FROM WATSON'S 1913 MANIFESTO TO COMPLEX HUMAN BEHAVIOR

DESDE EL MANIFIESTO CONDUCTISTA DE WATSON DE 1913 A LA CONDUCTA HUMANA COMPLEJA

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Abstract

Watson's 1913 "behaviorist manifesto" had little effect in the years immediately following its publication. The inconspicuous but indefatigable rise of behaviorism was more of a barbarian invasion than a revolution, and the manifesto played the role of crystallizing sentiment and unifying diverse and tentative efforts under one flag. It also provided traditional psychology, the "low road," with a favorite punching bag to spar with for mainstream favoritism, a situation which has not changed now a century later. Watson's views often are misrepresented as naïve and simplistic and as a mere extrapolation of findings based on crude experiments with animals. But it was the objective methods of animal research, not the specific findings, that he sought to apply to human research. Critics and followers alike have often minimized his struggle as Watson tried to provide a psychology that could really account for complex human behavior. In this respect, one hundred years after the publication of the manifesto, behaviorism has yet to fulfill Watson's promises for a genuinely scientific understanding of our complex subject matter.

Keywords: John B. Watson, behaviorism, human behavior, conditioning, psychoanalysis

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Resumen

El "manifiesto conductista" de Watson de 1913 tuvo poco efecto en los años que siguieron inmediatamente a su publicación. El inconspicuo pero infatigable surgimiento del conductismo fue más una invasión barbárica que una revolución, y el manifiesto jugó el papel de cristalizar los sentimientos y de unificar esfuerzos diversos y tentativos bajo una misma bandera. También proveyó a la psicología tradicional, el "camino fácil", de un saco de golpeo con el cual pelear por el favoritismo convencional, una situación que no ha cambiado después de un siglo. Los puntos de vista de Watson son comúnmente malinterpretados como ingenuos y simplistas y como una mera extrapolación de hallazgos basados en experimentos con animales. No obstante, fueron los métodos objetivos de la investigación con animales, y no los hallazgos específicos, los que Watson buscó aplicar a la investigación con humanos. Los críticos y los seguidores por igual han minimizado frecuentemente la lucha de Watson mientras trataba de proveer una psicología que pudiera dar cuenta de la conducta humana compleja. Respecto a ésto, cien años después de la publicación del manifiesto, el conductismo todavía debe de cumplir con las promesas de Watson sobre un entendimiento genuinamente científico de nuestro complejo objeto de estudio.

Palabras clave: John B. Watson, conductismo, conducta humana, condicionamiento, psicoanálisis

From Watson's 1913 Manifesto to Complex Human Behavior

In 1959, B. F. Skinner was asked by *Science* to write an obituary on the death of John B. Watson, at the end of which he expressed his hope that "history [was] ready to return a more accurate appraisal" (p. 198) of the role and importance of Watson's writings for the future of truly scientific psychology. Unfortunately, and despite enormous efforts (e.g., Todd & Morris, 1994), Watson and behaviorism in general are probably doomed to be misinterpreted and attacked for a long time to come. The attacks started early (e.g., Roback, 1923), and in contrast with behaviorism itself they have changed little. The behaviorism born with Watson's 1913 manifesto, that still appears in a diluted form in most of contemporary psychology, with its emphasis on objectivity and empiricism, with its roots in pragmatism, and its emphasis on prediction and control, is still growing and changing in an effort to become a genuine science of behavior. It still has a long way to go, and it still shows more promise than results. Genuine advancement is, after all, necessarily slow in psychology because we are dealing with a difficult subject matter.

The Manifesto as Revolutionary

It is not totally absurd to argue that the dominance of cognitivism over so many centuries has to do with impatience with the slow pacing and accumulation of our

understanding, with cognitive constructs making fast and relatively effective placehold-ers. Cognitive constructs often provide an illusion of understanding, an attitude that Watson understood and fought. This is the "low road," as one of us has called it, which can be traced from Pythagoras through Plato and Descartes to contemporary psychol-ogy. It also has something to do with our failure as a discipline to acknowledge the large extent of our ignorance. Whatever the case, the manifesto has reached a centennial and still has a role as the "sword of Damocles" hanging over the head of our still young discipline, a critique of our penchant for half-heartedness, exaggeration, and reification.

In this, and many other aspects to be mentioned later in this article, the manifesto is more a symbol than an actual influence. Its message was clear: if psychology is to become a science it must reconsider its foundations, get rid of metaphysical specula-tion, and fully embrace the methods of natural science. The psychology that Watson envisioned was different from the one that often is presented as his in textbooks and articles. It is also substantially different from the one that most behaviorists consider Watson's, as we intend to show in this article, particularly concerning his analysis of human behavior. The fact that the manifesto was not as influential as usually believed is not, in our opinion, reason enough to downplay its importance. Quite the contrary, we would like to argue that in Watson's struggles to answer the questions that he left open as possibilities in the manifesto a picture emerges that is quite different from the one typically presented in textbook accounts and other modern sources.

The fact that the manifesto has served as a founding myth of sorts, as we intend to show, might have overshadowed important aspects in the development of Watson's views. The manifesto was a direct attack on the psychology of the time, a discipline that had reached conceptual and methodological stagnation. It was a declaration of war with the goal of demolishing the decayed foundations on which the psychological building was erected, a goal that was urgent and required fundamental change. The attack was not immediately effective and victory has remained far from conclusive. But as we came to appreciate the symbolic nature of the manifesto it also changed our conception of its author.

We will argue that the negative tone in the manifesto has prevented most readers from understanding the development of Watson's views. Most notably, we believe it has drawn attention from Watson's enduring interest in understanding the complexity of human behavior, leaving the idea that Watson was a mere "extrapolator" of simple animal research findings, a criticism that is still made of behaviorism as a field. Many may be unaware of Watson's strong interest in psychoanalysis and how this affected his views of adult human behavior. This was then important in his adoption of the concept of conditioning so that *it* became almost a synonym for behaviorism. We will attempt to characterize the history of these developments and in so doing present a portrait of Watson that differs in some respects from the one that has often been given. In this reconstruction of Watson as founder, we argue that contemporary behaviorism might benefit from better understanding the iconoclastic and daring attitude of the person who gave it its name.

The Myth of the Behaviorist Manifesto

According to popular legend, of the sort presented in introductory psychology textbooks, John B. Watson descended from a mountain on February 24, 1913, close to Morningside Heights in New York City, with two tablets of stone on which a number of commandments were written: "Psychology as the behaviorist views it is a purely objective experimental branch of natural science," or "Its theoretical goal is the prediction and control of behavior" and "Psychology must discard all reference to consciousness." Having said so, and probably suggesting that infidels should be lapidated or prevented from publishing, or something of the sort, Watson observed his creation, saw that it was good, then assumed a godly role and went to rest from all his work. This caricature is certainly wrong. Watson's (1913) "behaviorist manifesto," as it is commonly known (Woodworth, 1931), was not as revolutionary as popular knowledge would assert (see also Leahey, 1992).

A Behavioral Revolution?

Samelson (1981) exhaustively investigated the issue and concluded that Watson's manifesto was hardly, if ever, mentioned in autobiographical accounts of major psychologists of the time (including Watson's autobiography, Samelson, 1994), and only received a few reviews (most notably those by Mary W. Calkins and Edward B. Titchener) in the few years following its publication. These reviews were mostly favorable (even Titchener's), though they disagreed with Watson regarding introspection. Samelson (1981) noted that the manifesto never actually produced the "violent reaction" and "furor" that might be expected of the turning point of a revolution, nor did he find any "converts." The only letters he found discussing the presentation were written by Watson himself. The situation was no different in the few years following its publication, where behaviorism and the manifesto itself were rarely mentioned. The fact that the manifesto was not taken more seriously was not at all surprising, argued Samelson, because even if provocative, Watson's criticisms were hardly new. Impatience with introspectionism and increased attention to behavior were already evident in the scholarly literature. Further, although the manifesto contained a lot of criticisms of the introspective psychology in vogue at the time, there were few suggestions for what should take its place. But it was clear that Watson's goal was to replace the foundering psychology based on the study of human consciousness and the "mind" by showing that mind does not exist except as a *word*. Who else had offered a research program based on that fact?

John B. Watson's first book, *Behavior: An introduction to comparative psychology* (1914), was published shortly after the Columbia lectures and, as is well known, included an edited version of the manifesto as its first chapter. *Behavior* was intended as a textbook for a course in the methods of the study of behavior for psychologists *and* biologists. Watson suggested in the preface that in the case of shortage of time for such a course the instructor might safely omit the first chapter, among a few others. This

indicates that even for Watson himself the manifesto was not that important. After all, the rest of the book showed how to conduct behavioral research with nonhuman animals, which led to his argument that behavioral approaches apply in education, mental testing, law, psychotherapy, advertising, and other areas where the feasibility and promise of the behavioral approach could be appreciated.

Watson's few descriptions of the beginnings of behaviorism support this conclusion about the little importance he attributed to the manifesto itself. In his autobiography Watson (1936) declared that the formulation of his views began as a student and later instructor at Chicago, "as early as 1904" (p. 276)[1], and only obliquely refers to the manifesto: "I still believe as firmly as ever in the general behavioristic position *I took overtly* in 1912" (p. 281, italics added). In the preface to the second edition of his *Psychology from the standpoint of a behaviorist* (Watson, 1919), he mentions a lecture at Yale University in 1908 as his first public expression of his views, which was received with skepticism, and then briefly mentions the manifesto along with his article on image and affection (Watson, 1913b), to which he paid more attention.[2] The same can be said of the less personal history of behaviorism that appears in Watson's 1927 "The origin and growth of behaviorism." Nowhere in these sources did Watson discuss the manifesto or suggest that it was particularly important other than as a starting point.

The Manifesto as Both Flag and Target

So, what is the real importance of the manifesto? The main conclusion to be drawn from Samelson's (1981) analysis (see also Boring, 1950; Boakes, 1984; 1994; O'Donnell, 1985; Cohen, 1989; Wozniak, 1993) about the scant influence of the manifesto in its first years, is that the rise of behaviorism seemed much more a barbarian invasion than a revolution. The seeds of behaviorism were already there: James had already criticized the concept of consciousness, functionalism with all its Darwinian heritage had put adaptation as the locus of psychological analysis, Titchenerian introspectionism was stagnated, and comparative psychology was on the rise. Others had already proposed to focus on behavior as well as on objective methods for its study, and applied psychology had begun to grow. The philosophical movement of pragmatism had also promoted abandoning pseudo-problems and had preached the futility of metaphysical debate. So conditions were right, but no one had stepped up to make the strong and clear argument for radical change. The world was ready to hear Watson (cf. Burnham, 1968).

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[1] A point that Harvey Carr has corroborated in his own autobiography (Carr, 1936, p. 76). Burnham (1968) suggested that this interest was motivated by a lecture by Cattell in St. Louis, "The conceptions and methods of psychology," in 1904, which Watson attended (see Cattell, 1904). As Burnham (1968) has argued, portions of Cattell's lecture are strikingly similar to the manifesto.

[2] There is also an abstract of a paper presented before the Southern Society for Philosophy and Psychology, in Baltimore, in December, 1908, titled "A Point of View in Comparative Psychology" (Watson, 1909), where Watson makes some of the same points that will appear in 1913.

Reflecting on the origins of behaviorism, Watson (1927) declared that his role was that of *crystallizing* the behaviorist trend. Indeed, what Watson did in the manifesto was fundamental: he gave a name to what was already a trend. By adding an *-ism* he agglutinated and embodied the feeling of discomfort with the psychology of his time and the hopes for a psychology that helped solve everyday problems but remained firmly anchored in the laboratory. And he spoke forcefully and persuasively at a time when most like-minded people were reserved and even mealy-mouthed. No one else argued for a real behavioral approach to human psychology.

The manifesto did not lead to many conversions. As pointed out by Harrell and Harrison (1938), behaviorism was "for a long time a one-man movement" (p. 387). On reflecting on their own methodological and theoretical perspectives, however, future generations of psychologists looked back at Watson and found that what he proposed broadly described what they did. Psychologists did not convert to behaviorism, but rather gradually learned that they were indeed behaviorists (see, e.g., Yerkes, 1917). What "being a behaviorist" meant for these psychologists, however, is less clear. This might explain the still extant contradictions regarding who is and who is not a behaviorist. Already in 1922, merely ten years after the Columbia lectures, Walter Hunter (1922) argued that to the best of his knowledge there were only two behaviorists (Watson himself and Albert P. Weiss). Roback (1923; 1937), one of the first outspoken critics of behaviorism, set to proving Hunter wrong by showing that the number of behaviorists was actually large and the movement was prevalent in mainstream psychology, and managed to do so only by admitting that it was impossible to talk of a single behaviorism (see also Woodworth, 1924).

Behaviorists ranging from the radical to the moderate, ruling out any mention of consciousness or admitting its possibility, rejecting the notion of instinct in all of its forms or merely diminishing its importance, studying rats, pigeons, or humans, could find in the manifesto a common ancestor, a last name, a founding myth. And despite the differences, all could find something in common in Watson's immature and relatively vague views. The skeptic trend in psychology, objectivistic and parsimonious, had come of age by adopting a name: behaviorism. Furthermore, this new behaviorism embodied the ideal of pragmatism in American philosophy: an impatience with metaphysical and ontological issues and pointless debates, a rejection of dualism, and an emphasis on prediction and control that critics like Titchener would denounce as the rise of technology at the expense of science in psychology. For him and for many others, a science of psychology that rejected the study of consciousness could not really be a science.

The manifesto was also useful for critics: it gave a name to a previously fuzzy enemy. With the assumption of the name 'behaviorism,' traditional psychology found in Watson's view its favorite *bête noire*, a punching bag against which other views could spar for mainstream favoritism. This situation, evidently, has not changed even today. Someone like Watson was required for this sprouting system to survive, someone with enough stamina to resist relentless criticism and to proselytize indefatigably, as Skinner would do after him.

This is not the only aspect in which Watson and Skinner were alike. Whereas they were well-known for their strong criticism of mainstream psychology, neither took significant time to reply to their respective critics, often leaving the task to others. Watson was aware of the early criticisms of his views, actually anticipating them, but the sole mention he made of them (Watson, 1919) was to argue that their complaints lacked originality (e.g., by Titchener) or were due to an insufficient knowledge of his proposed tenets. Watson did, however, pay attention to at least one of his critics. Edward Thorndike wrote a favorable review of Watson's *Behavior* (Thorndike & Herrick, 1915), but he expressed discontent with Watson's omission of methods and results in human psychology, such as those exemplified by the work of Ebbinghaus and Cattell, that were for him as "'behavioristic' or objective" as the experiments with nonhuman animals that Watson reviewed in his book. Whether as a consequence of Thorndike's comments, or as a result of his overall interest in human behavior, human experiments were described and included in Watson's next book, *Psychology from the standpoint of a behaviorist* (Watson, 1919), which originally was to be called "Human Psychology" (Watson, 1917a).

Watson's Behaviorism in the B.C. (Before Conditioning) Era

Buckley (1989) argued that the environment of social reform and progress of the time only encouraged the promise that was Watson's behaviorism, particularly as related to the goals of prediction and control of behavior. The years between the manifesto and Watson's second book, *Psychology from the standpoint of a behaviorist* in 1919, correspond to the period in which Watson appraised the reception of his original ideas. Criticisms from scholars like Calkins and Titchener could be safely ignored, as already suggested. Further, some warming to his ideas was occurring progressively, exemplified by the support from Thorndike and words of encouragement from Dewey, who saw in behaviorism the possibility of using the scientific method for the solution of societal problems (Buckley, 1989).

Behaviorism and Human Psychology

Although Watson referred to many areas of application to human psychology, actual experiments with humans were not presented in the 1914 book, as noted by Thorndike. Watson's *Behavior* was indeed his first foray into human psychology. He had been complaining to Yerkes in 1910 (Benjamin, 2006, p. 157) about the state of human experimental psychology, and had hinted that a "simpler, behavior view of life" with adjustment being the "keynote" might well provide a much better approach for establishing the discipline as a genuine science. Watson was convinced that "all of our sensory work, memory work, attention, etc. are part of definite *modes* of behavior" (p. 157; italics added). This emphasis in the possibility of a science of human behavior is, of course, present in the manifesto, where Watson argued that had he

been required to study some Australian aborigines he would have approached the problem just as he did when he studied the behavior of terns in the Dry Tortugas islands (more on this later).

He also interpreted the rise of applied psychology that was occurring independently of introspectionism as both a symptom of the sterility of the latter and further proof that a behavior approach might be more productive than introspective psychology, and he described the applied field as being truly scientific (Watson, 1913a). His discomfort with the experimental psychology of the Titchenerian variety of his time was thus related to the fact that, despite all of its theorizing and refined methods, this introspective psychology did not have much to say about everyday life. It had even less to say about how its knowledge could help in the solution of societal problems, as compared to the psychologies of William James, and, particularly, Edward Thorndike. But can a researcher who has made his reputation in animal research make a case for applying those methods to human psychology?

Understanding Human Behavior: The Human/Animal Schism

Watson was well aware that the main threat to the acceptance of his ideas was a tacit assumption of discontinuity between nonhuman and human animals (cf. Logue, 1994). In a letter to comparative psychologist Robert Yerkes in 1913 (Benjamin, 2006) he commented: "The wise way would probably be to do as you suggest, — call behavior physiology or biology, and leave psychology to the introspectionists. But I have too sincere an attachment for psychology to do this way (*sic*)" (p. 158). Watson believed in his scientific program as psychology and was willing to fight for it. In further correspondence with Yerkes (Benjamin, 2006), he wrote that he was annoyed to have to defend his own experimental work from the continual charges of futility (cf. Watson, 1910). If his psychology was to be taken seriously, Watson had to do more than pointing out insights that could be obtained from animal research. He had to demonstrate that he took human behavior seriously.

The tenth chapter of *Behavior* is thus particularly interesting in depicting his efforts to convince readers of the usefulness of his approach to understanding human behavior. Many points are of interest in this chapter, but we will limit ourselves to two. First is the issue of how Watson could reply to the charges of oversimplification or reductionism that would likely be made when arguing for what we might call his "bottom-up" approach to human behavior. Watson addressed this charge by putting the issue in terms of what he called "complexity." Contrary to the traditional caricature, Watson was convinced that human behavior was particularly complicated and that analyses in terms of simple reflexes would not be enough to understand it. With this, Watson referred to the type of phenomena that the introspectionists attempted to deal with, such as thinking, imagery, reasoning, and the like. For Watson, the fact that these phenomena did not obviously lend themselves to explanation as simple reflexes did not mean that a science of behavior was less equipped to deal with them: "[O]ur sci-

ence does not feel the need of changing its methods and principles in passing from simple forms of behavior to more complex ones" (Watson, 1914, p. 317).

This point was more eloquently made in the manifesto (and in the first chapter of the book), when discussing the study of Australian tribes, where Watson argued that their behavior could be analyzed even if admittedly the problem was much more difficult, as both responses and stimuli would be more varied, the social context would have to be observed much more carefully, and "habits would have been more complex and the influences of past habits upon the present responses would have appeared more clearly" (p. 11). Watson added that had the problem been one of studying the "educated European" the problem would have been much, much more complex, but still as amenable to study from a behavior point of view as were his studies with the terns.

Watson noticed that as behavior became more complex, even sound objectivists like Loeb and Yerkes tended to introduce psychic concepts for the sake of explanation. This *deus ex machina* resource, as Watson called it, is no different from the tendency in many of today's psychological theories to appeal to hypothetical constructs to account for behavior that is complex, for instance suggesting that representations are necessary to understand serial learning (e.g., Terrace, 2006), or appealing to "internal clocks" to understand timing (e.g., Roberts, 1981).

Watson did not have a sophisticated knowledge of evolutionary thinking, and as was common in his time, still viewed some species as being lower and others higher. He also seemed to assume, as was also common then, that our species was at the peak of evolutionary ascent, and separated from "brutes." As species become more complex, he argued, complexity in behavior is mostly of a quantitative type, being characterized as having a greater number of reflexes and more complex forms of combinations of these reflexes. Thus, in primates we have, at least "in rudimentary form, all types of reactions that we find in man [...] such as complex forms of response to complex objects, imitation, use of tools, etc." (Watson, 1914, pp. 318-319). So, what makes humans different? Certainly not their larger cerebral cortex, he argued, as this only means that humans have a larger number of neurons and connections, that is, a larger number of reflex acts. The answer to the question leads us to the second major point of interest in the chapter, namely, the appearance of language in the evolution of our species.

Language Makes Us Human

Watson's answer to the question of locating the dividing line between human and nonhuman is rather puzzling. We noted above that he believed that the human nervous system differs only quantitatively from that of other animals. But he also argued for a *qualitative* difference, one in structure; because animals lack the bodily structures necessary for language or only have them in a highly undeveloped state, Watson concluded that the missing link is that humans form language habits, "well-developed

speech mechanisms" (p. 321). His point was essentially that human beings, having been born with a developed vocal apparatus and with a complex system of reflexes, have the potential to engage in habits that are not found in other species: "The moment the child forms the first language habit, he is forever differentiated from the beast and henceforth dwells apart in another world" (p. 331). Furthermore, Watson concluded that language habits are at the core of the type of phenomena attended to by introspectionists: "[…] the search for reasoning, imagery, etc., in animals must forever remain futile, since such processes are dependent upon language or upon a set of similarly functioning bodily habits put on after language habits" (p. 334).

Watson viewed language habits as fundamental to understanding human behavior, and this position was taken much more directly in his later work: "[S]ince so many millions of man's adjustments are verbal, the verbal organization soon comes to be *dominant*. The verbal process soon comes to initiate and control all of the arm, leg and trunk organization. […] The behaviorist believes that the verbal process whenever it is present is always an actual functioning part of every act of skill" (Watson, 1924b, p. 274, italics added). Watson had already argued that verbal habits were at the root of thinking (Watson, 1921), and his definition of verbal habit is also fundamental to his ideas about memory, and about the Freudian unconscious (Watson, 1924b).

Watson's views on language and thinking as they appear in *Behavior*, as well as in his 1919 book, *Psychology from the Standpoint of a Behaviorist*, were self-admittedly ambiguous. Watson (1921) attributed the ambiguities to his "own loose way of writing" and the fact that he had written for a general audience. Thus, it is not surprising that thinking and language remain the most misunderstood aspects of his views, particularly concerning the identification of thinking with subvocal speech. Watson certainly emphasized the "laryngeal apparatus," including the vocal cords and throat, as the structural difference that enabled human language habits and thinking (e.g., Watson, 1914, p. 328). However, critics (e.g., Roback, 1923, 1927) have ignored Watson's emphasis on behavior, including language and thinking, as the response of a whole organism, "with his whole body in each and every part" (Watson, 1921, p. 87). In the case of language, habits necessarily involve the reciprocal *substitution* of other bodily responses for laryngeal responses, so that a nod of the head may function as a spoken word. Language is not simply laryngeal movements any more than all laryngeal (vocal) behavior is language.

An accurate treatment of Watson's views about language and thinking is beyond the aims of this paper, and can be found elsewhere (e.g., Malone, 1990, 2009). Regardless, taking into account the centrality of the concept of language habits for the understanding of human behavior it is disheartening that so many writers keep promoting such simple caricatured views of Watson's position. One possible explanation for misinterpretations of his views could be that despite Watson's efforts to convince his audience that he was indeed interested in human behavior, they still viewed him as an animal researcher who saw humans only as another kind of lab rat. Whether as a result of Watson's own presentation of his case or bias in reading his work, critics

such as Roback (1923, 1927), Calkins (1930), and many more after them ignored another facet of Watson's effort to deal with complicated human behavior. That is, Watson promoted the work of Sigmund Freud and some of his psychoanalytic students and colleagues. His belief that Freud's findings and therapy were compatible with his own ideas about psychology support our view that Watson's interest in human behavior was much more than a gesture to appease his mentalist critics.

Watson and Freud – Really

It might surprise many readers to learn that Watson was heavily interested in Freud's psychology, a point that has mostly escaped modern writers, but that was acknowledged by early critics (e.g., Harrell & Harrison, 1938). Burnham (1994) tracked Watson's first contacts with psychoanalysis to 1904, in Chicago.[3] Burnham also reported on a series of exchanges between Watson and Freud's American disciple and biographer Ernest Jones, as well as contacts with other psychoanalysts both in person and through his students, some of whom had been psychoanalyzed. In his autobiography, Watson (1936) admitted that the "nervous breakdown" he experienced in 1903 "prepared [him] to accept a large part of Freud" (p. 274).

As Harrell and Harrison (1938) pointed out, psychoanalytic influence was evident in "Image and affection in behavior" (Watson, 1913b), the second of the Columbia lectures, where Watson argued that affection should be ultimately reducible to sense processes, particularly to the "pleasantness" of bodily contact, in the way psychoanalysis discusses erogenous zones. Watson wrote: "I may preface my own remarks by saying that I do not follow [the Freudian] movement into all of its extravagances. I nevertheless feel that they have made good their main point concerning the sex references of all behavior" (p. 426).

Watson (1916) attempted —"in a popular way"— to present Freud's theory in terms of behavior. Take this assertion, for instance: "This argument gives us good a priori grounds for supposing that the dreams of adults too are full of meaning and are logical; that there is a wish in every dream and that the wish is fulfilled in the dream" (Watson, 1916a, p. 483).[4] Watson thought that Freudian psychoanalysis, despite its penchant for grand theorizing, had important things to say about the analysis of "personal character" and that this presented a problem for the experimental psychologist: "I believe all psychologists will agree with me when I say that no laboratory-developed test has ever enabled us to tell whether a man is at heart a liar, a profligate, or a

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[3] Again, remember that this is the year that Watson suggested as the first formulation of his ideas, as well as the year of Cattell's lecture on the concepts and methods of psychology (Cattell, 1904).

[4] True enough, Watson was not clear in defining how his views on dreaming stood in relation to his ideas regarding imagery (Watson, 1913b; 1914), which he considered a useless foundation for psychology and likely the cause of the pointless speculation that plagued introspectionist psychology. Arguably, Watson did not entirely deny the existence of images: "I may have to grant a few sporadic cases of imagery to him who will not be otherwise convinced, but I insist that the images of such a one are sporadic, and as unnecessary to his well-being and well-thinking as a few hairs more or less on his head" (Watson, 1913b, p. 423).

coveter of his neighbor's wife" (p. 481). So we need psychoanalysis! He even proposed that careful psychoanalysis be used to select and/or treat people in positions of power, who should be "free from strong inward conflicts and repressions" (p. 487).

Particularly important for Watson was Freud's emphasis on wish fulfillment as the source of much motivation in human behavior (Watson, 1916a, p. 479; see also Watson, 1917b). He concurred with the Freudian interpretation of wishes as being unconscious (unverbalized) in nature, with the idea that they will be repressed when they are actually verbalized. He furthermore agreed with the notion that the occurrence of wishes during dreaming and in "Freudian" slips of the tongue is evidence of their centrality, concurring as a consequence with the psychoanalytic treatment of sublimation. Moreover, in another article published the same year (Watson, 1916b), it is clear how the psychoanalytic interpretation of so-called mental disorders influenced Watson's views about the issue, and also clarifies his appraisal of the contributions of Freud:

> I have been for some years an earnest student of Freud (and other psychoanalysts), but the further I go into their terminology the more sure I am that there is a simpler and more common-sense way (and at the same time a more scientific way) of describing the essential factors in their theory. I am convinced of the truth of Freud's work, but as I teach the Freudian movement to my classes I drop out the crude vitalistic and psychological terminology, and stick to what I believe to be the biological factors involved in his theories (Freud himself admits the possibility of this). The central truth that I think Freud has given us is that youthful, outgrown, and partially discarded habit and instinctive systems of reaction can and possibly always do influence the functioning of our adult systems of reactions, and influence to a certain extent even the possibility of our forming the new habit systems which we must reasonably be expected to form. (Watson, 1916b, pp. 589-590)

As these citations indicate, Watson was indeed interested in many of the insights in the work of Freud and other psychoanalysts, but he was at the same time highly critical of some of their more radical assumptions, particularly those of a metaphysical nature, and what Watson perceived as conceptual and methodological dogmatism that he considered alien to scientific work. Instead of ignoring the hard questions, as textbook depictions of Watson would have us believe (e.g., Schacter, Gilbert, & Wegner, 2011, p. 16), he actually attempted to understand these interesting phenomena in his theoretical framework. For this he appealed to William James's analysis of habit and particularly his notions on the self. Instead of James's separate "selves" Watson referred to the effects of earlier-learned habit systems on later systems. Thus, instinctive tendencies and habits established in childhood may intrude during moments of frustration and actually compete with more recently established habits for the control of current behavior, arguing that "one group of habits can 'down' another group of habits — or instincts" (Watson 1916a, p. 483). These early instincts and habits are then replaced by other habits as a result of education, but they never "completely lose their impulsive

power," instead showing up in dreaming, slips of speech, and sublimation. So, Watson proposed that these should be called more appropriately "reaction tendencies." Mental disorders thus can be understood as "habit disturbances" or maladjustments, inadequate responses to objects and situations in life (Watson, 1916b). His interpretation was essentially like Freud's, despite the great difference in terminology.

Watson became more critical of psychoanalysis in his later popular writings (e.g. 1924), but his early interest in psychoanalysis shows that he took complex human behavior seriously, a point that has been downplayed by his most outspoken critics (e.g., Roback, 1923; 1937). These criticisms, often appearing in textbooks, overlook the fact that for the behaviorist no single instance of human behavior could be understood in isolation from the history of the individual. This entails consideration of the development of his/her different habits, the social influences in the establishment and elimination of early habits, and the influence of the particular contexts in which such behavior is to occur (cf. Horowitz, 1992). His was an S-R psychology, but this never meant that he understood these terms in molecular, discrete terms, or that he downplayed the complexity we attribute to human behavior. He defended psychoanalysis at a time when reactions to it had passed from enthusiasm to outright disdain in mainstream scientific psychology, suggesting that he was taking a risk.

As we noted above, much of Watson's historical approach to human behavior and the adjustment of the organism to the environment appealed to the notion of habit which he developed in his first book (Watson, 1914, particularly in chapters 5 and 6). But the development was only vaguely sketched and it seems likely that Watson realized this might be an Achilles' heel for his whole enterprise. The realization that habit formation merited a better explanation if his approach to human behavior was to be accepted marked a fundamental change in his system, since it led to the incorporation of *conditioning*. The emphasis on the centrality of conditioning in his later views was the culmination of the same effort to understand the complexities of human behavior, rather than a product of his work with nonhuman organisms.

Habit Becomes Conditioned Reflex

Misunderstandings about Watson's definition of habit are common, if not universal. That is, most critics of Watson assume that habit corresponds to a complex of *individual, discrete* stimuli and responses that tend to occur together repeatedly. This bare-bones notion of habit certainly *seemed* to be Watson's (1913) position: "I believe we can write a psychology, define it as [the science of behavior], and never go back upon our definition […] It can be done in terms of stimulus and response, in terms of habit formation, habit integrations and the like" (pp. 166-167). However, it is important to note that for Watson a stimulus ("S") could be an education as an architect and a response ("R") could be designing a building. In other cases, stimuli and responses could be discrete and momentary. Watson was not an "S-R" psychologist in the narrow sense that the label is usually conceived (cf. Malone, 1990/2004).

Watson's psychology as the science of behavior was essentially a science of the *adjustment* of organisms to their environments, which shows the functionalist heritage of his definition. Because for him humans and nonhuman animals adjust to their environments through "hereditary and habit equipments" (Watson, 1913, p. 167), the concept of habit — understood as the study of learning — was central to his analysis of behavior: "On account of its bearing upon *human* training, learning in animals is probably the most important topic in the whole study of behavior" (Watson, 1914a, p. 45, italics added). (See Boakes, 1993 and Malone, 1990/2004, for a comprehensive review of Watson's [1914a] analysis of habit and the influence of the works of James and Thorndike on these notions).

Conditioning Applied to Complex Human Functions

Although fundamental in his writings, Watson acknowledged later in life that his early views about habit and habit formation were "rather loose" (Watson, 1927, p. 248). According to him, this changed with the advent of the notion of conditioning. His first contact with conditioning was likely Yerkes and Morgulis's 1909 article, "The method of Pawlow in animal psychology," which introduced the subject to American psychology. More importantly, according to his autobiography (Watson, 1936), Yerkes went to Johns Hopkins in 1909 to work on conditional glandular responses with dogs. Conditioning at that time was certainly a topic of conversation, but apparently Watson was unconvinced: "The work of Pawlow and his students on the conditioned reflex, while known to behaviorists, played at first a relatively minor role in their formulations. […] Bechterew's work on the conditioned motor reflex where human subjects were used had from the first a much greater influence upon behaviorism" (Watson, 1927, pp. 248-249). So we can safely conclude that his interest in conditioning came because of its role in explaining human behavior.

Watson started to incorporate conditioning in his 1914 book, where he considered it an inaccurate procedure for studying discrimination in animals. The concept reappeared more surreptitiously after he discussed the importance of the principles of recency and frequency in habit formation, and, as we discussed in a previous section, under the heading of "*substitution*," emphasizing how stimuli that did not instigate a response can do it later by virtue of *temporal contiguity*. This idea appeared only tentatively there, but it indicates that Watson had started to grasp how the concept could at least potentially explain the complexity in human behavior, where stimuli responsible for action were so difficult to identify.

After the publication of the manifesto and at the time of the publication of his first book (Watson, 1914), Watson engaged in extensive conversation with Karl Lashley regarding the importance of conditioning for the analysis of habit formation (Watson, 1936). Watson explained that these discussions were directly related to human behavior in a letter to Yerkes in 1915 (Benjamin, 2006): "Yes, I suppose I am monkeying a bit with human behaviorism" (p. 158). Watson came to realize that the conditional re-

sponse could be used to determine stimulus control without appealing to verbal intro-spection. As a consequence of these conversations, his presidential address before the APA in 1915 was devoted to the conditioned reflex (Watson, 1916c; 1936, p. 277).

Conditioning progressively gained more and more centrality in Watson's position. For instance, he related it explicitly to his analysis of language habits. Substitution (con-ditioning) was proposed as *the* mechanism by which words come to be integrated into habit systems, such that language habits come to supplement bodily habits (Watson, 1916b, p. 592). By 1917, in a footnote, he was already extending his ideas about the conditioned reflex to encompass all other habits, which were now defined as "a series of conditioned reflexes. "The conditioned reflexes are the units into which all habits may be resolved" (Watson & Morgan, 1917, p. 168). Skinner later called this progres-sive merging of habit and conditioning "an uneasy marriage" (Skinner, 1959, p. 197).

Amsel (1982; 1989) suggested that the introduction of the conditioned reflex al-lows the differentiation of two separate periods in Watson's intellectual life (see also Harrell & Harrison, 1938; Herrnstein, 1967). The first one, around the time of the manifesto and before the introduction of classical conditioning to the system, was characterized by a more tentative approach, with Watson merely suggesting the di-rection that psychology should take and denouncing the excesses of introspective psychology. The second was characterized by the more radical and iconoclastic as-sertions, including criticisms of other approaches of psychology as plagued by mysti-cal and religious concepts that would prevent a truly scientific approach to psychology. Consciousness, for instance, would be nothing but a leftover of the "soul" concept that was no longer utilized, but kept at least some of its metaphysical connotations.

Alternatively, Harrell and Harrison (1938) attribute this change in Watson's views and his move towards more dogmatic attitudes to his leaving academia in 1920 and entering the world of advertising. Whatever the case, the increased reliance on con-ditioning and his departure from academia certainly correspond in time and are prob-ably related. Conditioning assumed such an important role that by 1924 Watson was already defining behaviorism as "a psychology based in reflex action" (Watson, 1924; 1926), and conditional reflexes were seen as fundamental to explain "the old vague concept of habit formation and to give it a new and exact scientific formulation" (Watson, 1927, pp. 253-254). Because it was adult habits that were considered more complicated, Watson's analysis of conditioning was, in his typical custom, develop-mentally oriented and he proposed the stream of activity as a useful replacement of James' older idea of a stream of consciousness.

As also has been pointed out by Harrell and Harrison (1938), the later Watson came to disparage psychoanalysis as voodooism, as he believed that the conditioned reflex was enough to get rid of the notion of the unconscious, and could be used ef-fectively to explain mental disorders (Watson, 1926). Conditioned reflexes were also thought capable of replacing the notion of instinct (Watson, 1927), thus eliminating it from his theoretical system. The conditional reflex also was involved in the analysis of

thinking. As we pointed out before (see also, Malone, 1990/2004), Watson referred to thinking in at least two senses: as covert (subvocal) speech, and as an activity of an organism as a whole. In this latter sense, Watson certainly might be considered the unknowing father of the modern position known as "embodied cognition." Watson (1926, 1927) argued that in thinking the whole bodily organization is at work even if the "final solution" to a thinking problem has verbal formulation, in the way of spoken or written words, overtly or implicitly, but not necessarily. In many cases activity consists primarily of manual or visceral organization, so that thinking is actually "wordless." Conditioning is the mechanism by which the response to a particular situation can come to involve all three types of organization.

As we have tried to emphasize, the increasing role of conditioning in Watson's views is related to the potential that Watson attributed to it to explain the complexities of human behavior, including perceiving, thinking, remembering, and even emotional reactions (Watson & Morgan,1917; Watson & Rayner, 1920). Such complexities that were treated in vague terms in his earliest writings could now be understood as large complexes of conditioned reflexes, all initiated by particular types of stimulation. Conditioning could explain how habits are formed, retained, and discarded. It could also account for psychoanalytic insights (Watson, 1924), and even for such venerable concepts as James' stream of consciousness. The "activity stream" comprised a complete life chart representing the "*increasingly* complex whole" of human activity from the moment of conception (1924, p. 105). Was this product of the evolution of Watson's views discernible in the 1913 manifesto?

The Manifesto Again

In following these developments in Watson's thinking, it might seem that we have only paid lip service to the behaviorist manifesto. Quite the contrary, we believe that in order to understand the manifesto we need to observe what was missing from it. The manifesto was a declaration of principles, mostly in negative terms, proposed in a preliminary yet resolute manner. We know from his letters of the time to Yerkes (Benjamin, 2006), that Watson was well aware of the type of criticism that his views would receive. He had complained of the cold reception of his earlier statements but was quite eager to hear the criticisms and pick up the fight: "My thesis developed as I long to develop it would certainly separate me from the psychologists — Titchener would cast me off and I fear Angell would do likewise" (1910 letter to Yerkes, in Benjamin, 2006, p. 157).

What was lacking in the manifesto was a positive and effective demonstration of the results that the approach promised. His hope that this could be done in terms of habit formation and combination was based on vague support, as he himself noticed and consequently it is in the effort to provide a fulfillment of that promise that his later work has to be understood. If we exert a little self-criticism, we might conclude that in the hundred years since the publication of his founding lectures we have not

really advanced that much toward our goal to understand, predict, and control human behavior. Whether the reason lies in the comfort and easiness of the "low road" of cognitive science or just in our incompetence to ever deal with such a complex subject matter, the founding myth that is the manifesto is still there not only to remind psychology of its wayward development, but to remind us that we should not be content with our small triumphs in the laboratory or in practice.

Watson chose the difficult road, and walked it as long as he could, in spite of economic, personal, and academic hardships and opposition. In a time when we have to remind the psychological mainstream that behaviorism is still alive, and when economic pressures are pushing behavior analysis away from experimental psychology programs towards pure application, we might do well to remember that behaviorism is still the best way we know to understand ourselves and the way we work.

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