the first order predicate calculus. The natural language expressions thereby receive a precise meaning, since the semantics of the formal language has been specified in advance, as is always assumed. This procedure has, of course, always been common practice, witness the typical syntactical argot of the mathematicians. It carries, however, an obvious methodological presupposition: it is the idea that the logic of our choice to which the formal representations belong is in some sense an adequate framework to express our thoughts.
In the past decade this perspective has shifted for many semanticists of natural language. Nowadays logical semantics is considered not so much a vernacular of regimentation of language, but a precise theoretical framework in which empirical claims about the intuitive semantic competence of a speaker of a natural language can be formulated (Blau 1978, Link 1979, van Benthem to appear). And there are those who even hope to find background explanations for the specific structures languages display, that is, there is a search for a model of the very mechanism by which natural language information is conveyed and processed. Psychological categories like efficiency and procedural complexity are invoked here (Barwise and Cooper 1981). Although such considerations certainly still belong to the realm of speculation, they had a positive effect on the line of research that logicians took in the field: they started to take the syntactic structure of natural language seriously, and Richard Montague, in his seminal papers ‘Universal Grammar’ (UG, Montague 1970) and ‘The Proper Treatment of Quantification in Ordinary English’ (PTQ, Montague 1973), demonstrated that this could be done without any loss in precision and formal rigor. In fact, Montague provided an explicit picture of the relation between syntax and semantics in algebraic terms. The semantical algebra of denotations and semantical rules is to be viewed as the homomorphic image of the algebra of well-formed expressions and their syntactic combination rules. From this a methodological principle for writing interpreted grammars evolved which has come to be known as the principle of compositionality (see Partee, forthcoming). In its strictest form it requires that every syntactically recognizable part of a sentence has its own context-independent semantic counterpart, and that every operator-operand relation of two syntactic units is mapped onto a function-argument relation in the semantics. That at least this strict version of compositionality is a rather strong constraint for a grammar which is difficult to meet in practice has become clear from the linguistic evidence that has been uncovered in recent years. From the logical point of view it is mainly binding phenomena that could be expected to cause trouble. The so-called donkey sentences are the most prominent case in point. In PTQ, for instance, indefinite noun phrases like a donkey are given the usual existential force which leads to incorrect results in cases where, in the context of the whole sentence, they really induce a universal quantification, like in If Smith owns a donkey he beats it and Every farmer who owns a donkey beats it. It is, roughly speak-