The rhetorical use of B. F. Skinner in evolutionary psychology

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Abstract
This article examines Skinner’s often neglected ideas about evolution, which he returns to in his final academic paper. I attempt to square Skinner’s advocacy for evolutionary explanation, including his efforts to reconcile biological, individual, and cultural adaptation, with how he is framed and critiqued by a school of evolutionary psychologists who attribute to Skinner a blank slate, or so-called standard social science model, view of the mind. I argue that characterizing Skinner in this manner is inconsistent with his evolutionary writings and ignores Skinner’s explicit disavowals of such interpretations. I then discuss Skinner’s evolutionary views in light of contemporary evolutionary theories of human psychology. I also compare the reception to evolutionary psychology and Skinner within the field more generally and conclude by discussing the proposal that evolutionary psychology should be considered a new paradigm for psychology, a claim that seems to follow from evolutionary psychologists’ caricature of Skinner.

Keywords
evolutionary psychology, history of psychology, scientific paradigm, B. F. Skinner, standard social science model

On August 17, 1990, the night before he died, Burrhus Frederic Skinner (1990) completed his final academic article, “Can Psychology Be a Science of Mind?” It was the basis for a keynote address he had given one week earlier at the 98th Annual Convention of the American Psychological Association (APA), at which Skinner also received the APA’s inaugural Outstanding Lifetime Contribution to Psychology award (Fowler, 1990; Graham, 1990). The title of Skinner’s (1990) article is obviously intended to problematize the cognitive mode of explanation for human psychology (for other later works on this topic, see e.g., Skinner, 1985, 1989). However, this is not a late-career preoccupation...
that arose for Skinner after the ascendency of cognitive explanation, but rather a continuation of his many attempts to actively undermine it. As a simple example, Skinner (1963) argues, in a section of his classic article, “Behaviorism at Fifty” that bears the subheading mental way stations, that “mental states are often studied as causes of action” (p. 955). Indeed, mental states have often been conceptualized in this manner throughout the history of the academic discipline of psychology and continue to be—and in the history of philosophy for far longer, which is in fact partly Skinner’s (1990) point.

Skinner’s way of thinking about the mind is probably well known to a reader with reasonable previous familiarity with his system of radical behaviorism. What might be surprising to the more casual reader though, is that Skinner (1990) also summarizes his views of evolution and integrates them with his behavior analytic system, which, as will be discussed in this article, was also not a late-career preoccupation. As we will see, not only is Skinner a strong advocate for evolution, his integration of biological, individual, and cultural adaptation is sophisticated and resonates quite well with contemporary evolutionary theories. As such, it is at the very least surprising that Skinner’s ideas are often portrayed by some evolutionary psychologists to embody a form of naïve environmental determinism.

This paper situates Skinner’s often neglected ideas about evolution in the context of contemporary evolutionary theories of human psychology. In particular, I attempt to square Skinner’s advocacy for evolutionary explanation, including his own efforts to reconcile biological, individual, and cultural adaptation, with how he is often framed and critiqued within common forms of evolutionary psychological scholarship. To do so, I summarize Skinner’s views on evolution and the criticism of Skinner by evolutionary psychologists who claim he embodies a blank slate (Buss, 1995; Pinker, 2002) or standard social science model (SSSM; Tooby & Cosmides, 1992) view of the mind. The blank slate or SSSM view is one that is said to emphasize environmental determinants to the neglect or outright denial of biological influences; as Pinker (2002) colorfully puts it in the subtitle of his popular work, The Blank Slate, it is “the modern denial of human nature.” However, characterizing at least Skinner in this manner, which is a common move made to demonstrate the grip of the SSSM on the field, rhetorically positions the theoretical perspective of a particular school of evolutionary psychology as a replacement for such a view, or even more strongly, a new scientific paradigm (for a recent defense of this position, see Buss, 2020). Unfortunately, this is a caricature of Skinner’s behavioral analytic system that also ignores his evolutionary writings and Skinner’s explicit and frequent disavowals of such interpretations (Morris et al., 2004). I then discuss Skinner’s evolutionary views in light of mainstream evolutionary theory by noting that, although not expressed in formal terms, Skinner’s claims seem compatible with what are often described as dual inheritance, or gene–culture coevolutionary, perspectives (Boyd & Richerson, 1985; Cavalli-Sforza & Feldman, 1981; Lumsden & Wilson, 1981; see also O’Brien & Bentley, 2018, for a larger discussion of contemporary cultural evolutionary approaches to human behavior, which are often, like Skinner’s, expressed nonmathematically). I also briefly describe some parallels between Skinner’s approach to evolution and potential changes in the current evolutionary landscape that some argue call for a so-called extended evolutionary synthesis (see e.g., Laland et al., 2014). I then compare the reception to the evolutionary psychology approach taken by Buss, Cosmides,
Tooby, Pinker, and their colleagues to that of Skinner within the field more generally and conclude by discussing their proposal that it should be considered a new scientific paradigm for psychology (e.g., Buss, 1995; Pinker, 2002; Tooby & Cosmides, 1992). Much of the rhetorical power of this move comes from positioning itself in opposition to Skinner’s views, and the SSSM more broadly.

**Skinner and evolutionary psychology**

Evolutionary psychology as the distinct programmatic approach that is now associated with Buss, Pinker, Tooby, Cosmides, and their associates, did not formally exist at the time when Skinner (1990) was published; the foundational document is usually considered to be Barkow, Cosmides, and Tooby’s (1992), *The Adapted Mind: Evolutionary Psychology and the Generation of Culture*. As Buller (2005) notes in a critique of the conceptual framework and methodology of this approach,

this group of researchers has been so effective in marketing its paradigm that it has become the single most dominant paradigm within the field of evolutionary psychology. As a result, when researchers in the field of evolutionary psychology deliberately call their work “human behavioral ecology,” for example, they typically do so to distance themselves from the paradigm that has become known as “evolutionary psychology.” So as to clearly distinguish the field of inquiry of evolutionary psychology from the evolutionary psychology paradigm associated with Buss and Pinker, throughout this book I will refer to the field of inquiry as “evolutionary psychology” (lower case) and the paradigm as “Evolutionary Psychology” (capitalized). (p. 12)

For this reason, as is common within evolutionary scholarship, I will dub this narrower programmatic sense EP and distinguish it from evolutionary psychology in a broad sense to designate any evolutionary approach to human behavior. However, because the distinction becomes important later in the paper, I should clarify that Buller means “paradigm” in the programmatic sense of a research paradigm, not in the sense of a scientific paradigm as suggested by advocates of EP. I will also be clear that my primary goal in this article is to focus on the rhetorical use of Skinner by EP, not to critique EP on theoretical, metatheoretical, conceptual, or methodological grounds, or to present a theoretical or metatheoretical alternative. The interested reader can easily find critical scholarship on EP and alternatives to it (see e.g., L. Barrett, 2011; Buller, 2005; Dupré, 2002; Fine et al., 2017; Fuentes et al., 2010; Sterelny, 2007; Wallace, 2010; Witherington & Lickliter, 2016). There are also a number of responses to, and defenses of, EP by its advocates (e.g., for a recent response to what are claimed to be common misconceptions about EP, see Buss, 2020). Although their use of Skinner has been discussed with respect to the hyperbolical nature of the SSSM (see e.g., Goldfinch, 2015), scant attention has been paid to Skinner’s actual evolutionary views. Similarly, those interested in a deeper treatment of the intricacies of Skinner’s evolutionary views can easily find scholarship on his system, including its evolutionary implications (in addition to the many accessible works of Skinner mentioned below, see e.g., Malagodi, 1986; Midgley & Morris, 1992; Morris et al., 2004; Naour, 2009; for criticisms of Skinner to which he responds in turn, see Catania & Harnad, 1988).
Of course, the term “evolutionary psychology” itself also has its own history. William James (1890, Vol. 1., p. 146), for example, mentions it in *Principles of Psychology*. The chapter entitled “The Mind-Stuff Theory” has the subheading “Evolutionary Psychology Demands a Mind-Dust,” in which James discusses the evolution of consciousness. However, the first use that I know of it in contemporary evolutionary theory is Ghiselin’s (1973) in an article entitled, “Darwin and Evolutionary Psychology.” Perhaps ironically, in this article, Ghiselin (1973) remarks:

The quotation given earlier about struggling at astronomy without mechanics was taken from a discussion on emotional expression. Evidently Darwin was commenting on a solid advance in methodology, one that psychologists now accept as a basic working principle. *Overt behavior provides the appropriate source of evidence about whatever it may be that lies beyond; modern behaviorism adopts much the same position* [emphasis added]. (p. 965)

One might note that Ghiselin implies that, at least in 1973, there seems to be no tension between evoking Darwin, evolutionary psychology, and behaviorism in the same discussion. What, one might wonder, changed over the next decade or so? Although there was a more general change in the culture of the social and behavioral sciences at that time that manifested, for example, in the sociobiology debate and the science wars more broadly (e.g., Perry & Mace, 2010; Segerstråle, 2000), another notable shift in the academic landscape is the ascendancy of EP.

**Skinner’s position on EP**

Although EP didn’t really exist in a programmatic sense when Skinner died in 1990, it also didn’t spring into life fully formed in 1992. In addition, although there is no clear evidence of it, it is conceivable that Skinner could have been aware of EP before his death. For example, Tooby (1988) had given a talk with the title, “The Emergence of Evolutionary Psychology” at the inaugural workshops of the Santa Fe Institute held in late 1984. Tooby’s contribution, like those of the other contributors, was published in 1988. Although the programmatic statement that appears in Tooby and Cosmides’ (1992) contribution to *The Adapted Mind* is more ambitious, the cognitivist and adaptationist reasoning in Tooby (1988) is nonetheless explicit:

This led Chomsky to beliefs similar to those implicit in evolutionary psychology: that the mind is composed of “mental organs” just as specialized in function as our physiological organs are. By recognizing that the mind includes domain-specific algorithms or modules which are “designed” for or adapted to specific purposes, rapid progress has been made on a number of problems. (p. 71)

As such, EP argues that the evolutionary logic for there to be “mental organs” exists in the same manner that selection would act on physiological ones. For example, one of Buss’s (2019) favorite exemplars for how to think about psychological adaptations (and gene–environment interactions) is the adaptation for a callous. However, Skinner would construe talk of mental organs as reifications that lack a scientific use in his system. In
addition, Skinner—among other critics of the computational theory of mind with no particular allegiance to radical behaviorism—would also dispute the need for, and conceptual coherence of, such a computational redescription (e.g., L. Barrett et al., 2014).

Another example of pre-1992 EP of which Skinner could have been aware is Cosmides’ doctoral dissertation, which was publicly defended in Skinner’s own Harvard Department of Psychology in 1985. Although Skinner became an emeritus professor in 1974, he was still very active professionally and known to frequent the halls. Despite the fact that the basic findings of Cosmides’ (1985) doctoral dissertation were not published until 1989, they are also discussed in Tooby (1988) as an example of the approach, which, again, was publicly disseminated at the Santa Fe Institute workshops by Tooby in 1984:

Her elegant series of experiments have provided solid support for the hypothesis that humans have an innate special-purpose algorithm which structures how they reason about social exchange, with properties that differ markedly from formal logic. Not only do humans have an innate language-acquisition device, but they appear to have a collection of innate inferential networks which structure their reasoning about the social world. (Tooby, 1988, p. 72)

Although there is no explicit record concerning Skinner’s view of EP, the critiques of cognitivism in Skinner (1990) and his perspective more generally are suggestive of the way that Skinner likely would have reacted to EP given that its theoretical foundations are explicitly based on the cognitive revolution (see e.g., Buss, 1995, 2019, 2020; Cosmides & Tooby, 2013; Pinker, 1994, 2002; Tooby & Cosmides, 1992). However, Barkow (1984), coeditor of *The Adapted Mind*, published what might be seen as a telling commentary on a classic article of Skinner’s. As will be discussed below, reading both Barkow’s commentary and Skinner’s response to it makes it quite clear how Skinner would have responded to the more explicit version of the theory published in Barkow et al. (1992; Tooby & Cosmides, 1992). The simple fact of the matter is that although aspects of EP might have been moderated somewhat through engagement with the critical literature (see e.g., H. C. Barrett & Kurzban, 2006, on the issue of modularity; but see also L. Barrett et al., 2014; Fine et al., 2017; Sterelny, 2007; Wallace, 2010), cognitivism is intrinsic to EP and cannot be removed without destroying the basic logic of the theory. As such, the cognitivist basis of EP is repeatedly reasserted. For example, Buss (2019) continues to claim, “The idea that there might be some information-processing problems that the human mind was specially designed to solve was missing from the cognitive revolution in psychology” (p. 31). And Cosmides and Tooby (2013) continue to state:

Evolutionary psychology is the second wave of the cognitive revolution. The first wave focused on computational processes that generate knowledge about the world: perception, attention, categorization, reasoning, learning, and memory. The second wave views the brain as composed of evolved computational systems, engineered by natural selection to use information to adaptively regulate physiology and behavior. (p. 201)

Although this would clearly not have passed Skinner’s scrutiny, he might have been even more concerned to hear that when asked to clarify their position regarding their
reliance on what an interviewer called “computer metaphors” in contrast to earlier evolutionary approaches to human behavior, such as sociobiology, Cosmides stated: “behavior is generated by programs in your head and yeah I don’t mean it metaphorically” (ReasonTV, 2015, 1:45).

As will be discussed in more detail, not only do some of Skinner’s key writings, in a similar manner to Skinner (1990), critique the cognitivism and computationalism inherent in EP, evolutionary considerations explicitly animate a number of his other earlier writings. Oddly though, EP does not criticize Skinner on evolutionary grounds at all. Barkow (1984) does not either. Instead, they mainly use Skinner, in a rhetorical manner, to, as noted earlier, demonstrate the problems with what they term a blank slate or standard social science model of mind, which is in turn used to justify their own theoretical perspective.

**Skinner, cognitivism, and metatheory**

In the same year that Tooby gave his Santa Fe Institute address, an instructive review of many of Skinner’s key relevant articles, two of which explicitly address his views on evolution (Skinner, 1966c, 1981), appeared in a 1984 special issue of *Behavioral and Brain Sciences* (BBS; for the introductory editorial, see Catania, 1984). The special issue features slightly revised versions of six of Skinner’s classic papers, followed by an average of 24 commentaries on each, followed in turn by individual responses to each commentary by Skinner, with two additional general commentaries and two additional responses by Skinner.

In Skinner (1990), and several of the papers in Catania and Harnad (1988), Skinner expresses concern about the lack of theory-independent evidence for the existence of what are claimed to be cognitive mechanisms, whether or not they are taken to be shaped by evolutionary pressures. Of course, one might protest, as indeed some did in their BBS commentaries, that the same basic issue of a lack of theory-independence might also seem an issue for radical behaviorism—understood as the theory of behavior analysis. For example, as Dennett (1984) puts it in his commentary:

In particular, no puzzling or recalcitrant or otherwise inexplicable facts about human behavior are shown to succumb nicely to the theory proposed (always a persuasive theme in selling a way of doing science). Instead what we have here is the extrapolation of a creed: working out the details of what the devout behaviorist has to say, figuring out the kosher categories into which all facts must be cast, no matter how the facts come out. Skinner’s role in “Terms” [Skinner’s (1945), “The Operational Analysis of Psychological Terms”] is thus analogous to the theologian’s role in codifying, extending, and proselytizing for a system of dogmas. (p. 556)

However, and more to the point of the present paper, Skinner’s (1990) article, and even Dennett’s characteristically scathing commentary on Skinner (1945), can also be understood as the setting up of professional boundaries in the advocacy for one’s preferred approach. Dennett, after all, is a well-known advocate and defender of cognitivism—itself “selling a way of doing science,” as even Dennett (1984, p. 556) acknowledges.
Skinner (1990) also might be understood to depend on drawing a firm, but arguably arbitrary, distinction between the sort of natural science approach to psychology that he advocated and the more standardly social science approaches pursued within what are commonly understood to be other subdisciplines of psychology, including cognitive psychology. Like other contemporary behavior analysts (e.g., Schlinger, 2018), Skinner can certainly draw these lines, and for at least certain phenomena, they are right to do so. After all, as put by one of the anonymous reviewers of the present article, Skinner’s science should be construed as a natural science, but not a natural history, of behavior. Conflating these two aspects of Skinner’s system has likely contributed toward their misunderstanding and misrepresentation. Thus, as a natural science, its goal is not to explain individual differences in behavior, which Skinner explains instead through reinforcement history. However, the history of psychology as an academic discipline is often told as a history of different theoretical frameworks coming and going. Some of these advocate for natural science, some do not. There are also recent attempts to argue that EP, as a metatheory, or scientific paradigm, can and should unify the field (e.g., Buss, 1995, 2019, 2020; Tooby & Cosmides, 1992). What all this might imply is that it also becomes difficult to sort out in some theory-independent manner what sort of a science psychology actually is or should be. Thus, it seems prudent to be somewhat ecumenical about these issues and not hold any particular approach to a standard that is unreasonable for a discipline like psychology.

Whatever the case may be for the adequacy of Skinner’s critiques of cognitivism and computationalism, it seems at the very least unfair that he was about to become a rhetorical prop for the emerging EP, an evolutionary approach to human behavior that was not only explicitly based on the very view of mind that Skinner tried to undermine in literally his last public words on the matter but which also ignored Skinner’s ideas about evolution that he also repeated in the very same address. It seems that this too might be understood as an instance of what Dennett (1984) calls “selling a way of doing science” (p. 556). Let us begin to consider Skinner’s perspective on evolution and how it is often framed by EP.

Skinner’s views on evolution
Skinner’s (1990) final words on these issues seem a safe place to start:

After almost a century and a half, evolution is still not widely understood. It is vigorously opposed by defenders of a creator. As a result, it is still impossible to teach biology properly in many American schools. A creation science has been proposed to be taught in its place. The role of variation and selection in the behavior of the individual suffers from the same opposition. Cognitive science is the creation science of psychology, as it struggles to maintain the position of a mind or self. (p. 1209)

Four things are noteworthy in this statement. First, Skinner is a strong advocate of evolutionary explanation who bemoans the fact that evolution is still not well understood and also vigorously opposed by some in circa 1990s America (cf. Dobzhansky, 1973). Second, as he has done throughout much of his career, Skinner takes his role as a public
intellectual seriously and uses it as a platform to attempt to influence common opinion and policy (Martin, 2017). Third, Skinner links the lack of acceptance of behavior analysis to opposition from cognitive science (see also, e.g., Skinner, 1985, 1989). Fourth, Skinner does not agree that cognitivism has undermined or replaced radical behaviorism. With respect to the broader relation between cognitivism and behaviorism, Watrin and Darwich (2012) suggest, in a historiography of these ideas, why Skinner might be justified in these convictions. Essentially, Watrin and Darwich argue that the manner in which the discipline of psychology has typically linked the failure of behaviorism to the emergence of the cognitive revolution is an origin myth that, while useful for explaining the history of cognitivism, also oversimplifies and distorts academic psychology’s history in well-discussed ways (see also, e.g., Danziger, 1990; Driver-Linn, 2003; Green, 2015; Leahey, 1992).

**Skinner as an evolutionary theorist**

Skinner (1990) is an account of variation and selection operating at a species, individual, and cultural level that revisits many of the major evolutionary themes of his lifework (see e.g., Skinner, 1966a, 1966b, 1966c, 1981, 1984). For Skinner, cultural selection greatly extends the range of individual adaptation through processes such as imitation and teaching. Despite the way that his ideas are sometimes portrayed, Skinner believes that one can learn very little in an individual world (see also Malagodi, 1986). Individual operant learning and cultural evolution correct what Skinner calls some of the “faults” of natural selection, one of which is commonly discussed as the time lag between adaptive behavior and optimal design. Adaptive lag is well understood to be a challenge for testing adaptationist hypotheses (see e.g., Dawkins, 1982, pp. 53–58). Although such arguments are also often employed by EP theorists who argue for mismatch between modern and ancestral environments (e.g., Li et al., 2018; Tooby & Cosmides, 1990), the issue of a time lag in the adaptive response to a changed environment leads Skinner and, as we will see, other more cultural evolutionary thinkers to argue for an important role for cultural adaptation in the evolutionary process.

As a paradigm case of mismatch, EP theorists often evoke the example of an evolved preference for sweets and fats that would have been adaptive for our evolutionary forebears but is now maladaptive because it is mismatched to the modern environment with its typical more plentiful supply of such substances (Tooby & Cosmides, 1990). There is also a modern ability to provide substances far sweeter than anything ancestrally relevant. Li et al. (2018) speak of this as a mismatch that hijacks ancestral mechanisms. It might be surprising, then, to know that Skinner can also be thought of a mismatch theorist on this issue. In his “Contingencies of Reinforcement in the Design of a Culture,” Skinner (1966b) remarks “Excessive eating . . . [is] the result of reinforcement patterns that once had survival value and so were selected in the process of evolution. In our day of abundance, these reinforcement patterns are a threat . . . [and lead to] . . . overindulgence in food” (p. 159). For Skinner, the emphasis is on the present maladaptation and what can be done about it, but he nowhere denies or minimizes the role of natural selection. In addition, Skinner (1987) links these issues to his concern about cultural survival in general.
Skinner does not develop explicit formal mathematical models in an attempt to explain cultural evolution, nor does he refer to the work of the classic formal treatments that started to appear in the early to mid-1980s (Boyd & Richerson, 1985; Cavalli-Sforza & Feldman, 1981; Lumsden & Wilson, 1981). This is not surprising in one sense because most of Skinner’s work on these topics appeared in the mid-1960s, with the exception of his classic “Selection by Consequences” which appeared, like two of these works, in 1981. Also, the explicit mathematical models that form the basis for, for example, Maynard Smith’s (1971) and Trivers’ (1971, 1972) well-known evolutionary theories, only started to appear in the early 1970s. It is a bit surprising in another sense though because Skinner is wary of the use of the “vernacular” and uses it as a way to explain the popularity of cognitivism. In Skinner (1990) in particular, he suggests that the psychological concepts used by cognitive theorists are the same ones used in our everyday lives and by virtue of this fact we both take them for granted and, in some respects, see the mind, and cognitive psychology, in light of them. However, it has become increasingly common to explain gene–culture coevolution and general cultural adaption in nonformal terms and it wouldn’t necessarily be fair to hold Skinner to this standard. The fact of the matter is that his evolutionary perspective is easily understood, perhaps with a few words changed here and there, as, in part, a straightforward cultural evolutionary perspective. These have become quite common (Laland & Brown, 2011; Perry & Mace, 2010) and are often understood to be in theoretical competition with EP. For example, as Boyd et al. (2011) put it,

We owe our success to our uniquely developed ability to learn from others. This capacity enables humans to gradually accumulate information across generations and develop well-adapted tools, beliefs, and practices that are too complex for any single individual to invent during their lifetime. (p. 10918)

Note as well that despite the emphasis on the importance of adaptations for social learning, this is still explicitly what EP would, and does, consider a domain-general view of mind (e.g., Pinker, 2010). However, Pinker (2010) does not critique cultural evolutionary perspectives for exemplifying a blank slate view of mind because he understands them to be advancing an evolutionary approach, albeit one of a theoretical competitor. It is perplexing that EP does not extend the same courtesy to Skinner.

Some examples of Skinner’s 1984 Behavioral and Brain Sciences exchange

Skinner’s evolutionary views can be understood in the relatively user-friendly manner desired for the purposes of the present article by considering the commentaries on his BBS target articles that, unlike Dennett’s (1984), actually engaged with Skinner’s evolutionary arguments. As illustrative examples, I begin by describing commentaries written by Barash (1984), Dawkins (1984), and Maynard Smith (1984).

Dawkins and Maynard Smith provide commentary on Skinner’s (1981) revision of “Selection by Consequences.” I will not quote from their commentaries because they essentially repeat their own previous positions. For example, Dawkins emphasizes that
the self-replicating nature of genes colonizing their hosts makes genes the central focus and appropriate level of analysis. Similarly, Maynard Smith finds Skinner to hold a view that is insufficiently gene-based, which, for Maynard Smith, ironically, means that Skinner’s view is too one-sided (but see, e.g., Midgley & Morris, 1992). There are concerns expressed as well about Skinner’s sympathy toward group selectionist ideas. Williams’ (1966) advocacy for both adaptationism and genes as the appropriate level for evolutionary analysis appears in his seminal *Adaptation and Group Selection*, published the same year as the aforementioned Skinner (1966b) and also Skinner’s (1966c), “The Phylogeny and Ontogeny of Behavior,” another article that reappears in BBS. Williams (1966) forms much of the basis for Dawkins’ (1976) *The Selfish Gene* and continues to be an oft-cited justification for EP (e.g., Buss, 2019; Li et al., 2018).

However, there seems to be some evidence of a recent exodus from the gene-based orthodoxy defended by Dawkins, Maynard Smith, and many others; Skinner might be a bit ahead of his time here too in this respect because the more pluralistic, multileveled, and less gene-based interpretation of evolutionary processes that he favored is now discussed in contemporary scholarship as constituting, at least in part, an extended evolutionary synthesis (EES; see e.g., Laland et al., 2014). This is not to claim though that his ideas had any influence upon the recent advocacy for the EES and it is an open question how well they would fit, but the parallels are suggestive. Skinner’s way of describing evolutionary processes also conjures other EES concepts such as niche construction theory. His argument for integrating phylogeny and ontogeny also can be interpreted as having a quite contemporary ring—as does Skinner’s rejection of the distinction between a phenotype being innate versus learned.

Barash (1984), a self-described sociobiologist, whose comments on the revision of Skinner (1966c) are more sympathetic than are those of Dawkins (1984), Dennett (1984), or Maynard Smith (1984), states:

To reread B. F. Skinner’s “The Phylogeny and Ontogeny of Behavior” is to be impressed with his grasp not only of psychology . . . but of evolutionary biology as well. Notably, his emphasis on the parallels between reinforcement and natural selection shows how creative and undogmatic his thought actually is, and how unfair it is to caricature the “Skinnerian” approach as one that denies a role to biological evolution. (p. 680)

As Skinner (1966c, quoting from Breland & Breland, 1961) himself puts it: “No reputable student of animal behavior has ever taken the position ‘that the animal comes to the laboratory as a virtual tabula rasa, that species’ differences are insignificant, and that all responses are about equally conditionable to all stimuli’” (p. 1205). It is clear, then, that Skinner explicitly disavows the blank slate view of mind attributed to him by EP. Skinner’s (1984) brief response to Barash is also notable because it in many ways repeats the point about Skinner as a de facto mismatch theorist:

While I agree with Barash that Neanderthal man may survive in us and cause trouble, the problem today is not so much our animal instincts as the failure to solve our problems with methods which most people would regard as the use of reason. For “reasons” read “reinforcing consequence.” We are still too much controlled by the more immediate consequences of our behavior to act effectively with respect to remote consequences. (as cited in Barash, 1984, p. 680)
It appears again, then, that despite Skinner’s preference for technical language, Skinner should also not be interpreted as denying an ancestral “human nature,” but to rather be more focused on adaptation to the modern environment.

**Skinner and evolutionary psychology redux**

Barkow (1984), coeditor with Cosmides and Tooby of the aforementioned foundational EP document *The Adapted Mind* (Barkow et al., 1992), also provided commentary on the version of Skinner (1966c) that appeared in BBS. It is not from an explicitly EP perspective, in part, because, as mentioned, the perspective had not yet been fleshed out in the manner in which it came to be known, but also because Barkow himself is not typically taken to represent the programmatic EP school. However, not only is Barkow’s commentary instructive, it is also the only evidence of any dialogue between Skinner and evolutionary psychology in general.

Like Barash (1984), Barkow (1984) expresses concern about what can be considered a group selectionist read of Skinner (1966c), a concern also reflected in Dawkins (1984) and Maynard Smith (1984). Barkow also joins Dawkins and Maynard Smith in their criticism of Skinner on the grounds that Skinner does not make genes, and biological evolution more generally, the centerpiece of his evolutionary analysis. Unlike Barash, Barkow discusses the issue of what Barkow calls a false dichotomy between genes and environments. Skinner’s (1984) response clarifies his position in a way that again problematizes how Skinner is often portrayed within EP. It is illuminating to quote Skinner’s entire response at length (save for a small paragraph at the end extolling experimental methods):

Barkow’s commentary raises many interesting issues. I must first, however, correct his impression that I believe selection operates primarily at the level of the group. Quite the contrary. Nor do I believe that I am guilty of a lack of emphasis on biological evolution. The point of “Phylogeny” was to establish a relative equality between ontogeny and phylogeny. I also believe that all behavioral processes are the product of evolution and the organism as a whole is nothing else.

The really interesting question concerns the meaningfulness of the dichotomy of learned versus unlearned and innate versus acquired. I agree this is meaningless if we are talking about stored products such as instincts and habits. Selection changes the individual and, if transmission occurs, the group; the result is a changed species, not the storage of any representation of the contingencies of selection. Contingencies of reinforcement change the individual; as a result the individual now behaves in a different way. My quarrel with cognitive psychology is primarily on the grounds of the metaphor of storage. The organism does not take in the world as representation [see “Behaviorism at Fifty”; Skinner, 1963] or contingencies of reinforcement as rules of conduct [see “An Operant Analysis of Problem Solving”; Skinner 1966a]. It is changed by its encounter with the world and behaves in changed ways. As Barkow puts it, there are no blueprints, only processes. (Skinner, as cited in Barkow, 1984, p. 681)

In the interest of brevity and staying to the main point of this article, I will not provide EP quotes that seem to claim the exact opposite. However, instinct metaphors and
conceiving of genetic programs as blueprints seems to remain quite common (see e.g., L. Barrett, 2011; Dupré, 2002; Fine et al., 2017; Witherington & Lickliter, 2016).

The reception to Skinner and EP

Three years after the publication of The Adapted Mind, EP would find itself on the cover of Time Magazine, the same magazine Skinner had graced the cover of on September 20, 1971 with the caption, “B. F. Skinner Says: We Can’t Afford Freedom.” Skinner’s (1971) Beyond Freedom and Dignity was the focus of the cover story. The accompanying article (“Skinner’s Utopia,” 1971), entitled “Skinner’s Utopia: Panacea, or Path to Hell?” expressed considerable ambivalence about Skinner (1971). In EP’s case, on August 28, 1995, the more sympathetic caption reads, “20th Century Blues. Stress, Anxiety and Depression: The New Science of Evolutionary Psychology Finds the Roots of Modern Maladies in our Genes.” The author of the EP cover story (Wright, 1995) had published The Moral Animal: Why We Are the Way We Are: The New Science of Evolutionary Psychology, as a popular introduction to EP the previous year (Wright, 1994). It finds much of its inspiration in the foundational documents of EP.

Although it is common to conceive of Skinner as advocating a form of environmental determinism, and, by parity, EP as advancing a form of genetic determinism, as the dialogue between Barkow (1984) and Skinner (1984) should suggest, both interpretations are caricatures. The tendency to conceive of biology and culture as independent sorts of explanation is the root of the misconception (Laland & Brown, 2011; Lehrman, 1953; Midgley & Morris, 1992; Perry & Mace, 2010). As noted, it was a misconception that Skinner himself militated against. And, even in Skinner (1971), the target of the Time magazine review, there are extended discussions of evolution, and an explicit attempt made to link biological to cultural evolution. Similarly, EP continues to present itself as an interactionist approach (e.g., Buss, 2020; Buss & von Hippel, 2018). Despite claims of blank slates and a SSSM, a bigger issue for EP is typically taken to the conceptual problems inherent in a more domain-general view of a mind versus the domain-specific mind that they instead champion (e.g., Buss, 2020; Cosmides & Tooby, 2013).

It is worth immediately setting this aside though because, as we have noted, there are evolutionary-minded theorists who defend a domain-general view of mind built on adaptations for social learning (e.g., Boyd et al., 2011). It is also worth noting that the other major evolutionary approach to human behavior, human behavioral ecology, is silent on the ontology of mind and employs adaptation to the present environment as an index of what have ancestrally proven to be adaptive problems (see Laland & Brown, 2011). To repeat though, the point of the present article is also not to defend a domain-general view of mind, nor any particular evolutionary theory or metatheory. Rather, it is that EP in the programmatic sense associated with the work of Buss, Tooby and Cosmides, and Pinker, is caricaturing Skinner’s behavior analytic system for rhetorical effect and ignoring his views on evolution entirely.

EP, Skinner, and sociobiology

EP, in turn, is sometimes unfairly caricatured. For example, Lyons (2009) remarks, “The latest story that is being told is from the ‘new’ field of evolutionary psychology. Many
researchers claim that it is not really new, but rather warmed over sociobiology” (p. 191). In their equally dismissive critique, Panksepp and Panksepp (2000) describe EP as a “variant of sociobiology” (p. 108). However, to be fair, E. O. Wilson himself seems to draw no meaningful distinction between sociobiology and evolutionary psychology, in at least the broad sense, for he remarks in a new 2004 preface to his 1978 classic, On Human Nature, that:

Culture evolves in response to environmental and historical contingencies, as common sense suggests, but its trajectories are powerfully guided by the inborn biases of human nature. This view was encapsulated in the new discipline of sociobiology, which in its human applications was later re-christened evolutionary psychology (but remains sociobiology nonetheless). (1978/2004, p. x)

Similarly, in the preface to the 2000 edition of Sociobiology: The New Synthesis, Wilson (1975/2000) states:

The slowness with which human sociobiology (nowadays also called evolutionary psychology) has spread is due not merely to ideology and inertia, but also and more fundamentally to the traditional divide between the great branches of learning . . . the natural sciences, the social sciences and humanities. (p. vi)

However, EP has been clear that although their theory drew from sociobiology, and many other important historical moments, sociobiology was incomplete because, in their view, it overlooked the role of evolved information-processing mechanisms required to explain the relation between the biological and the social, the very move with which someone like Skinner would have great issue. One might think Wilson would as well.

This distinction between EP and sociobiology is sometimes discussed by contrasting its adaptationist program with what Tooby and Cosmides (1990) call the correspondence program or, as Symons (1990) calls in the same double special issue of Ethology and Sociobiology concerning “Darwinian Psychology,” (Blurton Jones et al., 1990), the adaptivist program:

In population genetics, designs show up purely as some allele or combination of alleles, that is, as part of some system of genetic variation. As alleles become fixed they tend to disappear from the analysis, leaving the accumulated uniformity of the evolving organism’s complex design invisible to these tools of mathematical analysis. (Tooby & Cosmides, 1990, p. 380)

The correspondence or adaptivist program is taken to not only include sociobiology, but also human behavioral ecology and dual inheritance views. This is surprising because, from another vantage point, these are all adaptationist approaches since they test adaptationist hypotheses (e.g., Perry & Mace, 2010). Perhaps it speaks more to the theoretical interpretation that EP makes of their approach rather than anything with empirical consequence:

Sociobiology had focused mostly on selectionist theories, with no consideration of the computational level and little interest in mapping psychological mechanisms. Both the subject
matter of evolutionary psychology and the theoretical commitments were simply different from that of sociobiology, in the same way that sociobiology was quite different from the ethology that preceded it and cognitive psychology was different from behaviorist psychology—necessitating a new name in each case. (Tooby & Cosmides, 2005, p. 16)

In any case, to underscore this concern about sociobiology in particular, which is a familiar one for EP, Buss (1991, see also Buss, 1995) coined the term “the sociobiological fallacy” based on the claim that “some sociobiological writings err by assuming that natural selection has produced in humans a general motivation to maximize one’s inclusive fitness—i.e. a domain-general psychological mechanism such as an ‘inclusive fitness maximizer’” (1991, p. 463). Buss (1995) adds that this is a fallacy “because it conflates a theory of the origins of mechanisms (inclusive-fitness theory) with a theory of the nature of those mechanism” (p. 10). However, if this reasoning is fallacious, it is fair to note that EP has been taken to task for this exact issue. Dupré (2002), for example, argues that evolutionary psychologists have “imaginatively [dissected] brains into discrete behavioral organs or psychological modules. But here the organs are not independently discoverable entities but artifacts of the theory” (p. S289). It seems that Skinner, albeit for different reasons, would agree.

It is less widely known that Skinner also criticized sociobiology for, in his case, jumping between the biological and the social without considering the role of the individual (Naour, 2009). As explained earlier, Skinner saw individual adaptation through operant conditioning as the crucial mediator in this sociobiological process. Indeed, as Skinner put it in a conversation with Wilson on November 19, 1987, “the main thing on which I differ from you is that sociobiology leaps a little too cavalierly from socio-to bio. Sociobiology seems to leave me out. I’m in the middle” (Skinner, as cited in Naour, 2009, p. 62). It is interesting that the same observation is repeated in his final article some three years later:

It is therefore hard to understand why operant conditioning has not attracted more attention. The role of variation and selection in the behavior of the individual is often simply ignored. Sociobiology, for example, leaps from socio- to bio-, passing over the linking individual. (Skinner, 1990, p. 1208)

As suggested earlier, Skinner presumably would have the same concern about EP, had he been aware of what it was to become, because putative evolved information processing mechanisms also ignore the problem he was attempting to point out. To return to his last public words on this issue, in his 1990 APA keynote address on which Skinner (1990) is based, he states:

If these three external kinds of circumstances [variation and selection operating at a species, individual, and cultural level] explain what the body does, then what is the mind, or self, supposed to be doing? Does it exist? There seems to be no room for it in a scientific account. You can say it is explained by contingencies of selection and in turn explains behavior, but that isn’t necessary; you can skip the thing entirely [emphasis added]. (Biophily2, 2017, 6:09)

These words can be seen as a paraphrase of what Skinner said in reply to Barkow (1984) a few years earlier, which harken back to a series of evolutionary papers that
Skinner began to publish in the mid-1960s. Whether or not one agrees with Skinner’s assessment, it would seem then that, at least to EP, although Skinner does not commit the sociobiology fallacy, he commits some sort of fallacy. However, the arguments of EP appear to amount to a different but equally theory-dependent redescription of the same phenomena.

**The paradigmatic status of EP**

This article began by noting that Skinner has explicitly been used by evolutionary psychologists as an example of blank slate or standard social science model view of mind (e.g., Buss, 1995, 2019, 2020; Pinker, 2002; Tooby & Cosmides, 1992), which they in turn use to justify the EP program (see also, Goldfinch, 2015, pp. 72–75). It should be clear now that EP is using Skinner for largely rhetorical reasons that are inconsistent with Skinner’s behavior analytic system, and, perhaps more problematically, his evolutionary writings. One of the reasons they seem to use Skinner in this manner is to present behaviorism as constituting a scientific paradigm for psychology that was overthrown by the cognitive revolution and that ultimately, EP, in their advocacy for natural selection as a replacement paradigm, can be used to unify psychology. It seems that Watrin and Darwich’s (2012) analysis and historiography of the relation between cognitivism and behaviorism can be used to illuminate, in this case, EP’s use of behaviorism to consolidate its own professional identity. As Watrin and Darwich (2012), argue, “the story of the cognitive revolution affirms the importance of cognitivism and consolidates its historical identity but fosters the movement at the expense of behaviorism’s depiction” (p. 269).

It seems instructive to return to the earliest programmatic EP paper (Tooby, 1988), which, again, is based on a talk Tooby gave in late 1984. Tooby (1988) states:

> The field has floundered in a sea of incompatible and inchoate theories and interpretive frameworks since its inception. Despite the crippling limitations of the behaviorist paradigm, it is easy to sympathize with the driving motivation behind it: Impatience and frustration with the incoherence and uninformativeness of unspecified and impressionistic assertions, theories, and descriptions. The rapid development of modern computer science, however, has begun to transform the field of psychology, especially in the last fifteen years. The capacity to specify intricate information-based dynamical procedures both legitimized and made feasible the construction of rigorously specified models of how humans process information. (p. 68)

Tooby seems to take the “crippling limitations” of behaviorism to be self-evident, for he does not spell them out. He also does not, as is typical of not only EP, but to some extent the field in general, attempt to engage with Skinner’s evolutionary views. Skinner, of course, is not the only one to question the information-theoretic description of human capabilities, but, in either case, a generic behaviorism is being presented wholesale, judged to be adequate for unspecified reasons, and the evolutionary scholarship of Skinner is neither acknowledged nor disputed. The arc then flows from the demise of behaviorism to the ascendancy of cognitivism (Leahey, 1992; Watrin & Darwich, 2012) to EP, upon which, as previously discussed, EP is explicitly parasitic. All of these moves are contestable.
Like Tooby and Cosmides (1992), Buss (1995) has also made and continues to make (Buss, 2019, 2020) the case that the conceptual disarray of psychology can be solved (someday) by the new scientific paradigm of EP. As he put it in 1995:

Anyone familiar with the broad field of psychology knows that it is in theoretical disarray. . . Although psychologists assume that the human mind is a whole and integrated unity, no metatheory subsumes, integrates, unites, or connects the disparate pieces that psychologists gauge with their differing caliper. An important new theoretical paradigm called evolutionary psychology is emerging that offers to provide this metatheory. (p. 1)

This is a basic mistake that the field has, for good reason, always resisted. Psychologists do many things in their professional activities and it seems to be both unlikely and undesirable for them to stop doing so simply because evolutionary explanation has also proven to be useful in the field. Thus, when one frames Buss (1995) as an attempt at persuasion, which Driver-Linn (2003, p. 275) in her analysis of the rhetorical appeal of paradigmatic language, helpfully describes as “rhetorical leverage,” it becomes a lot easier to understand and also disarm:

Skinner’s theory of operant learning, for example, implies the existence of domain-general mechanisms that cause organisms to alter their behavioral output in accordance with the history of reinforcement they have experienced. The mechanisms Skinner implies are among the most domain general ever proposed—they are presumed to operate in the same manner across different domains such as feeding and mating and, remarkably, also are presumed to be the same across different species. (Buss, 1995, p. 2)

If Skinner had actually taken such a position, and it has been shown that he did not, it seems particularly problematic that Buss is ignoring Skinner’s specific evolutionary arguments that, yes, differ from EP, but certainly aren’t unique to Skinner. It is also concerning that Buss ignores Skinner’s repeated disavowals of this interpretation of his behavior analytic writings (e.g., Morris et al., 2004). However, this does not stop Buss (2020) from recently claiming that “Evolutionary psychology overturned problematic assumptions of prior metatheories and illustrate[s] some of the key contributions of evolutionary psychology and clarif[ies] why neither the behaviorist nor the mainstream cognitivist paradigms can do the explanatory job” (pp. 317–318). Given that Kuhn (1962/2012) famously used psychology as an example of a preparadigmatic science, Buss’s (as well as Pinker’s and Tooby & Cosmides’) repeated rhetorical claims to this effect are ill-advised, if not completely naive, for the simple reason that Kuhn implies that there is no regnant scientific paradigm in psychology that EP could possibly replace.

Conclusion

At this juncture in the history of the discipline of psychology, whatever might become the fate of EP, or even behavior analysis, it isn’t obvious that psychology will or should be a “unified science” in need of a paradigm (Green, 2015). If it ever does, it seems an open question why we would even call such a reconceptualization and reintegration
psychology if it does not do justice to what we currently take for granted by the use of the term. The field has witnessed several major theoretical approaches come and go, but there has never yet been a unifying metatheory or scientific paradigm. Those who argue for such a metatheory typically do so from their own idiosyncratic perspective. This makes it doubtful, as Green (2015) notes, that those of rival theoretical perspectives would want to abandon their existing motivating assumptions and methods. Approaches such as EP that make these sorts of arguments seem to do so at the added risk of demonstrating a limited understanding of the history and philosophy of science.

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