Constructing Psychological Objects: The Rhetoric of Constructs

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The concept ‘construct’ has been used to denote a large class of phenomena, including more classically defined traits (such as introversion and extroversion), clinical and diagnostic categories (e.g., psychopathy), cognitive functions (e.g., cognitive control, verbal memory), and more specific attitudinal and/or behavioral phenomena (ranging from “attitudes towards work schedules” to “pharmacists’ care of migraineurs”). Moreover, how construct as a general category is characterized varies considerably, and constructs are often portrayed at the same time as theoretical concepts and the very phenomena designated by those theoretical concepts. In the present work, we draw on Michael Billig’s descriptions of some of the implications of privileging a particular style of writing in social science discourse to provide a partial explanation as to why the constructed connotation of constructs (i.e., as theoretical concepts created by psychological researchers) has largely given sway to the reification of constructs (i.e., as objects under study) in the discourse of construct validation, and psychological discourse, more generally. We conclude by providing recommendations for psychological researchers regarding how to ward against ambiguous uses of the concept ‘construct.’

Keywords: construct, construct validity, nominalization, passivization, rhetoric

Construct validity theory (CVT) has become an influential paradigm for theory construction in psychology and the scientific investigation of psychological constructs is, in many domains, now the primary objective of psychological researchers (Maraun, Slaney, & Gabriel, 2009). As a class of theoretical concepts, psychological constructs encompass a very large category, denoting a broad range of phenomena, everything from personality traits (such as introversion and extroversion) to clinical and diagnostic categories (e.g., psychopathy) to cognitive functions (e.g., cognitive control, verbal memory) to more domain specific attitudinal and/or behavioral phenomena (ranging from “attitudes towards work schedules” to “pharmacists’ care of migraineurs”).

Despite the apparent flexibility of the general category, there is ambiguity about just what kinds of “things” constructs are. Sometimes they are explicitly portrayed as theoretical concepts, used by psychological researchers to designate and communicate about their subject matter (e.g., “self-regulation,” “verbal memory,” “perceived driver competence”). At other times, they are characterized, explicitly or implicitly, as the very phenomena designated by such terms (e.g., the ability to regulate oneself, the capacity to store and recall verbal information, the perception of driving competency, etc.). Moreover, oftentimes constructs appear to serve both roles at the same time; that is, they are both theoretical concepts and the focal phenomena presumably denoted by such concepts (Danziger, 1997 has noted a similar conflation in psychology in the use of ‘variable’ as a label for a statistical construct and also to name some...
causally efficacious feature of the natural world). In previous work, we have characterized this as the concept-entity conflation within the CVT literature and contended that it may be an important source of conceptual confusion about the ontology of constructs and what role they can meaningfully play in psychological science (Lovasz & Slaney, 2013; Slaney, 2012; Slaney & Racine, 2013a, 2013b).

The history of the psychological construct goes back at least as far as MacCorquodale and Meehl’s distinction in 1948 between intervening variables and hypothetical constructs and the debates that ensued in the wake of MacCorquodale and Meehl’s article (see Lovasz & Slaney, 2013). However, the origins of the concept ‘construct’¹ have been traced by some (McDonald, 1999; Orton, 1987) to Russell’s “supreme maxim” of scientific philosophizing, wherein Russell claimed, “Wherever possible, logical constructions are to be substituted for inferred entities” (Russell, 1918/2007, p. 148; emphasis in original). Russell went on to contend:

The method by which the construction proceeds is closely analogous in these and all similar cases. Given a set of propositions nominally dealing with the supposed inferred entities, we observe the properties which are required of the supposed entities in order to make these propositions true. By dint of a little logical ingenuity, we then construct some logical function of less hypothetical entities which has the requisite properties. This constructed function we substitute for the supposed inferred entities, and thereby obtain a new and less doubtful interpretation of the body of propositions in question. (Russell, 1918/2007, p. 149)

We believe that Russell’s maxim may be relevant to the current discussion of certain features of construct validity discourse and of that of psychology-related fields of study, more generally. More specifically, we believe that both the general concept ‘construct’ and particular construct terms have all but lost the constructed connotation that Russell characterizes in his maxim. We admit that the direct genealogy between Russell’s “logical constructions” and psychological constructs asserted by others may not be fully warranted (in fact, Meehl [1989] denied a direct lineage). However, regardless of how strong (or loose) the connections between Russell’s logical constructions and psychological constructs, it cannot be denied that label “construct” itself clearly connotes construction. Yet, the emphasis placed on the constructed nature of these theoretical concepts is often not acknowledged, and, as noted above, the distinction between constructs and the intended referents of such concepts has become increasingly blurred.

The primary aim of the present work is to explore some possible explanations for why this has occurred. Specifically, we turn to Michael Billig’s work (Billig, 2011, 2013; Billig & Marinho, 2015) concerning a common style of discourse and attendant rhetoric for potential insights into why constructs have gone from being that which psychological researchers construct in the process of conducting science to that of which they seek knowledge, or some hybrid of the two.

The paper is organized as follows: first, we give a very brief description of our previous examinations of the general concept ‘construct’ and provide a rough taxonomy of commonly encountered uses of ‘construct.’ Second, we summarize Billig’s account of the aforementioned writing style and describe his primary concerns regarding the more deleterious implications of widespread adoption of this style of writing in social science discourse. Third, we examine Billig’s concerns specifically in relation to the past and present discourse on constructs. Fourth, and finally, we offer some recommendations, inspired by a more general set provided by Billig (2011), for how to begin to ameliorate potentially detrimental effects on construct discourse of the writing style described by Billig.

A Taxonomy of Uses of ‘Construct’

The present work has been conducted within the context of a body of work that has both tracked the historical and conceptual origins and developments of CVT and empirically examined the construct validation practices—including discursive practices—of researchers in psychology and related fields of study (Lo-
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The specific theoretical processes, mechanisms, etc.) is under study. Whatever feature of reality (i.e., attributes, properties, mechanisms, etc.) that is of interest, namely, the particular psychological constructs as objectively existing constituents of reality, is seen to not simply denote real, but unobservable, theoretical entities, but encapsulate the current state of accumulated knowledge about the relevant phenomenon.

The third category of uses of ‘construct’ we have identified imply what we have called a “focal phenomenal” sense. Such uses reference in quite general terms the subject matter of a given study or research domain. As with the conceptual construct category, most often with cases in this category of use, the ontology of the construct is left fairly ambiguous. Instead, researchers merely state something to the effect that the study at hand concerns an “investigation of the construct of X.”

We have also found mixes of different senses of ‘construct’ within single definitions. For example, Heidenreich (1968, p. 28) defines a construct as “[a]n inferred process or structure. An intellectual synthesis or operational definition.” English and English (1958, p. 116; emphasis added) define the term ‘construct’ as designating both “a property ascribed to at least two objects as a result of scientific observation and comparison” and “a concept, formally proposed, with definition and limits explicitly related to empirical data.” According to Colman (2006), a construct is a “model,” “psychological attribute,” a “complex concept,” and a “latent variable.”

Notably, it does not appear that these different uses of ‘construct’ signal the existence of multiple, but distinct and mutually independent, senses of the term. Rather, as noted above and in our earlier work, the idea that a construct is a theoretical concept—created and used in the discourse of psychological researchers—is frequently conflated with the notion that constructs are theoretical entities that are the “objects” of researchers’ scrutiny, that is, the “phenomena” to which theoretical concepts refer.

In our previous descriptions of the concept–entity conflation in CVT discourse, we offered only a partial explanation for why it occurs, namely, in terms of the dominance of a generally unreflective allegiance psychological researchers have had, since the mid-1950s, to empirical realist philosophy and a proto-theory of meaning identified by Wittgenstein (1953).
Rhetoric in Social Science Writing

Scientific writing is often thought to be devoid of the rhetoric of everyday discourse. Rather, it is taken to consist in objective descriptions of replicable observations (i.e., facts), imparted using formal, presumably neutral, language (e.g., of mathematics, logic, or method, more generally). However, discourse analysts from a broad range of disciplines have noted that the language of science developed and continues to evolve largely in response to the particular aims of its language users, with varying grammars, linguistic conventions, and supplementary writing practices used to construe how scientific texts and discursive acts should be understood (Bazerman, 1988; Halliday, 2004; Halliday & Martin, 1993). This is perhaps unsurprising, given that scientific writing, like all language, can be conceived of as a socially situated practice. Experimental reports, for example, are used to communicate communal goals (e.g., research aims), identify community members (e.g., by using the vocabulary specific to a theoretical position or stance), coordinate activities (e.g., by describing new methods, and possible avenues of research), and provide a means for further social participation (e.g., reading and contributing to the literature on a topic). Still, discourse analysts suggest that scientific writers often appear unaware of the extent to which these practices may influence the knowledge claims that they make (Bazerman, 1988; Billig, 2008, 2013).

In a series of papers and a recent book, Michael Billig (1994, 2008, 2011, 2013; Billig & Marinho, 2015) takes a critical look at the use of rhetoric in contemporary academic writing. He argues that the terminology routinely used in the social sciences is often less precise for describing human actions than is nontechnical language. He reasons that because academics are increasingly under pressure to publish and promote their ideas, writing in ways that advertise one’s work and theoretical approach—or “research brand”—has become a force of habit for many academics.² As a result, many of the technical (and pseudotechnical) terms used in the social sciences have been shaped, in part, by a particular style of writing that privileges the use of large nouns and passive-voiced verbs over clausal statements in which both action verbs and nouns are employed. Discourse analysts have termed these linguistic practices nominalization and passivization, respectively.

Drawing on the work of linguists such Roger Fowler (Fowler, 1991; Fowler, Hodge, Kress, & Trew, 1979) and Michael Halliday (Halliday, 2004; Halliday & Martin, 1993), Billig has described in detail the implications of the widespread adoption of these writing conventions in social science discourse. Fowler and colleagues (1979) originally examined these practices in relation to ideological discourse. They noted that when writers nominalize a phrase, the information omitted tends to depend on the ideology of the writer. This can allow the writer to strategically present a human act as occurring, without tying the action to the individual or group who carried it out.

Generally speaking, the use of nominalization in social science writing involves representing the actions of people (and, in some cases, the researchers themselves) in terms of transformations of verbs into nouns through the addition of suffixes such as ‘ification’ and ‘ization,’ for example, ‘categorization’ from ‘categorize,’ and ‘perception’ from ‘perceive’ (Billig, 2011, 2013; Billig & Marinho, 2015). The use of passivization involves presenting the actions of researchers (and, also research participants) in passive rather than active voice, for ² Although Billig (2013) considers several reasons for the widespread adoption of these conventions within psychology—including explicit arguments by prominent scholars as to why ordinary language should be avoided—a more systematic analysis of the factors which have contributed to the institutionalization of these practices within psychology is still required. Such work, however, is beyond the scope of the present analysis.

For brevity, we employ this terminology, but alert the reader to the irony, explicitly noted by Billig (2008), of discourse analysts failing to heed their own warnings by using the categories “nominalization” and “passivization” in their critical evaluations of the common rhetoric of using nouns and passive voice in discourses primarily concerned with human action. We, therefore, attempt to use these terms sparingly in the present work, opting instead to couch our descriptions in terms of frequently encountered writing practices of psychological researchers.
example, “It is suggested that . . .” instead of “If we suggest . . .” or “Participants were randomly assigned to . . .” instead of “If we randomly assigned participants to . . .” A large portion of the terminology used within psychological discourse can be said to fall under this description, with many terms being nominalized word constructions, that is, passively presented nouns or noun phrases generated from verbs and other parts of speech (Billig, 2013).

The problem, according to Billig (2011), is that while passive nominalized terms may provide a convenient way for researchers to repackage their clausal statements or convey the notion that the outcomes of their experiments are not contingent on their own idiosyncratic attributes (i.e., are unbiased), when used to describe human actions, the sentences they produce tend to convey less information than sentences using active verbs. Consequently, such terms can give the appearance of precision, and, yet, the writer’s meaning may remain quite inexplicit and ambiguous.

For example, when using an active verb such as “perceive,” both the human agent as well as what is being perceived must be explicitly stated (e.g., “I perceive my daughter to be musically inclined”). However, when such verbs are nominalized and combined with other adjectives or nouns (e.g., “maternal perceptions”), the grammatical subject is no longer readily apparent. In this case, maternal perceptions could be any number of actions, events, or processes, such as perceptions of what constitutes the quality of being maternal or the way in which most mothers perceive something about their children in their roles as mothers. Additionally, although active-voiced phrases (e.g., “We used questionnaire X to measure participants’ maternal perceptions”) can be transformed into passive statements (e.g., “maternal perceptions were measured using X”), the reverse is not always possible because the agent (or agents) taking the action is likely to be grammatically excluded, and thus cannot be “put back” into the writing. As a consequence, second, Billig (2011) argues that by writing in a highly nominalized way, social scientists tend to present their theoretical concepts in a reified way, making them appear as though they are in some way objective. He notes that although many of the “things” psychologists aim to investigate are not the sorts of things that can be directly observed, oftentimes they are social contexts, situations, and experiences with which most people are familiar. Accordingly, Billig (2011) argues that by reframing relatively commonly encountered social processes and actions as things, researchers avoid using more readily
The Rhetoric of Constructs

As Billig points out, many theoretical terms employed within psychology are nominalized terms, and this is true of most, if not all, construct terms, as well as of ‘construct’ as a general concept. Although a comprehensive historical analysis of how the verb ‘to construct’ came to take this nominal form is not possible here, we believe that a brief description of the context within which this transformation occurred provides some insight into why contemporary researchers increasingly appear to treat constructs as objectively existing constituents of reality as opposed to as theoretical concepts (i.e., terms, abstractions, models) that they construct (or, use) in order to test their theories about various aspects of psychological reality.

To begin with, consider Russell’s elaboration of the “supreme maxim” of scientific philosophizing presented at the beginning of the paper, in which Russell avers that given “a set of propositions nominally dealing with the supposed inferred entities . . . we then construct some logical function of less hypothetical entities . . . [t]his constructed function we substitute for the supposed inferred entities . . .” (Russell, 1918/2007, p. 149). It is interesting that Russell—even with his philosophical commitments clearly in the logical positivist camp—utilized both passive phrasing and nominalization in presenting his maxim, transforming the more modest act of “construct[ing] some logical function” into the somewhat more imposing nominal “logical constructions.” In his desire to explicate the means by which scientists ought to handle so-called “unobservables,” it is perhaps not surprising that he chose to write about the specific actions of scientists in an abstract way. By writing in past tense and by nominalizing the verb clause, “[to] construct some logical function,” he could put forward a prescription for

In the next section, we first briefly outline the historical context within which the verb ‘to construct’ appears to have been transformed to the nominal form that we use in psychology today. We then consider the relevance of Billig’s concerns regarding the use of nominalization and passivization specifically in the context of the discourse on constructs.
how scientists should go about doing their science (specifically, when dealing with unobservable phenomena), while at the same time presenting this call to action in terms of a set of "somethings" (i.e., logical constructions) about which science is concerned.

Russell's account of theoretical concepts was initially enthusiastically endorsed by other logical positivists, in particular Carnap, who attempted to formalize Russell's method of construction in the Aufbau (Carnap, 1928). However, Carnap's early treatment of theoretical concepts—or those of early logical positivists, more generally—would not bear the fruit initially promised. In later work, Carnap (1936, 1937) distinguished the respective roles of empirical concepts and theoretical concepts in the language of science, acknowledging that the latter, although methodologically necessarily definable in terms of the former, are not reducible to them (Feigl, 1959; Michell, 2013).

In the 1930s, due largely to the efforts of Feigl and Hempel, logical positivism was rebranded into "logical empiricism" which endorsed a substantially amended view of theoretical constructions and aimed to bring the philosophical treatment of theoretical concepts in line with the requirements and aims of the practicing scientist, that is, to provide explanatory accounts of empirical relations in terms conjectured causal mechanisms and processes. Accordingly, the logical empiricist account of theoretical concepts departed from Russell in several important ways. First, inspired by early formulations of scientific realism by Reichenbach (1938) and others, logical empiricists embraced a substantially more realist philosophy of science, wherein "existential hypotheses" play a central role. Feigl (1943, 1950) took hypothetical constructs (or "existential hypothetical constructs") to be essential in this regard because they designate those yet to be fully discovered causal mechanisms and processes whose existence would account for relations among observables. However, because such existential hypotheses are not strictly reducible to statements involving only observables, they were thought to be only indirectly testable (i.e., in terms of the observables they are hypothesized to underlie).

Second, unlike empirical constructs whose full meaning is given by empirical relations, hypothetical concepts were characterized as having "surplus meaning" by virtue of their "factual reference," the latter of which "may never coincide with their epistemic reduction" to observable variables (Feigl, 1950). In other words, the meanings of hypothetical constructs, and, thus, of existential hypotheses, cannot be fully captured by empirical propositions, but, rather, are contained in the real, but currently not fully understood, relations between unobservable causes and observed phenomena.

Third, as a consequence of the first two points, it was thought that, since any genuinely useful explanatory theory must contain existential hypothetical constructs whose meanings are not reducible to observables, the meanings of hypothetical constructs are derived (implicitly) from the entire theoretical network, which "connects the directly confirmable with the indirectly confirmable" (Feigl, 1950, p. 57). Both Feigl (1943, 1950) and Hempel (1952) were strong advocates of this network view of theories and of the notion that hypothetical constructs, although necessarily connected to the empirical base (i.e., to observables), designate more than mere empirical relations and, thus, are essential for a sufficiently explanatory science.

The tide change in mid-20th century philosophy of science would, as in all other sciences, show its mark on psychology. Behaviorism was losing its grip on the discipline, and neo-behaviorists began to acknowledge the importance of theoretical constructions (Lovasz & Slaney, 2013). Hull and Tolman, in particular, would champion the "intervening variable," however, each would advance different definitions of the concept. In his early work, Tolman characterized intervening variables as functions that connect independent and dependent variables (Tolman, 1938), whereas Hull defined them as "symbolic constructs" that designate unobservable "internal" conditions that mediate external stimuli and behavioral responses (Hull 1943a, 1943b). However, Tolman and Hull agreed that to have any epistemic value, intervening variables needed to be defined strictly in terms of antecedent (independent variables, or stimuli) and consequent (dependent variables, or responses) conditions.

In their 1948 paper, "On the Distinction Between Intervening Variables and Hypothetical Constructs," MacCorquodale and Meehl expressed concern over the ambiguity in Hull and
Tolman’s respective definitions of the intervening variable concept and in the manner in which the concept was being taken up by psychologists at the time (MacCorquodale and Meehl, 1948). Of particular concern was what they took to be a crucial distinction between theoretical constructions that are mere “fictions” (i.e., abstractions from observables) and those that designate the structures (processes, mechanisms) that are posited within existential hypotheses to explain observed phenomena or relations among them. In response, they proposed the adoption of terminological convention wherein the term ‘intervening variable’ be reserved for a class of theoretical concepts which designate functions of observed variables (i.e., the early Tolman sense) and ‘hypothetical construct’ for a class of theoretical concepts that denote real, but currently unobservable or not well understood, hypothetical entities.

In their landmark 1955 article, “Construct Validity in Psychological Tests,” Cronbach and Meehl (1955) elaborated a validity theory that drew from both the philosophy of science discourse on theoretical constructions (e.g., Feigl and Hempel’s network view of theories would form the basis of their “nomological network”) and the intervening variable-hypothetical construct distinction highlighted by MacCorquodale and Meehl. They also borrowed heavily from the validity theory of Peak (1953), who emphasized, among other things, that the validation of psychological constructs goes hand in hand with the simultaneous validation of both theory and measurement instruments. However, because “there is no direct access to the underlying phenomena,” validation of psychological constructs comes by way of successive approximations wherein deductions from theory are tested and, if successful, contribute to the construct’s overall validity (Peak, 1953, p. 291).

Construct validity theory has continued to develop over the past six decades, and changes in the theory have been largely in response to questions about how ‘validity’ ought to be defined and what should be the focus of validation (e.g., tests vs. interpretations and uses of test data). Because the emphasis of the present work is not validity theory, per se, many players and much work have been left out the brief history given here. However, it is interesting to note that, although validity theory has morphed over time, with a few exceptions (e.g., Bechtoldt, 1959; Loevinger, 1957), post-Cronbach and Meehl accounts of constructs remain for the most part faithful to the characterizations given by Cronbach and Meehl and to the notion that constructs have an ontology beyond being a special class of theoretical concepts for psychology. Moreover, although the philosophical foundations of construct validity theory have been described (see Slaney, 2012 for a summary of this work), other than our own work there have been few explicit examinations of the ‘construct’ concept, or of the various senses in which it is used in the psychological literature.

As noted above, what is most pertinent to the present discussion about the history of the psychological construct is that there seems to have occurred a gradual shift over time from a view of constructs as theoretical constructions, created by psychological scholars to designate various aspects (empirical, conjectural) of phenomena under study, to constructs as a special class of theoretical concepts, and, more and more, as a special class of theoretical entities. Yet, despite the diminishing emphasis on the constructed nature of constructs, the “construct” part of the label remains. For instance, the theoretical constructs of Russell, Carnap, Feigl, Hempel were—regardless of their particular semantics—characterized as being products of the theoretical and empirical activities of scientists. MacCorquodale and Meehl (1948) were also concerned with providing guidelines for the actions of scientists, specifically, for how the terms ‘hypothetical construct’ and ‘intervening variable’ should be used within psychological scientific discourse.

Yet, by affixing ‘hypothetical’ to ‘construct,’ MacCorquodale and Meehl (and also Feigl, who also would adopt this terminology) also seem to suggest that constructs denote “somethings,” the nature of which scientists seek to uncover such that at some future point the “hypothetical” qualifier will be no longer required. Consequently, MacCorquodale and Meehl, who were advocating for the adoption of a specific linguistic convention within psychological discourse, perhaps inadvertently, also took a further step toward reifying constructs. Whereas earlier accounts of theoretical constructs were described in almost transient terms—that is, as theoretical concepts that would be iteratively replaced as new propositions were put forward by scientists in their continual act of constructing (functions...
were characterized (at times) as being theoretical entities, the constructs that were introduced by Cronbach and Meehl (1955) (but, real) theoretical entities, the constructs that whereas hypothetical constructs were treated as special because they designated unobservable (but, real) theoretical entities, the constructs that were introduced by Cronbach and Meehl (1955) were characterized (at times) as being those unobservable theoretical entities.

Having briefly reviewed the early evolution of the construct concept, we now turn to an exploration of Billig’s concerns, but now specifically in relation to the use of both the general concept ‘construct’ and particular construct terms that appear in published psychological research. We then consider how Billig’s account might provide at least a partial explanation for why psychological researchers use the concept ‘construct’ so ambiguously and why construct terms are so often conflated with their referents.

First, based on what we have said thus far, it seems fairly uncontestable that ‘construct’ is a nominalized verb, and that there is substantial ambiguity surrounding the concept. As Billig suggests, when ordinary action verbs such as ‘to construct’ are nominalized, the new expressions are no longer firmly grounded in human action: in this case, in the actions of psychological researchers who develop, articulate, and submit to empirical test-specific accounts of a given phenomenon, and also, for why it occurs. That is, by removing the grammatical requirement of identifying the subject of the action, the contextual cues used to indicate various senses of the verb (and thus the appropriateness of its use) can become nebulous. Despite the nominal (static) form sounding more exact and precise (because it is a nominal), the extension of the new expression is often greater (or construed as more flexible) than that allowed for by ordinary use of the verb. Consider, for instance, the active phrasing in the statement, “We constructed and tested a theoretical model of self-esteem” in comparison to a statement including the nominalized form of ‘construct,’ such as, “This study investigates the construct of self-esteem.” When the former active phrasing is used, it is clear who is doing the constructing and what is being constructed. On the contrary, by omitting the grammatical subject(s), researchers can refer to “the construct of X” without being explicit that a theoretical concept (and accompanying theory, models, measures, etc.) has been constructed (or used) by them to designate and investigate a given phenomenon. Moreover, this process can also lead to ambiguity as to what precisely these theoretical constructions denote.

By leaving the gap, first, between researchers and the theoretical terms (and accounts) they construct, and, then, between a specific nominalized term and its referent(s) relatively loose, new senses of the term can start to take root, as the term comes to be defined by the various ways in which it is used. In the case of ‘construct,’ although MacCorquodale and Meehl were fairly careful to present hypothetical constructs as a class of theoretical concepts, Cronbach and Meehl (1955) portrayed ‘construct’ as a much more flexible concept, one that can be used by the scientist to designate both theoretical constructions and heuristics, but also a special class of existentially “open” phenomena—hypothetical and not strictly definable in terms of fixed operational definitions. More specifically, Cronbach and Meehl (1955) describe constructs as postulated “attributes” or “qualities” that are “possessed” by individuals, but for which “no criterion or universe of content is accepted as entirely adequate to define the quality to be measured” (pp. 282–284), and as “account[ing] for variance in test performance” (p. 282), but also as “inductive summaries,” and as existing in nomological (i.e., theoretical) networks, in terms of which they are “implicitly defined” (p. 290). Together these and the other ways Cronbach and Meehl characterize constructs suggests that what makes constructs special is their unobservability. Yet, given the apparently different referent classes to which ‘construct’ is extended (i.e., attributes of people,
abstractions from observable phenomena, theoretical-linguistic terms, theoretical frameworks and models), this idea is, at best, ambiguous, and, at worst, incoherent. What does it mean, for example, to say an inductive summary or a theoretical term or framework is unobservable? The “nomological network” was, for Cronbach and Meehl (and, still is for many today) where these different senses of ‘construct’ could be grounded and, thus, became the primary theoretical mechanism for advancing knowledge of psychological phenomena. However, in placing the ontology of constructs within the nomological network—the ontological relations within which are complex—the nature of the relation between theoretically constructed concepts (theoretical terms, theories, models) and the phenomena they are intended to represent (in a complexity of ways) became blurred.

Another related consequence identified by Billig of the use of nominals and passive phrasing is that it tends to lead researchers to reify their concepts and treat them as though they are “things.” As noted, although early adopters of the term ‘construct’ partially retained the constructed connotation of the verb ‘to construct,’ by privileging the nominal form ‘construct,’ they also (perhaps inadvertently) promoted a view of constructs as static, stable, and objective. Despite advocating that hypothetical constructs and intervening variables be distinguished in terms of two different classes of concepts, that may be used to designate them, MacCorquodale and Meehl (1948, p. 104) were explicit that hypothetical construct terms “refer to processes or entities that are not directly observed.” In other words, (hypothetical) constructs were, from the beginning, demarcated as special because they refer to unobservable (in whatever sense) “things” about which we seek knowledge. Moreover, as theoretical concepts, there is also the implicit suggestion that hypothetical construct terms come to have a permanence of sorts, via theoretical and empirical advances in the science at hand. In other words, the construct is treated as an objective and static entity about which knowledge accumulates over time through amendments to the theory, those amendments driven largely by previous empirical findings.

It is, therefore, not surprising that passive phrasing in construct discourse works in partnership with employing the nominal form of verbs to create ambiguity around the construct concept. That “construct X” “is investigated,” “is probed,” “is measured,” “is of interest,” obscures who does the investigating, probing, measuring, and who is interested, and in so doing, removes the researcher from the practices that give rise to theoretical and empirical claims that include reference to specific constructs. Rather than being properly characterized as the byproduct of researchers’ active efforts to construct theoretical concepts and tools (theories, models, measures, experiments) in order to embark on empirical investigations of the phenomena they represent, by using passive phrasing they come to be portrayed as the “things” that are “investigated,” “explored,” “measured,” and “tapped” by some nameless grammatical subject.

The use of such passive phrasing in our writings about constructs has likely facilitated greatly the loss of the constructed connotation of both the general concept ‘construct’ and of particular construct terms. As just noted, researchers frequently write about constructs as being “tapped,” “probed,” “explored,” “investigated,” “measured,” “estimated,” and so on.6 However, such ascriptions would be inappropriate if constructs are the theoretical constructions of researchers and, thus, it is more likely that the implied referents of such ascriptions are the phenomena (or some aspect of them) themselves. Note that this does not necessarily imply that whatever aspects of psychological reality are designated by theoretical constructs are, strictly speaking, merely constructions. The point is, rather, that social scientists have often lost sight of the fact that theories—and the component concepts that constitute them—are constructed, even when constructed as (empirically testable) accounts of features of reality that the scientist does not construct.

Although we believe that the consequences Billig describes of nominalizing theoretical concepts and writing about these in passive ways go a fair way toward explaining why

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6 Such ascriptions to constructs have also promoted the problematic equating of constructs with “factors,” “latent variables,” “dimensions,” (see Maraun & Gabriel, 2013) and the like, all of which also are constructed by psychological researchers (or are defined within a given statistical model) in their efforts to empirically validate theoretical propositions which reference particular constructs.
constructs are often conflated with their referents in psychological discourse, we have identified a number of writing patterns within construct discourse we believe may also contribute to researchers' writing and thinking about constructs as objects under investigation. One possibility is that the general concept 'construct' may be further reified when combined with other normalized terms. Specifically, the frequent practice of combining the term 'construct' with other normalized concepts used to designate specific focal phenomena (e.g., the "psychopathy construct") has entrenched the view that the construct category carves out a special class of phenomena. That is, constructs are not viewed as being theoretical constructions like those of any other science. Rather, they are special by virtue of having attached to them some psychological sense of unobservability, and thus must be prefixed or suffixed by the general category identifier (e.g., "the construct of ____", or "the ____ construct"). In no other science do we see this; unless the focus is some theoretical construction itself (e.g., debating which definition of a theoretical term should be used, in which case the act of constructing is explicit), theoretical concepts are used without a special qualifier to mark them as theoretical concepts of a particular type (e.g., "beta waves," not "the construct of beta waves"; "epigenesis," not "the epigenesis construct"). Perhaps also telling is the fact that other sciences do not appear to need to delineate theoretical concepts according to the observability (or unobservability, in whatever sense) of the referents of those concepts (e.g., "gene," "quark," "dark matter"). Moreover, the addition of 'construct' to individual theoretical concepts often amounts to a "double reification," so to speak—first the particular psychological concept is normalized (e.g., "verbal memory" from the capacity to remember words and more complex linguistic structures), and then it is categorized within the more general category 'construct' (e.g., the "construct of verbal memory"). The language of construct validation may also contribute to the reification of construct terms and the resulting disappearance of the constructed connotation that ought to accompany them. For instance, by choosing among an ever-growing host of validity concepts (e.g., 'face,' 'content,' 'structural,' 'dimensional,' 'factorial,' 'external,' 'concurrent,' 'predictive,' 'criterion,' 'convergent,' 'discriminant') researchers reify a particular construct concept (e.g., by writing about it as though it is a thing with properties such as structure and dimension), but also "big up" the concept by attaching to it multiple notions of validity. Accordingly, by performing the various methodological procedures (associated with each of these aspects of validity) and by communicating and collaborating with others about a common construct of interest, researchers may come to view the construct as something objective. In other words, a potential unintended consequence of doing construct validation research is that researchers might be inclined to treat the constructs they construct as being independent and discoverable instead of as theoretical tools for designating the psychological phenomena they seek knowledge of, some aspects of those phenomena, perhaps, independent and discoverable. Interesting, even the act of validating a construct, in which a researcher's test (theory, model) is assessed for its logical coherence and empirical relevance—that is, something scientists do (a verb)—is often couched in terms of establishing that a construct has validity—a property (a noun).

Discussion

To conclude, we believe that the discourse of constructs illustrates quite well Billig's concerns about the implications of adopting a style of writing that privileges nominal forms of verbs (nominalization) and passive phrasing (passivization). In particular, we believe that the conflation of constructs and the phenomena that are the objects of study in construct validation research is, in large part, created by nominalizing, and thus reifying, 'construct,' thereby generating ambiguity over the extension of the concept. When used as a flexible category, which has the appearance of extending to a well-defined class of "things," but, in actuality, refers only loosely to a collection of concepts which may or may not share crucial features (e.g., are particular or general, concrete or abstract, denote or merely designate), the construct label can imbue even well-defined theoretical concepts with ambiguity and can give rise to inconsistent, and, in some cases, nonsensical, uses of the term 'construct.'
When researchers designate a particular theoretical term as a construct (e.g., “the construct of perceived driver competence”), the implication is that, in doing so, the term must share similar features with other constructs. Yet, given the ambiguity surrounding the general concept of ‘construct,’ just what these defining features are is opaque. And, despite many definitions invoking notions of “unobservability,” inability to “measure directly,” “incomplete knowledge,” and the like, it is unclear how these features would apply coherently to theoretical concepts themselves. At best, they would apply to the phenomena that these concepts designate, and even this criterion would be too restrictive, since many constructs refer to phenomena that are observable in the ordinary sense (e.g., “extraversion,” “pharmacist’s care of migraineurs,” “family of origin health”).

Furthermore, because the general concept ‘construct’ and particular construct terms have come to be adorned with a static and objective ontology, the tendency to use passive language in writing about constructs follows quite naturally. It is hardly surprising, thus, that the constructors of constructs—psychological researchers—and their acts of constructing have been all but wiped from the discourse of constructs. The problem is that the phase of psychological research in which theoretical concepts (theories, models, experiments, measures) are actively created (modified, extended, etc.) by researchers in order to advance knowledge of a given phenomenon remains hidden in the wings, and we have lost insight into a fundamental feature of scientific activity. By virtue of introducing inherent ambiguity and obscuring the actions of the researcher in constructing the theoretical tools that are essential to science, and in so doing creating a “bigged up” class of theoretical concepts that does double duty as a class of theoretical entities (the phenomena about which we psychologically seek to advance knowledge), the conflation of constructs (both the general concept and specific construct terms) with their intended referents seems nothing short of inevitable.

**Conclusion and Recommendations**

Echoing Billig’s general critique of social science writing, we believe it is important to point out that one of the reasons that psychological researchers continue to write about constructs in ambiguous, and sometimes illogical ways, is that there are rhetorical benefits that can be gained from distancing themselves from the constructed nature of their theoretical constructions. Psychologists, like other scientists, are in the business of trying to describe aspects of psychological reality in as objective and unbiASED ways as possible. Thus, no doubt they are likely to feel significant pressure to put (at times artificial) boundaries around the phenomena they study and, also, use depersonified and unbiased language in their discourses. Within psychology, the ‘construct’ category perpetuates this rhetorical feature of scientific writing. Not only does it suggest that the theoretical concepts of psychology constitute a special class, but individual construct terms, many of which are rooted in ordinary language concepts, are made to sound more rigorous and precise—indeed, more scientific—by virtue of having ‘construct’ appended to them.

However, as Billig has argued, and we have echoed above, what is often a mere mirage of precision, in fact, does a disservice to the discipline. Very little can be gained in any science from building ambiguity into theoretical concepts (theories, models) or stripping from scientific discourse the actions (including the act of constructing theoretical concepts, theories, and the like) of researchers. Certainly nothing useful will be achieved if we continue to conflate our theoretical concepts with the phenomena they are intended to represent. However, like Billig, we do not believe that all is lost, and that ambiguity in construct discourse (and psychological scientific discourse, more generally) is inevitable. In fact, Billig (2011) has issued an explicit set of recommendations for how social scientists can improve their writing and, in so doing, reduce the ambiguity that currently exists in published discourse. Drawing (nonexhaustively) from his missive, we make the following recommendations for psychological researchers.

- Where possible, use simple language and avoid technical terms that are not necessary. In particular, where relevant, use the ordinary concepts that denote the general phenomenon of

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7 Billig (2011) notes these recommendations follow from Orwell’s (1946/1962) example.
interest, and clearly distinguish these from the particular theoretical concepts (e.g., working definitions, operational definitions or other technical concepts) that feature in the research at hand.

- Avoid appending ‘construct’ as a prefix or suffix to either ordinary or technical concepts. Use ‘construct’ only in reference to those aspects of the research that have been constructed for the purposes of conducting the research.
- Likewise, avoid references to ambiguous statements such as, “the construct validity/validation of” and, instead, speak directly to the actions in which you, as a researcher, engage in demonstrating that the particular theoretical framework (model, measures, experiment, etc.) and interpretations of research findings are valid in one sense or another.
- Be explicit about what has been constructed—for example, definitions of theoretical concepts, theories, hypotheses, models, measures, experiments—who is doing/has done the constructing, and for what purpose(s).
- Use active phrasing in describing your actions/activities in the research being described (e.g., “In this study, we define the [focal phenomenon] as follows”; “Our theory as to [problem addressed] is ____”; “We administered [measure] to N people who participated in our study”).
- Clearly distinguish between theoretical concepts (i.e., constructs) and their referents (i.e., the focal phenomenon, or some feature thereof) and ensure that your ascriptions are appropriate.
- Do not ascribe to theoretical constructions (i.e., theoretical concepts, theories, hypotheses, models, etc.) that which logically should be ascribed to theoretically relevant features of psychological reality, (i.e., processes, traits, mechanisms, etc.).
- Avoid describing constructs (generally, or with respect to particular constructs) as “observable,” (or “unobservable”) “explorable,” “measureable” (or “unmeasureable,” “indirectly measureable,”), and so on; rather, where applicable, make such ascriptions to the focal phenomenon (or some feature thereof) itself.
- Avoid references to “investigating construct X” in favor of “investigating [focal phenomenon].”
- Avoid equating constructs with factors, latent variables or traits, and dimensions. Although these concepts are also impregnated with a great deal of ambiguity in psychological discourse, there are technical senses in which they may be (more or less) reasonably used, none of which map onto the concept “construct,” in a clear way.
- Particularize your writing to the specific case at hand. Given the inclusivity of constructs as a category of theoretical concepts relevant to the broad domain of scholarship that constitutes psychology, considerations—be they theoretical, definitional, semantic—of a given construct should be appropriately hinged to the particular case at hand.
- Treat the above as aspirations rather than as rigid rules. We recognize that discourse conventions can be very resistant to change. Yet, if particular discourse practices work against our primary goals—in this case, sound empirical study of psychologically relevant phenomena—then we should aspire to replace these with more sound practices.

Although not an exhaustive list, we believe that if researchers were to observe—or even give some thought to—the above list of recommendations, a good deal of the ambiguity that exists in the construct validity discourse could be avoided. And, since science seldom thrives in the face of conceptual ambiguity, it is our view that psychological science, more broadly, stands to benefit substantially from what, in practice, constitute quite manageable changes to our discourse practices.

A Few Parting Caveats

Although we have tried our best to avoid slipping into the writing style that Billig identifies, we acknowledge that in some places we have done just this in characterizing the practice of conflating theoretical concepts and theoretically relevant phenomena (or features thereof) as the “concept-entity conflation” and in providing a taxonomy of uses of ‘construct.’ However, in our defense, we opted to allow ourselves these occasional slippages for the reason that it is at times just simply more efficient to describe general practices in terms of catego-
ries, and can also militate against tedious repetition. We believe that as long as writers are otherwise explicit about what they are referring to, limited use of such nominalized clauses need not result in ambiguity.

Moreover, we recognize that the justifications we cite for using the writing devices critiqued in this paper may well also apply in some places in psychological researchers’ discourse about constructs. That is, we wish to be clear that we are not claiming that all references to ‘construct’ (or to ‘the construct of X,’ or to specific construct terms) are egregious or necessarily invite ambiguity. Rather, our contention is that many such uses are ambiguous and, thus, may pose problems for evaluating the cogency of the claims about constructs (generally, or with respect to particular constructs) and the features of psychological reality to which they pertain. Our aim has been to illuminate how some of these compositional techniques may have come to shape the way the term ‘construct’ is construed in psychology, as well how employing these writing practices may lead researchers to commit the concept-entity conflation described at the beginning of this article.

As a second caveat, we note our appreciation of the fact that psychological researchers comprise a very large group, interested in an even larger class of phenomena having varying ontologies, and implying a wide range of epistemological/methodological considerations. Rather than there being a single, monolithic psychological discourse, there are multiple discourses that are relevant to psychological inquiry, not all of which include references (or, only very few) to constructs in the senses discussed in the present work. Thus, we recognize that our argument and the recommendations we have drawn from it may be more relevant in some domains of psychological discourse and less so in others.

It is also not our wish to suggest that the theoretical constructions of psychological researchers are merely constructions, that is, by-products of psychological researchers’ abstractive reasoning. Although there certainly are likely to be cases of theoretical constructions (theoretical terms) that are simply “useful fictions” without any objective referent class, it would be a far cry to say that all psychological theoretical concepts are abstractions. The denotational relations between psychological theoretical concepts and their referents (or designates) are complex and defy simple classification. Suffice it to say, we see psychological theoretical concepts as playing various roles—denoting aspects of psychological reality, abstraction, classification, etc.—as is the case with theoretical concepts in all other domains of science.

As a final caveat, although we have framed our argument in some places as a critique of certain rhetorical benefits that accompany the writing practices described in the paper, we wish to be clear that we are not at allcontending that psychological researchers are being merely rhetorical in their uses of ‘construct’ (and individual construct terms). Rather, we believe that in the vast majority of cases, researchers to do not consciously decide to use the nominalized verb ‘construct’ and/or write about constructs in passive ways. That is, although they are writing in ways that have rhetorical implications, we recognize they are likely unaware of this. In most cases they have been indoctrinated into a set of conventions—including discourse conventions—which they have never been encouraged to question, and, thus, may be quite unaware of either the rhetorical benefits or adverse implications that may accompany such practices. We hope that the present work helps to make psychological researchers more aware of both the benefits and dangers of the discourse practices that are currently privileged in the discipline.

References
Billig, M. (2011). Writing social psychology: Fictional things and unpopulated texts. British Jour-
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**Carnap, R.** (1928). *Der logische Aufbau der Welt* [The logical structure of the world]. Berlin, Germany: Weltkreis.


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