QUINE'S ANTIMENTALISM IN LINGUISTICS

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Abstract

Quine's rejection of meanings was originally based on extensionalist motives in the philosophy of logic. In *Word and Object*, behaviorism in linguistics paves the way for a new argument, namely the indeterminacy of translation. This paper traces the origins of Quine's behaviorism in linguistics. I submit that Skinner's and Carnap's behaviorism should not be seen as the most important sources of influence. I argue that Bloomfield and the neo-Bloomfieldians had a more direct influence on Quine's behaviorism and antimentalism in linguistics.

One cannot be mistaken about the major objective of *Word and Object*. Even though Quine wrote it as a general handbook in the philosophy of language, a project taken up when preparing for a course in the philosophy of language in Oxford in 1954, his philosophical position is candidly expressed in the penultimate chapter 'Flight from intension' and in the last chapter 'Ontic decision'. Quine relentlessly casts doubt on intensional logic and eventually bans intensional entities such as propositions and attributes (1960, 244). As can be gleaned from *Word and Object*, Quine's strong aversion to propositions and attributes is grounded in two basic philosophical tenets, namely extensionalism and behaviorism.

In Quine's earlier work, extensionalism in logic was the major motivation for his dismissal of intensional entities.[1] In his Ph.D. thesis, *The Logic of Sequences*, which was a generalization of Whitehead and Russell's *Principia Mathematica* (PM), Quine already replaced PM's intensional propositional functions by extensional classes (1932, 4). This was presented as a modest technical proposal, but later Quine would call this the most important innovation of the work, more important than its purported achievement, namely the generalization of PM's theorems for monadic and dyadic functions to general theorems for polyadic functions. The Harvard department, including his

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[1] This theme is elaborated at length in Decock 2002, ch. 3.

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supervisor Whitehead, C.I. Lewis, Sheffer, and Huntington, was impressed by the thesis and recommended its publication but did not appreciate the turn towards extensionalism (Quine 2008a, 391). During his trip to Europe in 1933, Quine discovered that extensional logic had become mainstream in Europe. Carnap, then working on *Logische Syntax der Sprache*, and the Polish school of logicians both endorsed extensionalism. In the reworked version of the doctoral thesis, published as *A System of Logistic*, extensionalism is taken for granted (1934a, 8; 32). To the end of his life, Quine would object to all departures from extensional logic (Quine 2008a, 438–446).

In his first 'philosophical' publication, 'Ontological remarks on the propositional calculus' (1934b), Quine analyses the ontological status of propositions. The ontological question is immediately linked to the identification of propositions. He points out that no abstract fictional entities need to be posited. If negation and implication are interpreted as semantic operations on sentences, "the notion of entities denoted by sentences goes by the board, and the question of propositional identity comes to admit of one or another definite answer in terms of geometrical similarity or conventional correspondence of written marks." (1966, 270) Sentences can be clearly identified, abstract propositions cannot.[2] Analogously, Quine soon dismissed attributes, no longer on technical grounds, but motivated by firm philosophical arguments. In their stead, and in spite of nominalist leanings, he accepted classes. These are clearly identifiable since two classes are identical if they have the same members. No such criterion of identity is available for attributes. Two predicates express the same attribute if they are synonymous, but no clear behaviorist definition of synonymy is available (Quine 1943, 120; 1947, 44). Hence, attributes have a more dubious standing than classes. The ban of meanings, propositions, attributes, intensions, at the end of *Word and Object* can be seen as the natural result of Quine's defense of extensionalism, and hence as the culmination of a philosophical development of nearly three decades.

However, in *Word and Object*, an important new theme is added. Quine's thought experiment of radical translation was introduced as an extra argument against intensional entities such as attributes and propositions. Quine argued that these cannot be the meanings of sentences or other expressions because the very notions of meaning and synonymy are unclear linguistic

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[2] Quine (1934a, 33–34) contains of technical proposal to construe propositions as sequences x, y in which x is a class one type higher in the type hierarchy than y. Quine (1934b) finds this proposal innocuous, but only possible in particular logistics. Quine (1985, 14) says "I was aware that propositions *could* be dispensed with, as witness my "Ontological Remarks on the Propositional Calculus," 1934; there already, terminology aside, was the doctrine of schematic letters. But I had not quite outgrown my dissertation."

notions. In hindsight, many philosophers complain that the thought experiment is farfetched or, (hardly) more benevolently, that it is grounded in an obsolete behaviorism. In *Pursuit of Truth*, Quine underscores the behaviorist motivation of the indeterminacy of translation in *Word and Object*:

> Critics have said that the thesis is a consequence of my behaviorism. Some have said that it is a *reductio ad absurdum* of my behaviorism. I disagree with this second point, but I agree with the first. I hold further that the behaviorist approach is mandatory. In psychology one may or may not be a behaviorist, but in linguistics one has no choice. Each of us learns his language by observing other people's verbal behavior and having his own faltering verbal behavior observed and reinforced or corrected by others. We depend on overt behavior in strictly observable situations. As long as our command of our language fits all external checkpoints, where our utterance or our reaction to someone's utterance can be appraised in the light of some shared situation, so long all is well. Our mental life between checkpoints is indifferent to our rating as a master of the language. There is nothing in linguistic meaning beyond what is to be gleaned from overt behavior in observable circumstances. (1992, 37f)[3]

The critique on Quine's behaviorism has persisted, and one may wonder why the argument of the indeterminacy of translation was taken seriously at its reception. As I will argue, in view of the outlook of American psychology and linguistics at the end of the 1950s, one can easily understand why Quine's argument was, if not compelling, at least challenging. Behaviorism was mainstream in psychology, philosophy, and linguistics at the time.

Quine was clearly influenced by the behaviorist tradition in psychology. In a psychology course at Oberlin College, at the age of twenty, Quine read Watson's *Psychology from the Standpoint of a Behaviorist*, which would be a lasting influence (1985, 7; 2008a, 391; 2008b, 291). For a long time this behaviorism was uncontroversial, as it was the dominant paradigm in American psychology. Its leading proponent was B.F. Skinner, who in 1933, the

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[3] Hylton (2007, 102f) downplays the importance of this passage, and argues that Quine's behaviorism is not a commitment to an outmoded approach in psychology, but rather a special case of his empiricism. As will become clear in the following pages, I agree that the influence of the behaviorist approach in psychology on Quine's linguistic views is rather weak. However, there is reason to believe that Quine was influenced by the behaviorist approach of the American structuralists in linguistics, so that his behaviorism is not necessarily implied by his empiricism. In 'The pragmatists' place in empiricism', Quine lists behavioristic semantics as the sixth great step of empiricism (1981a, 37). Comte is mentioned as an example of an empiricist who stops short of behaviorist semantics.

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same year as Quine, was elected Junior Fellow in the Society of Fellows at Harvard and remained Quine's colleague and close friend for decades. In his *Verbal Behavior* (1957), Skinner analyzed how psychological techniques could be used in linguistics. The methodological starting point was to study verbal reactions to certain stimuli. In many respects, Quine's approach to language learning and language use is similar. Notably, his account of the initial phase of language learning is based on Skinner's explanation of babbling in terms of operant behavior. By means of selective reinforcement the initial babbling can be transformed into expressions such as "Mama" (Quine 1960, 80f).

However, there is reason to doubt that it was Skinner's behaviorism that made Quine's antimentalism congenial to philosophers of language and linguists. As Quine already remarked, Skinner was "not without his critics" (1960, 82). Quine refers to Chomsky's groundbreaking critique of behaviorism in linguistics (1959), which is now by many regarded as the start of the cognitive revolution. Chomsky's review of *Verbal Behavior* was well received among contemporary linguists, even among the prevailing neo-Bloomfieldians, the future victims of his linguistic campaigns (Harris 1993, 58). Skinner's psychological account of linguistic behavior was seen as an unwelcome intrusion; one of the methodological premises of American linguistics in the middle of the twentieth century was to preserve a strict separation between formal linguistics and psychology. Moreover, *Verbal Behavior* can hardly be counted as empirical psychology; it offers a speculative theoretical framework for explaining language use and contains hardly any empirical psychological result. Few or none of the newly introduced concepts, e.g. 'mand' (p. 35) or 'tact' (p. 81), have been taken up by linguists and psychologists. For Skinner, behaviorism was much wider than the empirical study of operant conditioning but also involved broader social and political themes, most notoriously portrayed in *Walden Two*. *Verbal Behavior* should be regarded as part of Skinner's broader reflections on the social applications of behaviorism rather than as linguistic psychology proper. In view of the maverick status of *Verbal Behavior* among linguists and psychologists, it is not likely that the accord with Skinner's linguistic behaviorism contributed much to the credibility of Quine's antimentalism in linguistics.

Behaviorism had also been embraced by Quine's two favorite philosophers (2008b, 33f), namely Russell (1921, 16–19) and Carnap (1932, 124ff). Especially Carnap's views are important with regard to Quine's antimentalism in linguistics. In one important sense, Quine's antimentalism or behaviorism is based on Carnap's views. The term 'mentalistic' in the index of *Word and Object* points to, among others, the opening pages. The term itself does not appear in those pages; in the passage, Quine argues that knowledge is formed through physical processes, "impacts at our nerve endings" (1960,

2). He rejects the phenomenalist views of Berkeley, Russell, and early Carnap. It is obvious that in the first pages of *Word and Object*, Quine takes the physicalist side in the Vienna Circle protocol sentence debate. In the context of Quine's behaviorism and antimentalism, it is noteworthy though that behaviorism and physicalism are equated.[4]

Nevertheless, for several reasons, one may doubt whether Carnap's and Quine's views on the role of behaviorism in philosophy and linguistics are compatible. Behaviorism has only a modest role in Carnap's philosophy; it is a methodological requirement in empirical psychology and is implied by the use of the physicalist language. However, this empirical study of psychological data is clearly separated from the formal study of linguistic frameworks, the proper task of philosophy. Carnap is only interested in formal languages and not in empirical linguistics.[5] Hence, behaviorism can hardly play any role in Carnap's philosophy of language. For Quine, there is no such clear separation between formal linguistic frameworks and empirical science; philosophy, psychology and linguistics are related areas in the web of belief. The behaviorist methodology need not be restricted to psychology proper.

Drawing a sharp boundary between the study of language(s) and psychology almost implies that linguistic meanings and mental meanings can be different. There is little reason to believe that Carnap would equate intensions with mental contents, mental states, or ideas. For Quine the case is different; his blurring of the distinction between linguistics and psychology also has repercussions for the distinction between linguistic meaning and psychological meaning. In an intriguing passage in 'Two dogmas of empiricism', Quine does distinguish between a Platonic and a mentalist conception of meanings:

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[4] See also Quine (2008a, 291): "In Czechoslovakia a few years later I had been confirmed in my behaviorism by Rudolf Carnap's physicalism, his *Psychologie in physikalischer Sprache*."

[5] At several stages in his career, Carnap has been in contact with leading linguists, but almost no influence is traceable. In Vienna, he was in close contact with Karl Bühler, a leading psychologist and the founding father of modern communication theory. Bühler was one of the member of the Vienna Circle, and Carnap lectured in Bühler's seminar on 28 May 1930 (Uebel 2007, 135). Around the time Carnap was in Vienna, Bühler published several influential books and articles on theoretical linguistics (1926, 1933a, 1933b, 1934). In Prague, Carnap was in the immediate vicinity of the *Cercle Linguistique de Prague*, comprising among its members Roman Jakobson and Nikolay Trubetzkoy, and gave a lecture on 20 May 1935 (Hajičová et al. 2002, 64). In Chicago, from 1936 to 1940, he was a colleague of Leonard Bloomfield. Remarkably, Bloomfield is not mentioned in Carnap's autobiography (1963), and neither is Carnap in Bloomfield's biography (Hall 1990).

> They [meanings] are evidently intended to be ideas, somehow —
> mental ideas for some semanticists, Platonic ideas for others. Ob-
> jects of either sort are so elusive, not to say debatable, that there
> seems little hope of erecting a fruitful science about them. It is
> not even clear, granted meanings, when we have two and when we
> have one; it is not clear when linguistic forms should be regarded
> as *synonymous*, or alike in meaning, and when they should not. If
> a standard of synonymy should be arrived at, we may reasonably
> expect that the appeal to meanings as entities will not have played a
> very useful part in the enterprise. (Quine 1951, 22)

Remarkably, this passage only occurs in the version published in *Philosoph-
ical Review*, but was dropped in the reprint in *From a Logical Point of View*
(1953, 22). Even though Quine was aware of the difference, it seems not
to have been an important distinction. Furthermore, on all occasions where
Quine discusses ideas in *Word and Object*, they are regarded as mentalistic
ideas.[6] This construal of meanings or intensions as mental ideas is expe-
dient and sets the stage for the two-pronged attack on meanings and inten-
sions; from a behaviorist point of view they are unwelcome mental entities,
and from an extensionalist point of view they are suspect because not iden-
tifiable.[7] From Quine's point of view, Carnap's revival of intensional logic
must have appeared not only as a regrettable abandonment of extensional-
ism, but also as a step towards mentalism.

The third, often overlooked, source of influence upon Quine's antimental-
ism in linguistics are the American structuralists:

> Minds are indifferent to language insofar as they differ privately
> from one another; that is, insofar as they are behaviorally inscrutable.
> Thus, though a linguist may still esteem mental entities philosophi-
> cally, they are pointless or pernicious in language theory. This point
> was emphasized by Dewey in the twenties, when he argued that
> there could not be, in any serious sense, a private language. Wittgen-
> stein also, years later, came to appreciate this point. Linguists have
> been conscious of it in increasing measure; Bloomfield to a con-
> siderable degree, Harris fully. Earlier linguistic theory operated in

[6] See Quine (1960, 74): "This feeling is fostered by an uncritical mentalistic theory of
ideas: each sentence and its admissible translations express an identical idea in the bilingual's
mind." Even more revealing is the fact that the term 'idea' in the index refers to page 264 and
further, where the term does not occur, but where Quine discusses the mind-body problem,
and dismisses mental states and mental events.

[7] Quine agreed that extensionalism and behaviorism interlock, see Quine (2008a, 93f).

an uncritical mentalism. An irresponsible semantics prevailed, in which words were related to ideas much as labels are related to the exhibits in a museum. (1970, 5)[8]

Leonard Bloomfield was the central figure in American linguistics before the Chomskyan revolution. He made linguistics an autonomous and homogeneous discipline and his methodology became the basis of American structuralism. At an institutional level, he was the main founder of the Linguistic Society of America in 1924,[9] which launched the hugely influential journal *Language*. His *Language* (1933) became the standard handbook in linguistics for two decades. His methodological innovations in the studies of the Algonquian languages, a language family of Native Americans including Cheyenne and Mohican, and his methodological reflections on linguistics (1926; 1939) turned the 'Bloomfield model' into the undisputed paradigm in American linguistics. A particular characteristic of American structuralism was the absence of semantics and lexicography; or rather, the study of meaning was relegated to other disciplines such as psychology or philology. The methodology in linguistics was bottom-up, focusing on phonetics and morphology, while lexicography remained out of reach.

A defining moment in the development of American structuralism was Bloomfield's conversion to behaviorism. His first handbook on linguistics (1914) was largely based on Wundt's linguistic psychology (1901, 1911). Later, mainly due to the instigation of the behaviorist Albert Paul Weiss, Bloomfield abandoned Wundt's introspective mentalism.[10] As a result, Bloomfield's characterization of meaning in the thoroughly reworked handbook *Language* is undeniably behavioristic. In later years, there has been mild disagreement in the history of linguistics over Bloomfield's semantic pessimism; it is to some degree unclear whether he rejected meanings outright or whether he found it not expedient to study meaning in contemporary linguistics (see e.g. Hall 1990, 47–48). What is undisputed is that after

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[8] Quine would later minimize the influence of Dewey and Wittgenstein (Karlsson 1997, 226–227) on his thought. The comparison with Wittgenstein's and Dewey's 'meaning is use' theory is first made at the beginning of the John Dewey Lectures on March 26, 1968, and are repeated various times, see Quine (1969, 27; 1981b, 46; 192).

[9] The fact that linguistics had only been institutionalized in the early 1920s was important for Quine's career choice: "Another [interest] was linguistics. There was no such — I'm not sure even that the word was current in those days of 1926, but my word at the time was "philology" and that was a title for a specialty after college, so my field of concentration would have been classics." (2008a, 82)

[10] See Bloomfield (1933, 38; 142–144). For an elaborate reconstruction of this conversion, see Esper (1968).

Bloomfield's death in 1949, neo-Bloomfieldians, such as Bernard Bloch, George Trager, and Zellig Harris were outspoken semantic skeptics. They stipulated that meaning should have no place in linguistics whatsoever. In Bloch and Trager's *Outline of Linguistic Analysis*, only three pages out of 82 deal with meaning; their central claim about meaning is:

> Although it is important to distinguish between grammatical and lexical meaning, and necessary in a systematic description of a language to define at least the grammatical meanings as carefully as possible, all our classifications must be based exclusively on form — on differences and similarities in the phonemic structure of bases and affixes, or on the occurrence of words in particular types of phrases and sentences. In making our classifications there must be no appeal to meaning, to abstract logic, or to philosophy. (Bloch and Trager 1942, 68)

Similarly, in Zellig Harris' *Methods in Structural Linguistics*, reliance on meaning in linguistic segmentation in phonology and morphology is replaced by purely behavioral criteria:

> It is empirically discoverable that in all languages which have been described we can find some part of one utterance which will be similar to a part of some other utterance. 'Similar' here means not physically identical but substitutable without obtaining a change in response from native speakers who hear the utterance before and after the substitution: e.g. the last part of *He's in.* is substitutable for the last part of *That's my pin.* In accepting this criterion of the speaker's response, we approach the reliance on 'meaning' usually required by linguists. Something of this order seems inescapable, at least in the present stage of linguistics: in addition to the data concerning sounds we require data concerning the hearer's response. However, data about a hearer accepting an utterance or part of an utterance as a repetition of something previously pronounced can be more easily controlled than data about meaning. (Harris 1951, 20)

It is noteworthy that Quine rather aligns himself with the radical antimentalism of the neo-Bloomfieldians than with Bloomfield's more moderate semantic skepticism.

There is no reason to doubt that Quine was influenced by Bloomfield and the neo-Bloomfieldians. At Skinner's retirement party on October 17, 1974, Quine recalls that Skinner had "brought [him] abreast of the enlightened new

linguistics: Otto Jespersen and Leonard Bloomfield" (2008b, 292). Quine first lecture on linguistics 'The problem of meaning in linguistics' (1953, 47–64), the beginning of his turn from logic and set theory to the philosophy of language, was at the Linguistics Forum in Ann Arbor.[11] Quine discussed the problems with the notions of meaning and synonymy and how these problems may trickle down to phonetics and morphology. The linguistic background of his talk are Bloomfield's *Language* (1933) and Bloch and Trager's *Outline of Linguistic Analysis* (1942). In *Word and Object*, Bloomfield and the neo-Bloomfieldian Joos are mentioned, among other references to linguists, mostly Americans. Even some of Quine's seemingly idiosyncratic expressions, such as 'home language' (Quine 1960, 70), are actually technical terms defined by Bloomfield (1933, 56). Furthermore, Quine explicitly applauds the behaviorist semantics of the pragmatist philosopher Charles Morris (1981a, 37), who was in close contact and collaborated[12] with Bloomfield in Chicago.

More important than the traceable influences of Bloomfield and followers on Quine are some strikingly similar views on semantics and the role of semantics in linguistics. Bloomfield gives the following characterization of meaning:

> If we had an accurate knowledge of every speaker's situation and of every hearer's response — and this would make us little short of omniscient — we could simply register these two facts as the *meaning* (A–C) of any speech utterance (B), and neatly separate our study from all other domains of knowledge. (1933, 74)

This is a thoroughly behaviorist and physicalist characterization of meaning. Bloomfield illustrates the definition by means of the story of Jill and Jack:

> Jill and Jack are walking down the lane. Jill is hungry. She sees an apple in a tree. She makes a noise with her larynx, tongue, and lips. Jack vaults the fence, climbs the tree, takes the apple, bring it to Jill, and places it in her hand. Jill eats the apple. (1933, 22)

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[11] This was the university where Kenneth Pike worked. Quine's indeterminacy of translation is heavily influenced by Pike's monolingual method for the translation of unknown languages (Quine 1953, 60; 1960, 28; 1995, 79; 2008b, 366). The discussion of meaning relations between different languages goes beyond the scope of this paper.

[12] The most notable result is Bloomfield's contribution the International Encyclopedia of Unified Science (Bloomfield 1939).

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This event can be divided in three parts. The first part are the practical events (A), the 'speaker's stimulus', that precede the act of speech (B).[13] Jack's behavioral response is the 'hearer's response' (C).[14] The speaker's stimulus and the hearer's response need not be restricted to facts immediate preceding and following the action, but may extend over both their lifetimes (p. 23). The benefit of language use is the extension of the repertoire of behavioral responses to certain responses. Linguistic substitute reactions are added to mere practical reactions to a stimulus, and the former ought to elicit practical reactions in other member of the community, thus leading to better chances of survival (p. 24–25).

On further reflection, Bloomfield's straightforward characterization of meaning in terms of worldly events and human behavior jeopardizes the project of semantics. The processes that lead persons to utter certain expressions in certain circumstances are hardly understood (p. 31). In order to give a scientifically accurate definition of meanings, we would need a scientifically accurate knowledge of everything in the speaker's world. Only for a limited amount of expressions can we give a scientific description of the meaning of the words. For example, the meaning of the word 'salt' is determined by sodium chloride, i.e. occasions in which the word 'salt' can be used are occasions in which sodium chloride is present (p. 139). Hence Bloomfield argues that the study of meaning should be no part of linguistics (1933, 93; 162; 172; 266; 430; 440; 508) and that even in other scientific disciplines where it could be studied, most probably psychology (p. 32), it is to be expected that meanings will remain elusive (pp. 208; 227; 246; 271; 280; 387). The problems with meaning carry over to the notion of synonymy:

> Our fundamental assumption implies that each linguistic form has a constant and specific meaning. If the forms are phonemically different, we suppose that their meanings also are different — for instance, that each one of the set forms like *quick*, *fast*, *swift*, *rapid*, *speedy*, differs from all the others in some constant and conventional feature of meaning. We suppose, in short, that there are no actual *synonyms*. (Bloomfield 1933, 145)

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[13] The description of the speech acts itself sounds Quinean (e.g. 1966, 228): "The sound-waves in the air in Jill's mouth set the surrounding air into a similar wave motion. These sound-waves in the air struck Jack's eardrums and set them vibrating, with an effect on Jack's nerves: Jack *heard* the speech." (Bloomfield 1933, 25).

[14] In many cases, the hearer's response need not be taken into account, so that meanings can be defined in terms of the speaker's situation (neglecting earlier situations) (Bloomfield 1933, 144). The characterization of meaning in terms of the speaker's situation strongly resembles Quine's concept of stimulus meaning (1960, 33).

Moreover, Bloomfield's definition of meaning blocks the construal of meaning as abstract entities that are wedded to words. He opposes the views that in communication, in addition to the sound waves of speech, some non-physical entities, such as 'thoughts' or 'ideas' are transferred from speaker to hearer (p. 508). In the case of semantic change, Bloomfield's view is that semantic change is a gradual change in the use of the expressions and not the replacement of abstract meanings by others:

> We can easily see today that a change in the meaning of a speech-form is merely the result of a change in the use of it and other, semantically related speech-forms. Earlier students, however, went at this problem as if the speech-form were a relatively permanent object to which the meaning was attached as a kind of changeable satellite. (Bloomfield 1933, p. 426)

The Quine scholar will immediately recognize some central features of Quine's view on semantics. In the introduction to the 1984 reprint of Bloomfield's language, the famous linguist Charles Hockett[15] pointed out that most American linguistics since 1933 has borne the mark of Bloomfield's synthesis, often without acknowledgement, sometimes because the investigator was not aware of it (Bloomfield 1933, xiii). It is clear that Quine's behaviorist approach in linguistics bears the mark of Bloomfield's antimentalism; the degree to which Quine was aware of this influence may be scrutinized by future Quine scholars.

The differences in view between Quine and Bloomfield are only minor. For practical purposes, Bloomfield sometimes tolerates recourse to semantic aids in phonology and morphology, whereas neo-Bloomfieldians were more rigorous. One could argue that Quine was even more strict in his first lecture before a group of linguists in Ann Arbor in 1951. His major concern was that recourse to meaning is inevitable in phonology, which he considered to be a methodological weakness (1953, 50–56). In later years, he accepted neo-Bloomfieldian phonetics without further comments (1960, 90

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[15] Charles Hockett was a linguists whose career started in the heyday of the Bloomfield era, and later survived the consecutive paradigm shifts in linguistics, see Seuren (1998, 215–219).

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fn. 4).[16] Another difference concerns the relation of linguistics and psychology. Neo-Bloomfieldians wanted to delimit linguistics in such a way that psychological doctrines became irrelevant in linguistics. Drawing clear disciplinary boundaries is at loggerheads with Quine's scientific holism. Overall, these issues do not compromise their agreement on the need for a behaviorist methodology in linguistics.

Scepticism about semantics was a particular feature of American linguistics in the middle of the twentieth century.[17] In Europe, linguistics was less homogeneous and in most places meaning remained central in the study of language. In many places, semantics — even mentalist semantics — was uncontroversial. In the French-Swiss structuralism of de Saussure, a sign was the unity of signifier and signified. Remarkably, not only the signifieds but also the signifiers were mental images (Seuren 1998, 152). In the structuralism of the *Cercle Linguistique de Prague*, meaning was unproblematic. The standard British handbook on semantics was *The Meaning of Meaning* by Ogden and Richards (1923), in which the meaning concept is explained in terms of psychological correlations. Moreover, some of Bloomfield's crucial methodological distinctions between linguistics proper and other disciplines are not made. Richards and Jakobson were at same time linguists and philologists, contrary to Bloomfield's plea for a separation of the study of linguistic forms and the interpretation of texts.[18] In a series of publications (1926; 1933a; 1933b; 1934), the Viennese psychologist Bühler argued that linguistics cannot be studied independently of psychology and that behaviorism in psychology is only one approach that must be integrated with sensualist and subjective approaches.

In America, the Bloomfield model had spread since the 1920s, but, mainly due to Chomsky and his followers at M.I.T., in the mid-sixties most of its central tenets were given up by the majority of linguists. Behaviorism and antimentalism were the first target of Chomsky's attack. Ironically, semantics would immediately divide the Chomskyan group. In his early work, Chomsky was not really concerned with meaning but almost exclusively with structural (transformational) syntactic rules. In Chomsky's *Aspects of the Theory of Language* (1965), the scope of linguistics is broadened and

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[16] In Quine (1981b, 44–45; 1987, 150; 2008b, 364–367) the earlier difficulties are mentioned again. Quine proposed to replace the synonymy-based definition by a behaviorist one; two phonemes were said to be identical if the substitution of one for the other does not alter a speaker's readiness to assent any sentence. Heitner (2006) forcefully argues that the reliance on meaning-equivalence in the determination of phonemes is not innocent.

[17] Also in America, some linguists, e.g. Sapir and Pike, were mildly mentalist.

[18] For a contemporary discussion of the use of the terms 'linguistics' and 'philology', see Bolling (1929).

syntax is linked to semantics. This led to a vicious controversy between interpretative semantics and generative semantics (see Harris 1993). Especially generative semanticists, such as Katz, Postal, Fodor, and Lakoff, believed that meaning was the basic notion in linguistics. Since 1965, semantics has again occupied central stage in linguistics. Unfortunately, no theory of meaning has gained general acceptance hitherto.

The historical analysis of the background of Quine's behaviorism in linguistics may clarify the history of *Word and Object*'s reception in the philosophical community. When the book appeared in 1960, it offered an interesting but uncontroversial synthesis of two widely accepted doctrines, namely (Tarski's) extensional semantics for logic and (neo-)Bloomfieldian behaviorist linguistics. However, even before its appearance, Kripke had already given an interesting semantics for intensional logics, and Chomsky (1959) had attacked the behaviorist approach of the American structuralists. Within only a few years, *Word and Object*'s two central tenets were to become highly contentious. The rationality and especially the modesty of its claims within a historical context have subsequently been obliterated through decades of incessant criticism.

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