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WHY SHOULD WE CARE ABOUT SKINNER, THIRTY YEARS ON?

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Se toma el treinta aniversario de la muerte de Skinner como ocasión para visualizar su presencia en la psicología actual y recordar algunas de sus mayores aportaciones. En general, se puede decir que Skinner brilla por su ausencia según abundan temas skinnerianos sin apenas citarlo y sin embargo se echa en falta su presencia según sus aportaciones resolverían algunos importantes problemas de la psicología como ciencia. Temas skinnerianos sin apenas Skinner son las adicciones al juego y las máquinas, el recién redescubierto test proyectivo auditivo (ruido blanco), la economía conductual y el nuevo inconsciente basado en el control ambiental. Aportaciones fundamentales de Skinner como el moldeamiento de la conducta, la conducta operante como unidad funcional y la selección por las consecuencias siguen perentorias para la psicología actual en su persistente deriva dualista, neurocéntrica y esencialista. La ironía es que estas aportaciones revolucionarias en su día, se dan hoy por hecho, sin percibir su alcance teórico y filosófico. Se sugieren algunos aspectos de su importancia más allá de su aplicación práctica ya incorporada.

Palabras clave: Conductismo radical, Contingencia-de-tres-términos, Ruido blanco, Pequeño empujón, Nuevo inconsciente.

The thirtieth anniversary of Skinner's death is taken as an occasion to visualize his presence in psychology today and remember some of his greatest contributions. In general, it can be said that Skinner is conspicuous by his absence, as there are many Skinnerian themes that barely mention him, and yet his presence is missed as his contributions would solve a number of important problems of psychology as a science. Some Skinnerian themes with hardly anything about Skinner are addictions to games and machines, the newly rediscovered auditory projective test (white noise), behavioral economics, and the new unconscious based on environmental control. Skinner's fundamental contributions such as behavioral shaping, operant behavior as a functional unit, and selection by consequences remain peremptory for current psychology in its dualistic, neurocentric, and essentialist drift. The irony is that these contributions, revolutionary in their day, are taken for granted today, and their theoretical and philosophical scope are not perceived. We suggest some aspects of their importance beyond the practical application already incorporated.

Key words: Radical behaviorism, Three-term contingency, White noise, Nudge, New unconscious.

It is the thirtieth anniversary of Skinner's death, which was on August 18, 1990 (Pérez-Álvarez, 1990a). "Why should we care about Skinner today?", is a good commemorative question. I can give you a preview of my conclusion: we care very much. For the audience where this lecture was offered, as a closing lecture from the 8th Congress of the *Sociedad para el Avance del Estudio Científico del Comportamiento* (SAVECC, the Society for the Advancement of the Scientific Study of Behavior), it would be like convincing lions to continue to be carnivores. But perhaps it is not so obvious to mainstream psychology, which is largely vegetarian, in other words abstinent from behavior, as it draws on information processing, mindfulness, positive

thinking, and neurocentric discourse. So, to refer to behavior would seem almost rude.

Whatever the case, Skinner is one of the most eminent figures in 20th century psychology and one of the most eminent figures in psychology to date. According to a study that combines quantitative criteria (citations in journals and texts, as well as responses to a survey of psychologists) and qualitative criteria (scientific acknowledgements and eponymous use of the surname, Skinnerian, Freudian, etc.), Skinner appears first in a list of the 100 most influential psychologists of the 20th century, followed by Piaget and Freud (Haggbloom et al, 2002). I would like to comment on the two after Skinner, but not before pointing out the great differences between the three, which are indicative of the plurality of psychology as a science. It would seem that each one—Skinner, Piaget, and Freud—focuses on one of the parts of that tripartite conception of the psyche: behavior, cognition, and emotion, if it were not that this tripartite conception is simplistic and the psychology of each of these individuals too complex to circumscribe it in a neat package. Beyond the differences, none based their investigations on the positivist

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Development of the speech given at the VIII Congress of the *Sociedad para el Avance del Estudio Científico del Comportamiento* (the Society for the Advancement of the Scientific Study of Behavior, SAVECC) which took place in Madrid on October 5, 2019.



scientific method, not even Skinner who even went as far as to ridicule it (Skinner, 1956; Smith, 1994). Nor did they base their investigations on statistics. Instead, as a research method they used variants of the clinical method referring to the study of individual subjects, regardless of the fact that Skinner and Piaget were not clinicians.

I must not forget the fourth person on the list, Albert Bandura, who is first on another list, Piaget is second, Skinner is sixth, and Freud is off the list because the list focuses on post-war psychologists (Diener et al, 2014). However, in my opinion, Bandura is not at all on the same scale or in the same league as Skinner, Piaget, and Freud. People like these three are few and far between in the history of psychology. They would fit in a taxi. Bandura would go on a bus or 'colectivo' as they would say in Argentina, as would a great many important psychologists. What Bandura is recognized and cited for, highlights how psychology has degenerated: self-efficacy, a tautological concept, reciprocal determinism, as if the individual, the behavior, and the environment were separate pieces that interact, and social learning, what has always been known rechanneled in a cascade of mental processes. Bandura is no match, in my opinion, for the developments of the same themes he shares with Arthur W. Staats, in any of these lists.

After being probably the most eminent psychologist, Skinner has ended up outside the mainstream of academic psychology. After the acclaimed cognitive revolution, behaviorism was left for dead. However, recalling once again Mark Twain's famous anecdote used by Freud regarding psychoanalysis, it can also be said that the news of the death of behaviorism is notably exaggerated (signed Mark Twain or for that matter the behaviorist of the moment). Behaviorism is not only not dead, but it is actually buoyant in three senses, as I used this expression in the opening conference of the first SAVECC congress in 2012 in Seville (Pérez-Álvarez, 2012).

Behaviorism is buoyant, proof of this is this very congress that has more participants each time, which is obvious due to the presence of the new generations here. It is also buoyant, it must be said, in the maritime sense of floating, barely anchoring in academic psychology, remaining outside the mainstream. Behaviorism is also buoyant in the bullfighting sense of firmly and nobly charging at the lures of psychology. Because of this bullfighting character, which is certainly not liked in the current *vegetarian* times, and above all because of the deluge of the main current, behaviorism remains afloat without touching down deeply, although it is buoyant in its fiefdom or niche. Behaviorists have, of course, their jargon, preferential topics, and non-punitive audience, as Skinner defines psychotherapy, where they express themselves without fear of not being understood. On the contrary, it is where they are validated and their expressions reinforced. The problem and the shame would be that they end up by self-excluding themselves and remaining as a sector within psychology that conforms and comforts itself, a little—if you will forgive me—like the Lacanians within even the psychodynamic approach itself.

Beyond the buoyant niche of the behaviorists, thinking above all of those who are entering the mainstream of psychology, I would like to recall the chronological fallacy (Freixa & Froján, 2014), according to which the latest thing is usually taken as the best, when sometimes it is not even the newest. As Freud once said of himself, originality often consists in having read little.

Behaviorism, beyond being a school of the psychological tradition, is central and transversal in psychology. It is central insofar as behavior is an obligatory reference point for psychology, where even psychology that is not recognized by studying behavior begins and ends. Even when psychology studies something else (the unconscious, processing, or neuronal activity), it starts with behavior and ends with it too. But it does so, firmly and nobly, not without often incurring in flagrant explanatory fallacies (tautologies, homunculi, ghosts in the machine, reifications). Among the most useful would be the above-mentioned self-efficacy, executive function, and mirror neurons. Behaviorism is transversal inasmuch as Skinner is in almost everything, even when not recognized, not that he needs to be, as his contributions are already common heritage. However, a thirty-year anniversary is a good moment to remember Skinner, in particular where he is conspicuous by his absence and his presence is missed.

I will reuse Geir Overskeid's title «looking for Skinner and finding Freud» (Overskeid, 2007). By the way, it is worth remembering that Skinner studied Freudian themes (lapses, dreams, psychotherapy; Pérez-Álvarez, 1990b), Freud being the most quoted author, not exactly for Eysenck-type criticisms. This resonance of Freud in Skinner contrasts with the usual aversion that Freud arouses in behaviorists, worthy of a psychoanalysis, albeit brief. The title I propose for this section is «Browsing mainstream psychology and finding Skinner». I say "browsing", because if it were a systematic search the findings would be endless. Specifically, I am referring to six Skinnerian topics in which Skinner is conspicuous by his absence, hardly quoted at all. I don't say this because there may be usurpation or anything like that, but because these are already important topics in their own right with their own benchmark authors. However, they would benefit from having a more Skinnerian focus.

BROWSING MAINSTREAM PSYCHOLOGY AND FINDING SKINNER

The great Skinner box of today's world

Against the background of the general scope of the Skinnerian approach to understanding human behavior according to works such as *Science and Human Behavior* (1953), *Verbal Behavior* (1957), *The Technology of Teaching* (1968), *Contingencies of Reinforcement* (1969), and *About Behaviorism* (1974) among others, I highlight the famous «Skinner box», because of its relevance to today's world. The Skinner box is a box or camera designed for the experimental study of the behavior of animals, typically rats and pigeons, which shows how behavior is regulated by its consequences according to various reinforcement programs.



Certain characteristics of today's world seem Skinnerian. I am referring to the culture of goals, the need for immediate feedback, and the obsession with progress, which the psychologist Adam Alter highlights with regard to behavioral addictions (Alter, 2018). Without losing sight of this background, I am going to focus on technological gadgets that control our behavior, as if they were designed by Skinner, himself a skilled builder of devices such as the box that bears his name. Today's world could be seen as a composition of Skinner boxes, from cars to mobiles, if the world is not itself a big Skinner box (internet, network, social networks) or, as Nicholas Carr would say, a glass cage (Carr, 2014).

A car with its driver represents almost topographically a Skinner box and in fact driving provides an unsurpassed example to illustrate operant behavior (discriminative stimuli, stop-and-go devices, immediate feedback, shaping, rules). If one recalls Skinner's «pigeon project» to train a pigeon to fly a missile, the picture would be complete. Cities, whether you drive or not, are designed according to a contingency system, not just because of the traffic lights. Pedestrians themselves seem to circulate like cars with their distances, turn signals, overtaking, and polite indifference, reminiscent of Irving Goffman's analysis in *The Presentation of Self in Everyday Life* (1956). Not to mention the number of stimuli.

If we go into Las Vegas, Nevada, we find hundreds of machines like Skinner boxes each with an «animal» operating in it, as Natasha Schüll shows in her moving book, tellingly entitled *Addiction by Design*. As she says: «Slot machines are just Skinner boxes for people! Why they keep you transfixed is really no big mystery. The machine is designed to do just that. It operates on the principles of operant conditioning.» (Schüll, 2012, p. 104). In similar terms, James Olds and Peter Milner in 1954 described the behavior of the legendary rat number 34 in their study who ended up dying of pleasure by operating electrical stimulations in the brain, in the area that turned out to be the reward center (Olds & Milner, 1954; see Alter, 2018, pp. 51-55 for its relationships with slot machines and video games). It would be sad to see Olds and Milner's studies spread to humans trapped in video games above their basic needs according to Maslow's well-known pyramid.

Now, in our time, Skinner's box is literally in everyone's hand: the cell phone. The cell phone works according to the same principle as slot machines, just like Skinner's box. It is designed precisely so that one becomes «hooked» on a multitude of behaviors, often worthless other than making one vigilant. And ultimately dependent. With the cell phone, the rat no longer represents us as well as the pigeon with its pecking. There we are continually pecking at keys with a view to seeing what happens. Sometimes something happens and other times nothing, like receiving a mail or message, some of which are desirable, and others are not. We are again before a program of variable reinforcement that turns the behavior of pecking or taking a look «irresistible», «technology junkies» (Alter, 2018). The terrible hooking resides in that *protension* of «next time» that always offers itself as an occasion for

something to happen or at least to see what happens, the truth of which is only shown if you take action. This is how future-focused and contingent human life is (Pérez-Álvarez, 2004).

After the observation behavior—taking a quick look or pecking—, come the operations (or actions) of sending messages and posting something on the internet and then more waiting and pecking, and finally the «likes», the digital incarnation of the reinforcers in Skinner's box. At the same level, there are video games, the Tetris paradigm (Alter, 2018). Moreover, the new world of digital devices has been built according to the logic of video games. Not without reason does Alessandro Baricco call *The Game* the excellent cartography that makes this new world, a world designed by people who no longer played table football but had their own Space Invaders type games (Baricco, 2019, p. 153). According to Baricco, the format of the world has changed such that the real world is interwoven with the online world or the ultraworld as he calls it. The new habitat or civilization «is a system in which the world and the ultraworld rotate within each other, producing experiences, in a kind of infinite and permanent creation. (Baricco, 2019, p. 92). If someone should return after 25 years away, from a coma or from Mars, they would recognize this new world by the coupling of *man-keyboard-screen*, as the logo of the new era would be, according to Baricco's formula.

Skinner's box is still valid here. Skinner's box itself involves the articulation of a here-and-now world with its floor, walls, levers, feeders, and the virtual or ultraworld operable by pecking or whatever the behavior may be. Then, the underworld opens up and displays reinforcers, whether a cash prize, a «like», or non-stop playing. All this occurs through operant behavior according to the contingencies of reinforcement, such that these reorganize the functionality of the environment, change the body itself, and encourage behavioral addictions.

The «verbal summator», white noise for psychiatry

White noise has recently become an experimental paradigm for fostering and evaluating delusions of speech that may indicate vulnerability to psychosis (Catalan et al, 2018; Galdós et al, 2011; Schepers et al, 2019). The experimental task consists of presenting a monotonous sound recorded through headphones in order to see if the subjects recognize verbal patterns or speech illusions. It is understood that the attribution of meaning to a neutral sensory input says something about the person's predispositions. A typical presentation includes a series of white noise fragments randomly interspersed with others in which the white noise is superimposed with a more or less audible phrase which in turn may have a positive, negative, or neutral sense such as «sport is good for your health», «I think it's going to rain», or «Madrid is the capital of Spain» (Galdós et al, 2011; Schepers et al, 2019).

The point is that, for what it matters here, white noise was first studied by Skinner in 1936. Skinner identified the



phenomenon as a verbal summator and developed it as a method for the study of latent speech, suggesting its clinical application (Skinner, 1936).

The verbal summator, according to Skinner, is a device for repeating arbitrary speech samples obtained by permutation and combination of certain elementary speech sounds. One of its uses is comparable to the inkblot test. The speech sample does not represent any conventional pattern in the subject's behavior at all but works as a kind of verbal ink spot. When it is repeated a sufficient number of times, the subject makes a conventional verbal response that resembles it. For example, some repetitions of the skeletal sample *ah-uh-uh-oo-uh* may evoke the response *stars overlooking*. This is by no means the only response matched to the sample, and since it is not evoked by any stimulus acting at this time, it can be said that its appearance is due to its own relative strength. By presenting a wide variety of skeletal samples, a researcher can obtain a list of a subject's particularly strong responses. This is essentially what is done in the ink spot and free association tests. (Skinner, 1936, p. 71).

The use of the summator as a test, Skinner continues, is based on a distinction between the topics of normal speech and summator-speech and between the factors responsible for one and the other. In normal speech, responses «refer to external stimuli»: that «which is spoken about». In summator speech, these stimuli do not exist. The difference is that the particular form that occurs in normal speech can be explained by indicating the stimulus to which it responds, whereas in summator speech, the occurrence must be attributed to the special force of the response itself (p. 103). The response reveals vulnerabilities and issues that occupy and concern one.

Why summator? Skinner explains it (obscurely) according to two principles: a) the latent imitative verbal response of the rhythmic stimulus and b) the sum of this response to the also latent verbal response that it evokes, related to the subjects that surround or concern one. We could recall here the poem *The Raven* by Poe (1845), although Skinner does not quote this. As you will remember, one dark winter night, when the poet was plunged into sadness because of his lost love, Eleanor, a horrifying raven entered his room, continuously cawing «Nevermore», suggesting that «never more» would his soul rise. Skinner tells of something similar that happened to him the day he discovered the phenomenon. «One fine Sunday morning I went to the biology building and went down to the basement. I put the rats in their boxes and started up the programming equipment. I was still using circuit breakers and the friction pulses that were produced... were emitting a kind of rhythmic pulse: di-dah-di-di-dah. di-dah-d-di-dah. Suddenly, I heard myself say, «You'll never get out.» [You'll never get out, you'll never get out]». An imitative response, Skinner continues, had joined forces with a latent response I attributed to a rather obvious origin: I was a prisoner in my laboratory on a glorious day.» (Skinner, 1980, p. 263).

Skinner's article is dedicated to specifying the experimental procedure and analyzing the data quantitatively and

qualitatively. With regard to the qualitative analysis, he classifies the answers into categories according to their content: personal matters, orders («do this»), special topics (love, religion), and the outside world (concrete objects). As he concludes, «there is nothing new on the thematic side of the verbal summator. In the design and production of unclear speech sound patterns, we are only reproducing a very common condition. A subject's behavior in «reading into the sounds a meaning of their own» is part of most people's experience. The paranoid who hears himself being criticized and the mystic who hears voices from the other world are only extreme cases of these familiar phenomena. The advantage of the summator is that it brings the subject into the laboratory, and through better control of the stimulating material it enhances casual observation as a means of discovering the basic laws governing these aspects of behavior» (Skinner, 1936, p. 104).

According to Alexandra Rutherford, Skinner's interest in the projective potential of his technique was relatively brief, but several physicians and researchers exploited this potential and adapted the technique for both research and applied purposes. The idea of an «auditory ink spot» seemed, to many, to be a useful innovation (Rutherford, 2003). As Fred Keller, his collaborator at the time, said, the instrument «will become a commonplace device for every clinical psychiatrist, since it reduces the time required to locate complexes [to which Skinner had referred before] to a very small fraction of time». As Skinner said to Fred, «The language experiment is still making noise.» (Skinner, 1980, p. 266).

Contingencies and rules, System 1 and System 2

Systems 1 and 2 refer to two ways of thinking: fast and slow, described and popularized by Daniel Kahneman, psychologist and winner of the Nobel Prize in Economics (Kahneman, 2012). While System 1 implies a fast, intuitive, automatic, non-thinking reaction, System 2 involves an attentive, slow, controlled response, thinking about what to do and how to do it. System 2 comes into play when we encounter situations and tasks for which we do not have automatic responses. When we are learning to drive, System 2 predominates, always thinking how to do it, attentive to every little thing which will later be integrated into System 1, driving almost without thinking. However, there will be no lack of driving situations and moments that require System 2. The two systems complement each other, not without conflict, both on the road and in navigating through life. Sometimes you have to react without thinking, but it is not always the best thing to do. And thinking too much may deprive you of intelligent intuitions.

Systems 1 and 2 correspond respectively to Skinner's distinction between behavior shaped by contingencies and behavior governed by rules (contingencies and rules). Skinner develops this distinction, already present in *Science and Human Behavior* written in 1953, with regard to an operant analysis of problem solving in *Contingencies of Reinforcement* from 1969 (Skinner, 1979). A problem occurs when previous



behaviors do not work given the situation. Problem-solving behavior is characterized by doing something that modifies one's established behavior, such that other actions are required. Then, one can formulate rules from the observed contingencies and follow rules available in the environment (arithmetic rules if dealing with a multiplication, indications where to go, instructions, traffic rules, etc.). The point here is that behavior governed by rules is relatively different from behavior shaped by contingencies. While the latter implies a direct, experiential-bodily learning, derived from shaping, the former assumes a following of rules such that the behavior does not have the same force of response or habit. Even though they are similar topographically, they differ in the control to which they respond.

Contingency-shaped and rule-governed behaviors are distinguished according to many classic distinctions. Skinner himself points out sixteen of these, including impulse/deliberation, immediate/ultimate benefit, intuition/logic, unconscious/conscious, and passion/reason. The latter refers to Pascal's famous *dictum* that «the heart has reasons that reason does not understand» which Skinner follows up, saying that «contingencies contain reasons that rules cannot specify» (Skinner, 1979, p. 157-9). One could add Ortega's well-known distinction between ideas and beliefs according to which ideas are things that we have, and beliefs are things that we inhabit. And let us not forget other more prosaic distinctions such as procedural and declarative knowledge and, for that matter, System 1 and 2.

Skinner's great contribution is that he places this distinction in the context of learning, showing how much of human behavior is learned by shaping in direct contact with consequences. And how in turn this behavior is articulated with behavior governed by rules with their different condition of control. It is important to emphasize that Skinner's approach assumes a corporeal holistic subject *situated* in direct contact with things (being-in-the-world), operating between them in such a way that both the functionality of things and the functionality of the subject itself are mutually constituted (I-circumstance).

The holistic approach of a *situated* subject contrasts with the mechanistic mentalist approach of Systems 1 and 2. Kahneman himself guards against the possible reproach of his naming and personifying two systems as if they were «little characters» (homunculus) inside the head (Kahneman, 2012, p. 45). However, the personification of systems is not a mere poetic license or, as he says, use of language, but it implies a whole mechanistic mentalist conception, as already betrayed by his justification of the names. The reason is simple: System 1 and System 2 instead of «automatic system» and «forced system» occupy less «space in the working memory» (p. 46). Leaving aside the economic reason, the explanation does not fail to reveal the mechanistic conception of psychological functioning, as can be seen throughout the book, without diminishing the efficacy of the exposition. Although Kahneman does not locate systems in any area of the brain,

the notion of «working memory» assumes a processing mechanism *within* one with its resources and links. The assumption as an inner and yet delocalized mechanism suggests that, as a concept, it is obscure and, as a phenomenon, it is something that is actually performed by the subject as a whole.

All that said, I do not dispute Systems 1 and 2. I would only be concerned if the new generations of students believed that psychology begins with these systems, as if they were the last word, which would be yet another case of «chronological fallacy» (Freixa & Froján, 2014). Fortunately, cognitive psychology itself is being corrected in the holistic *enactivist corporealized* direction (Pérez-Álvarez, 2018a) where Skinner is already (Alksnis & Reynolds, 2019).

Science and human behavior, behavioral economics

A new economic science has developed from the combination of experimental psychology (Amos Tversky & Daniel Kahneman) and economics, the history of which is told first-hand by Richard Thaler, winner of the Nobel Prize in Economics in 2017 (Thaler, 2016). Tversky and Kahneman began by showing that people behave like humans, not like economists, such that our behavior is influenced by a number of cognitive biases and environmental conditions that we don't even notice. Behavioral economics highlights real human behavior and sets out the conditions for its modification in the appropriate way (see González-Roz et al, 2020 for an excellent review of the contributions of behavioral economics to addictions). Behavioral economics shows that behavior is influenced by the environment more than we think and want, and that by modifying the environment we change the behavior. Although behavioral economics is not reduced to this formula, nor is it deduced from behavior analysis, it seems nevertheless to rediscover Skinner. Consider characteristic concepts of behavioral economics such as heuristics, priming, anchoring, the nudge, and self-control (Kahneman, 2012; Thaler, 2016).

Heuristics, according to which we respond to new questions according to what we have at hand, remains a discriminatory environmental control that selects from our repertoire the answers that have most probably been reinforced in similar situations. In the same line, priming or the priming effect, consisting of the preparation of the required answer with a suggestion to the effect, as well as anchoring, consisting of taking as a reference a suggested figure in response to questions about unknown quantities, are also seen as subtle discriminatory stimuli. Both the priming effect and the anchoring effect involve influences on our behavior of which we are not normally aware. These subtle stimuli evoke generalized behavior shaped by contingencies (System 1 responses, as they say). Even if heuristics, priming, and anchoring can be understood in terms of behavior analysis, it must be said, behavior analysis is somewhat forced and constrictive in covering these phenomena.



The nudge is any aspect of the environment that alters people's behavior in a predictable way without any threat or economic incentive. The intervention should be easy to do and easy to avoid. It is a suggested option, but one that is free to do at no cost. In behavioral terms, it responds to a (subtle) stimulus control conducive to behaviors that involve positive reinforcement. The most famous example is a fly painted on men's urinals in a way that «improves the target». Another example is the arrangement of the fruit at the beginning of an «all-you-can-eat» buffet, rather than at the end, so that choosing it may prevent the choice of other less healthy desserts that will be found further on along the same counter (Thaler & Sunstein, 2011). Nudge theory aims to influence people's decisions so that they are in the best position to choose for themselves. They conceive this environmental control as the architecture of choice and influence as libertarian paternalism: on the one hand doing one's best is suggested and on the other hand freedom of choice is maintained.

Self-control is another concept rediscovered by behavioral economics, an alternative to the traditional economy's appeal to willpower and rationality. It is now a matter of providing oneself with the conditions to do what is most helpful in the medium and long term, instead of falling into the temptations of what one desires in the moment, which is not always the most beneficial. The issue is the conflict within oneself between the «planning personality» concerned with the future and the «executing personality» who lives in the present according to the metaphor used (Thaler, 2016, p. 165). The task here is to try to influence one's own decisions through rewards and punishments and to impose rules that limit our choices (p. 167). Set in the 1970s, Thaler searches psychology and finds virtually nothing, as he says, other than Walter Mischel's incipient work on delayed gratification (p. 159).

However, self-control occupies a whole chapter in *Science and Human Behavior*, written in 1953. Also occupying two chapters are the economic control of money as reinforcement and programs of retribution, environmental control, and planning of a culture. In fact, environmental control and positive reinforcement are the leitmotif in this and other works by Skinner. It is interesting to note that Skinner also maintains a libertarian and critical position on punishment and negative reinforcement. In fact, Skinner's position, according to Murray Goddard, is «very similar to the principle of the libertarian paternalism of Thaler and Substein» (Goddard, 2012, p. 565). While Skinner exposes the control derived from the science of behavior, he also refers to the counter-control, the «problem of control» being the last chapter of *Science and human behavior*, referring to the defense against despotism and who will control. As it says, «we may consider it necessary to change a philosophy that emphasizes the individual for one that emphasizes the culture or the group. But cultures also change or perish, and we cannot forget that they have been created by individual action and that they survive only because of the behavior of individuals» (Skinner, 1974, p. 470).

Environmental control, why we do what we do

Many things influence our behavior without us knowing it. There is talk today of the unconscious mind. No longer is it the Freudian unconscious charged with often neuroticizing ulterior motives. The new unconscious is presented in terms of mental processes that operate outside our consciousness, facilitating our functioning. System 1, heuristics, and the priming effect, already mentioned, are examples of this type. However, the reference now is the book by social psychologist John Bargh, a specialist in automaticity, entitled *Why we do what we do* (Bargh, 2018). The book systematizes forty years of research in three parts: how the hidden past, present, and future influence what we do.

The hidden past includes evolutionary history, early experiences, and culture. The most famous example is the hot cup in the hands that seems to influence our social feelings, such that we appreciate them as warm. The opposite being true in the case of a cold cup. It is understood that this effect may be related to early experiences of attachment and trust with their physical and emotional warmth (Bargh, 2018, pp. 83-96). Examples of the hidden present would be mutual imitation in social interactions and how a context of kindness invites kindness and broken glass invites one to continue breaking it, both literally and metaphorically. Examples of the hidden future have to do with desires, expectations, plans, and values, and how they reorganize present things. A classic experiment is the different memory after seeing a video of a house in the perspective of a thief or a buyer (p. 296). Bargh also cites implementation intention, which consists of a plan of what to do specifically if a distraction, etc., should occur, as more effective than merely having a firm intention to do so (p. 356).

Although our author makes his way between Freud and Skinner—he seems to spare the life of these two when he says «Skinner, like Freud, was not entirely wrong» (Bargh, 2018, p. 357)—the unconscious mind to which Bargh refers continually mentions environmental control, a Skinnerian terrain. As he says elsewhere: «Much of what Skinner asserted [citing *Verbal Behavior*] in terms of direct environmental control over higher mental processes has now been validated in contemporary research on priming effects on a variety of psychological phenomena (Bargh, 2008, p. 142).

The environment is inherent to behavior, so it is hardly neutral, without discriminating and reinforcing functions derived from the learning history. Aspects of the environment constitute functional classes without the need for direct experience with each instance to evoke discriminative (non-random) behavior. Thus, we do what we do because of the acquired environmental control. Environments select behaviors from our repertoires based on past environmental consequences, without our being aware of it. The hidden unconscious is in fact deeply superficial.

It can be understood that environments constitute functional classes or relational frameworks that influence us without us knowing how, because much of our behavior is shaped by contingencies. Control by (past) consequences implies that our



present behaviors are at the expense of possible, future consequences. So, the present situation leads to consequences mediated by the actions that the situation itself evokes. The environment is always influencing us, and we are behaving in some way. It is impossible not to behave. Both the past and the future are co-centered in the present: co-present. The past and the future are updated in the present in every behavior. Neither the past nor the future exist as separate entities. Hence, in each behavior, there are influencing conditions that we cannot verbalize, nor do we need to. Only, if the behavioral flow is broken or does not work, then it would be required to verbalize the situation: to go from a system of contingencies, to rules. The same would occur when we want to implement intentions. By the way, the implementation intention can be understood so much better in behavioral terms (Pérez-Álvarez, 2018b, pp. 184-191).

Within his audacity, Bargh's new unconscious is still a subsystem of the mind as an apparatus, in the old mentalist style. An alternative could be found in the selection by the consequences that operate in the triple evolutionary, behavioral, and cultural scale (Skinner, 1981), largely unconsciously. As Skinner says: «The relationships of control that exist between behavior and genetic and environmental variables are unconscious insofar as they are not observed, and it was Freud who emphasized that it is not necessary for them to be observed (i.e. for them to be conscious) in order for them to be effective. A special verbal environment is required to impose awareness on the behavior so that the person is induced to respond to his or her own body while he or she is engaging in a behavior. (Skinner, 1987, p. 139).

Behavioral functions of the environment, affordances

The term 'affordance' was introduced by James Gibson in the framework of his theory of direct perception, different from the theory of perception as input of information-to-be-processed. In contrast to the cognitivist representational conception, the conception of direct perception holds that the world around us is already offered to us as possibilities of action. We do not perceive information that is computed and represented within and then comes out as an action. Instead, we perceive the values and meanings of things and situations, for which Gibson coined the term affordance. The perception of affordances implies a radical change from the usual perceptive theories. As Gibson says, «perceiving an affordance is not a process of perceiving a value-free physical object to which meaning is added, in a way no one knows how; it is a process of perceiving a value-rich ecological object. (Gibson, 1979, p. 131).

The world is not offered to us as information-to-be-processed, but rather it is populated by affordances (Rietveld & Kiverstein, 2014). A chair-there does not need to be processed before we sit down, but it offers this possibility by virtue of its functional structure, established for that effect. Affordances are environmental dispositions correlative to the dispositions of

individuals in relation to them. As Gibson says, an «affordance is neither an objective nor a subjective property, but both if you like. An affordance overcomes the subjective-objective dichotomy, showing its inadequacy. It is both an environmental and behavioral fact. It is both physical and mental, or even neither one nor the other. An affordance points in both directions, to the environment and to the observer. (Gibson, 1979, p. 129; see Heras-Escribano, 2019, for an excellent review and philosophical implications).

Direct perception implies the continuity between perception and action. There is no perception that does not imply action and every action implies perception. Perception is possible to the extent that organisms move and are, in fact, active explorers of their environment, rather than passive receivers of information. «The Gibsonian approach connects perception with behavior, no longer as independent systems but as an organism-environment system. Therefore, perception in organisms cannot be considered apart from behavior; perception necessarily implies behavior, it is behavior, and as such it allows the detection of more opportunities for action, called possibilities» (Cabrera et al, 2019, p. 2).

The affinity and complementarity between Gibson and Skinner was highlighted back in their day (Costall, 1984) and is now being claimed in the context of rethinking psychology beyond the mind and brain (Branch, 2013; Covarrubias et al, 2017; Morgan, 2018; Morris, 2009; Pérez-Álvarez, 2018a). In his question of where the behaviorists have gone, Marc Branch suggests that they opened up to the Gibsonian approach not only because they are no longer isolated, but also because of the affinity between them and as an alternative to information processing (Branch, 2013). The idea is to establish a bridge between Gibsonian ecological psychology and behavioral analysis. In this way, both approaches can re-offer more nuanced and strengthened versions of themselves with respect to the misunderstandings that, as dissident approaches, they have received.

Within its marked environmental focus, behavior analysis is somewhat forced to capture the variety of behavioral functions of the environment, due to its deriving from experimental procedures in the animal laboratory. In fact, experimental procedures welcome an ecological approach (Cabrera et al, 2019). Influences from the social world such as those cited in the previous sections starting with the nudge also welcome the notion of affordance understood as behavioral functions of the environment.

In summary

Looking at mainstream psychology, we find Skinnerian themes, with no reference to Skinner, such as the white noise test, Systems 1 and 2, and behavioral economics (of which these systems are also a part). And when reference is made, as with the slot machines, Skinner's concern about the use of reinforcement programs (as if he developed them to control people) is not recalled. It is similar in relation to the new unconscious which, despite quoting Skinner, does not leave



behind the old mentalist conception. A more Skinnerian approach could benefit these issues even just to cure them of their mentalist conception, as well as being fair in the case of white noise. It must also be said that these issues have been developed without the need for Skinner, which can mean two things. One is that Skinner's contributions are already integrated into general psychology. The other is that his contributions have been relegated to their own research niches, being rediscovered without the behaviorist jargon. And without its approach either. The notion of affordance deserves special mention as a territory awaiting better times for an alliance of operant psychology and ecological psychology (Skinner and Gibson). But what is the importance of Skinner?

THE IMPORTANCE OF SKINNER, AS I SEE IT

Skinner's importance is multiple, judging by the number of aspects that various people extract from his work. There are those of the Skinner box and those of verbal behavior. Between these extremes, we find experimentalists and applied analysts. There are also those who take Skinner as the patron of this and that: scientific rigor, environmentalist approach, explanation of human behavior based on the contingencies of reinforcement, the demystification of freedom and dignity as homunculi, anti-mentalism, and pragmatism. In this context, I take the liberty of allowing myself my own vision. I will begin by highlighting the philosophy of behaviorism and the two Skinners, and I shall then point out his greatest discovery and contribution to psychology. It is understood that this can only be mentioned in summary. In my disclaimer, I refer to *Contingencia y drama* [*Contingency and Drama*] (Pérez-Álvarez, 2004).

Philosophy of behaviorism

Behaviorism is a philosophy of psychology that takes behavior as its subject, different from other philosophies whose references are, for example, the functioning of the unconscious, mental processes, or neurocognitive computing. Within behaviorism, methodological behaviorism is distinguished from radical or Skinnerian behaviorism, according to a distinction made by Skinner himself in 1945. Methodological behaviorism takes behavior as a method for studying unobservable processes as intermediate variables or hypothetical constructs on which to explain behavior itself. This would be the case of cognitive psychology. Cognitive psychology is actually a methodological behaviorism, with cognitive-behavioral therapy at the forefront.

On the other hand, radical behaviorism takes behavior as a reference in its own right, including the private world, which is in fact observable, with the particularity of being so for a single person. As Skinner says, the only problem that a science of behavior must solve, as far as subjectivism is concerned, is in the verbal field. How can we explain the behavior of talking about mental acts? (Skinner, 1945). The problem for Skinner then becomes to study how it is that there

is a part of the world that is only offered to one. The answer is in language, in how the verbal community teaches individuals, starting with children, to have and give an account of a part of the world that is only given to each one in private, subjectively. The term «radical», which is both frightening and misunderstood, means *total*: without excluding the private world for the methodological reason of it being unobservable (because it is also observable) and *root*: to study where it is rooted (in verbal practices).

Radical behaviorism has affinities with other philosophies such as pragmatism, contextualism, Wittgenstein, as well as phenomenology and existentialism (Day, 1969; Fallon, 1992; Kvale & Grennes, 1967; Pérez-Álvarez & Sass, 2008). Not only do phenomenology and existentialism share with radical behaviorism their *radical* anti-dualism and anti-mentalism, but also their radically contextual character. It is not in vain that existence means being-there, outside, in-the-world. As a philosophy of science, radical behaviorism is a type of practical-material constructivism according to its experimental construction of phenomena (shaping) and its description of behavior according to its functional relations (reinforcement contingencies). Radical behaviorism emphasizes control and prediction, but it is also characterized by description and hermeneutics. Even when defined as ontological monistic (according to its naturalistic bias), radical behaviorism responds better to a relational ontology that involves relationships between different realities (biological, behavioral, institutional) where not everything is behavior, nor all behavior is psychological (Pérez-Álvarez, 2018a; 2020).

Two Skinners

There are two Skinners, the experimentalist of the Skinner box and the one of human behavior, and the partition between the two is in the aforementioned article of 1945. This partition has been seen in terms of a modern and postmodern Skinner (Moxley, 2001). However, I believe that it is better defined as experimentalist and theorist of human behavior, similar to the two Wundts: experimental psychology and the psychology of peoples. In any case, in 1945 Skinner introduced the distinction between the two behaviorisms and inaugurated behavioral hermeneutics, beginning with how the subjective world is constructed through the verbal community. Then came his books, consisting of interpretations of human behavior, as well as psychological terms that are largely mentalistic, as well as ordinary language. As Skinner says at the beginning of *About Behaviorism*, «At this point I am more interested in interpretation than in prediction and control» (Skinner, 1987, p. 20). Although many behaviorists are obsessed with data, the theory is more needed and valuable. An obligatory reference here would be the theory of individual behavior of Emilio Ribes in accordance with more inter-behavioral coordinates than those of Skinner, but a shining example of psychological theory based on behavior (Ribes, 2018).



Greatest discovery

Skinner's greatest discovery is probably in the *shaping* of behavior, the basis of *operant behavior* as a unit of analysis and *selection by consequences* as a causal principle. None of these phenomena were unknown (neither was that of falling apples prior to Newton, according to the legend), but they acquire a revolutionary significance with Skinner, starting with the shaping of «a day of great enlightenment» in 1943 (Peterson, 2004). What made that day revealing was to see how the shaping of a pigeon's behavior (playing squash) was produced by reinforcement *by hand*, not by mechanical means as it was usually. What stands out here is the inter-behavioral *social dyad*, which reinforcement by hand implies, mediated by the behavior of another organism (in this case Skinner himself), as the verbal behavior is defined as «behavior mediated and maintained by consequences mediated» by others (Peterson, 2004, p. 326).

The irony is that these contributions are fully integrated into the practice of psychology, without their scientific or philosophical scope being perceived:

- 1) The material construction of behavioral phenomena as a scientific explanation, the basis of psychology as an autonomous science. In this regard, learning is highlighted as the determining context of scientific psychology (Fuentes, 2019). Social practices, beginning with education, are the great laboratory in which behavior is constructed (shaping by contingencies).
- 2) The introduction of experimental order in the variability of behavior. This experimental order gives rise to operant behavior as a functional unit (Glenn et al, 1992).
- 3) Selection by consequences as a causal principle. This principle implies, on the one hand, the introduction of final causality as opposed to mechanistic causality E-R (Pérez-Álvarez, 2009) and, on the other hand, the alternative to essentialism consisting of seeing psychological phenomena as if they reflected natural universal qualities already present (Goddard, 2018; Palmer & Danahoe, 1992).
- 4) Functional analysis of behavior as an approach to psychology and applied technique. Functional analysis is not only a technique of analysis and modification of behavior that, by the way, each generation ends up discovering as one of the biggest alternatives to the medical model, but a whole approach of psychology as an autonomous science (Froxán Parga, 2020; Zilio, 2016).

Subsequently, Skinner would elevate selection by consequences to a unitary principle in the triple evolutionary, ontogenetic, and cultural scale (Skinner, 1981). For her part, Susan Schneider establishes the science of consequences: how organisms really function in nature as well as in culture (Schneider, 2012).

Biggest contribution

Although it has already been said, the greatest contribution can be summed up around operant behavior as a functional

relationship between the present situation and future consequences. Technically, this unit is defined as a three-term contingency. In the presence of a discriminative stimulus (DS), a certain behavior (B) probably obtains a reinforcer (R), whose formula is $DS: B \rightarrow R$. Beyond its practical utility (as the basis of functional analysis), the three-term contingency has a fundamental theoretical and philosophical importance, unique in psychology, although not without relations. In the meantime, it implies an inherently intentional behavior, regarding a possible effect, that may occur in the future, in line with the present circumstances. Behavior operates a change in the environment (modifying the world); this change in turn works on the behavior itself (shaping it and strengthening its occurrence) and the initial circumstances (making them more discriminatory and «informative»). Behavior operates both in the environment-there, and in time, opening up the future, making it present, as it was already *pre-sent* or co-present given the initial discriminatory conditions.

The three-term contingency constitutes a dynamic configuration or gestalt, changing moment by moment, in line with the behavior of the organism or subject that in turn is changed. The Skinnerian notion of «changed organism» exempts the typical essentialist reifications of psychological phenomena. The theoretical and philosophical scope of the three-term contingency as a configuration or discriminated contingency was developed by Juan Fuentes (Fuentes & Quiroga, 1999). The three-term contingency as a configuration is related to Heidegger's formula of being-in-the-world, Ortega's I-circumstance, and Merleau-Ponty's structure of behavior (Pérez-Álvarez, 2018a). In psychology, it is related to Gestalt psychology, the aforementioned affordances of Gibson, Vigotsky's zone of proximal development, and the *enactivism* of the new cognitive psychology (Alksnis & Reynolds, 2019; Pérez-Álvarez, 2018a). Examples of this configuration can be found in the Skinner box itself, driving a car, wandering around a city, in the casinos of Las Vegas, and in social networks, as mentioned above.

Nevertheless, nothing seems to indicate that mainstream psychology is moving in the behaviorist direction, or that the behaviorists are doing much to integrate themselves into the mainstream, as their psychology deserves and as general psychology needs. Skinner has discovered the significance of selection by consequences for psychology, but psychology today does not seem to select Skinner. However, Skinner could understand psychology's drift based on the reinforcement contingencies that govern its scientific standards. The good news is that Skinner is as yet undiscovered for many of today's psychologists, including behaviorists who are more attached to the theory than the spirit of behaviorism. It's time to think outside the box.

CONFLICT OF INTEREST

There is not conflict of interest

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