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What Does It Mean That an Issue Is Conceptual in Nature?

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McGrath (2005/this issue) argues that "the *conceptual complexity* [italics added] of the constructs psychologists choose to measure and the scales they use to measure them has played an important role in the failure to develop more accurate measurement systems" (p. 112). Although we agree with this, we argue, in this commentary, that McGrath has misdiagnosed the source of these difficulties and that this misdiagnosis originates with an unresolved articulation of the nature of a conceptual issue and of the relationship between conceptual and empirical issues in science.

McGrath (2005/this issue) argues that "the *conceptual complexity* [italics added] of the constructs psychologists choose to measure and the scales they use to measure them has played an important role in the failure to develop more accurate measurement systems" (p. 112). Although we agree with this, we believe that he has misdiagnosed the source of these difficulties, and in this commentary, we provide an alternative account. Due to space restrictions, we sketch this account out in a terse, rather dogmatic, fashion. The interested reader will be referred to sources in which the points made herein are fully argued.

The many issues addressed by a properly functioning empirical science include the description of the objects, entities, forces, and phenomena of natural reality; the construction of theories to explain this subject matter; the search for new truths about constituents of natural reality; and the making of discoveries of heretofore unknown features of natural reality. Scientific investigation is progressive. The empirical propositions of a science are adjudged to be more or less true on the basis of empirical evidence. Such propositions, regardless of the evidence offered in their support, are always provisional and open to rejection in light of new evidence.

The phenomena the scientist studies are denoted and organized by concepts. The products of science—including the scientist's observations, hypotheses, theories, and reports—are expressed in language and hence in terms of concepts. A concept is an element of language, and language is a human creation. A concept is not a constituent of natural reality, nor is it an idea, hunch, or theory. Concepts are tokens in a linguistic practice, and their correct employments are fixed by linguistic rules. In all facets of life in which behavior can be correct and hence incorrect (e.g., game playing, legal matters, etiquette, language), humans fix what constitutes correct and incorrect behavior through the laying down of rules. The rules of employment of concept "θ" are taught, learned, and made reference to in arguments over the meaning of concept θ. When someone who is learning the language misapplies θ, others can and do set him straight: "*That* is not how 'θ' is used. *This* is what you say." To employ concept θ correctly is to employ it in accord with the linguistic rules that fix its sense, and to recognize an incorrect employment of θ is to recognize a departure from this normative employment. When we break from correct usage, the result is nonsense (e.g., the bachelor went to the movie with his wife).

The concepts employed in the natural sciences are, for the most part, technical concepts invented for use in particular contexts of scientific work. The rules that fix the correct employments of technical concepts are of the necessary and sufficient condition variety: The concept "alpha particle" is correctly applied to positively charged nuclear particles consisting of two protons bound to two neutrons; the concept "scandium" is correctly applied to a natural (transition) element whose atomic number (i.e., number of protons in nucleus) is 21. Although concepts are not constituents of natural reality but rather of language, certain (but not all) concepts denote features of natural reality: the concepts alpha particle and scandium being examples. This simply means that their rules of correct employment warrant the ascriptions of these concepts to particular features of natural reality. The referents of denotative concepts are constituents of natural reality and hence potentially objects of scientific inquiry.

Neither concepts nor their meanings are discoverable, for in regards to the meaning of a concept, there is nothing to discover, at least not in the sense that science can set about to discover, say, the chemical composition of a certain substance. The meaning of a concept is fixed by its rules of correct employment, and rules are laid down by humans and are open to scrutiny by speakers of the language. One learns the meaning of a concept, is reminded as to its meaning, teaches its meaning to others, and so forth. Physics did not, for example, discover the concept alpha particle nor its correct employment but rather invented the concept (laid down a rule for the correct employment of the term *alpha particle*). It did discover the material entities, and many facts about these entities, now known as alpha particles. The notion of a concept, or a concept's meaning, "existing" but being unknown to humans is nonsensical.

Although the job of science is, indeed, to make discoveries about and provide explanations of aspects of natural reality, the scientist must concern himself or herself with conceptual matters because the claims he or she makes are expressed in language and hence in terms of concepts. Thus, when the scientist hypothesizes that "γ things" have such and such properties, offers a theory as to why γ things do what they have been observed to do, or sets out to prove the existence, in the far north, of γ things, his claims are in fact about γ things only if they are informed by a correct employment of the concept γ that denotes γ things (As we argue, this point has profound implications for McGrath's [2005/this issue] discussion of personality assessment). However, the capacity to correctly employ concept γ presupposes a grasp of the rules that fix its correct employments. This is, of course, why countless scientific papers and texts in biology, chemistry, and physics contain carefully stated definitions of key concepts.

Any time concepts are employed, they can be misemployed. If a scientist were to apply the concept alpha particle to a subatomic particle consisting of one proton bound to one neutron, then she or he would be guilty of misapplying the concept: Her or his application is in violation of the rules that fix the correct employment of the concept. Another could justifiably point out this misuse and offer correction (note that correction only makes sense given the existence of a clearly defined sense of correct employment). It would not be the case, however, that the two individuals were offering rival "theories" about alpha particles nor that the incorrect party had failed to learn her or his facts about natural reality. For to know that one applies the concept alpha particle to a positively charged nuclear particle consisting of two protons bound to two neutrons is to grasp a rule of concept employment, to have learned a fragment of language (empirical evidence plays no role).

Thus, scientific practice involves both conceptual and empirical issues, and these issues are logically distinct. Issues pertaining to the correct employments of denotative concepts are conceptual issues, whereas the study of the referents of these concepts, their causes, correlates, and properties are empirical issues.[1] A fact about entity α, a constituent of natural reality, is a fact about γ things just in case the rules of correct employment of concept γ warrant application of concept γ to α. When in the late 1800s, Mendeleyev defined the concept scandium, it was not known whether or not any scandium existed in nature (Petrianov-Sokolov, 1985). The conceptual issue was the grounds of correct application of the concept scandium, these fixed by linguistic rules laid down by Mendeleyev. The empirical issue to be addressed by science was whether there actually did exist any referents of the concept. It is a conceptual matter that an individual claiming to have discovered scandium and offering up sample *t* has not discovered scandium if sample *t* is matter whose atomic number is not 21. Scandium was, of course, eventually discovered in nature, and the subsequent study of its properties was the work of empirical science. However, a researcher who after 10 years of work finds that substance *x* has properties $\{p_1, p_2, \ldots, p_t\}$ and reports these as properties of scandium when in fact the rules that fix correct employments of the concept scandium do not warrant application of the concept to substance *x,* is conceptually confused (the researcher has misapplied the concept scandium, and this has compromised the meaning of his or her findings).

As implied by McGrath's (2005/this issue) concern for issues of conceptual complexity, the situation is considerably more complex in psychology than in the natural sciences, for unlike the natural sciences, empirical work in Psychology is not, for the most part, conceptualized in terms of technical concepts.[2] This is because the chief concern of the psychologist has been to investigate psychological phenomena of interest to humanity, and these phenomena are precisely those that are denoted by concepts that are a part of ordinary language (and whose employments predate the formation of the discipline). However, the correct employments of ordinary language terms such as *agreeable, dominant, gregarious, hope, wish, desire, reason, infer, ponder, recall, forget, sad, happy, nervous, anxious,* and their multiple cognates are not fixed by necessary and sufficient conditions but rather by a bewildering variety of other types of rule (for examples, see Bennett & Hacker, 2003; Schulte, 2001; Ter Hark, 1990). Psychological concepts have complex, unwieldy grammars that are "widely ramifying, lacking in unifying employment and not readily surveyable" (Baker & Hacker, 1982, p. 229).

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[1]Famous examples of conceptual work situated within science include Mach's (1960) dismissal of Newton's definition of *mass* on the grounds that it was circular and Einstein's realization that certain difficulties in physics were the result of uncertainty over the applicability of the concept "simultaneous" to events occurring at huge distances apart (Waismann, 1965).

[2]Operationism merely offered the illusion of technical concept creation, for the ordinary language employments were virtually always retained. Cattell (1965) did engage in technical concept creation, and it is notable that his work has largely been forgotten: "Premsia," for example, is a proper technical concept but apparently denotes phenomena of interest to neither the public nor the psychologist.

Countless exceptions and special cases must be noted in a description of the correct employments of psychological concepts. Whereas the bases for instantiation of technical concepts can be specified in a well-circumscribed set of conditions, the behavioural criteria that justify the ascription of psychological concepts in the third-person, present tense mode are loosely bound and defeasable (Baker & Hacker, 1982). The messiness of the grammars of ordinary language psychological concepts does not, however, imply that these concepts are faulty, for they are constitutive of the language user's capacity to communicate about his or her own and others' psychological realities. It does, however, suggest that the employment of ordinary language psychological concepts in scientific work will generate a host of difficulties.

Having clarified the nature of conceptual issues and the relationship between conceptual and empirical issues in science, we now turn to a consideration of some of the themes of McGrath's (2005/this issue) article:

1. McGrath is correct to suggest that psychological concepts are complex but incorrect to suggest that the source of this complexity is that these concepts have the hierarchical structure described in his article. No ordinary language psychological concept has this structure. This is made clear by considering that reference to such structuring is not a part of the teaching of ordinary language psychological concepts. The mistaken idea that this hierarchical structuring is a conceptual feature is likely a product of the conflation of conceptual structure (the web of rules that fix the correct employments of a concept) with the (empirical) linear factor analytic structures of item sets. The reason that psychological concepts can correctly be said to be complex is that they have complex grammars. That is, the webs of rules that fix their correct employments are not of the tidy, necessary, and sufficient condition variety.
2. McGrath (2005/this issue) correctly notes that many issues that the personologist faces are conceptual in nature. He notes, for example, that correlations, they being summaries of features of the joint distributions of variates, cannot bear on the clarification of the meanings of the concepts that denote such variates (these meanings fixed, as they are, by linguistic rules). McGrath also discusses the issue of the "redundancy" of items and claims, quite rightly, that this conceptual issue cannot be reduced to "statistical criteria" (p. 116). However, McGrath comes up short of settling the basis for identifying a conceptual issue as such and consequently fails to grasp the boundary separating conceptual and empirical questions, a failing that compromises his analyses.

   McGrath (2005/this issue) claims, for example, that "The tendency to speak in terms of level of extraversion as a comprehensive statement about an individual implies a fair degree of coherence (depending on the researcher's model of extraversion) in personal experience, behavior, perception by others, and/or physiological reactivity" (p. 115). This is confused. The grounds of correct ascription to an individual of the concept "extraversion" (and its cognates) is a conceptual issue and hence is settled through a consideration of linguistic rules. There is in existence no linguistic rule that makes any mention of coherence in personal experience, behavior, perception by others, and/or physiological reactivity, let alone models of extraversion. The concept extraversion (and its cognates) is a dispositional concept and is justifiably ascribed to an individual when the individual has manifested behavioral criteria for the concept, these criteria learned in the learning of the correct employment of the concept (Baker & Hacker, 1982).

   McGrath (2005/this issue) further describes an extravert as one who "experiences great pleasure in social situations," is "likely to engage in behaviors leading to social contact," and is "perceived by others as outgoing" (p. 114) and worries about whether an individual who manifests only two of these criteria is in fact "truly" an extravert. However, the lack of covariation amongst the instantiators of the concept extraversion poses no difficulties with respect the correct ascription of the concept, for, once again, the rules that fix the correct employments of the concept are mute with respect to the issue of covariation. The issue of the covariation of distinct expressions of extraversion is an empirical issue that pressupposes a conceptual issue, to wit, the capacity to identify behaviors as expressions of extraversion (just as the capacity to study the magnetic properties of scandium presupposes the capacity to identify scandium in nature).

   Similarly, speaking of the "construct … anxiety" as involving "interpersonal," "physiological," and "experiential modes" (McGrath, 2005/this issue, p. 115) occludes the distinctions that must be drawn between distinct components of the scientific study of anxiety, examples being (a) the understanding of the concept "anxiety," this equivalent to the grasping of the rules that fix the concept's correct employments (to grasp the phenomena that are to be studied in a study of anxiety is to grasp these rules); (b) the study of empirical characteristics of, including correlates and causes of, behavioral manifestations of anxiety; (c) the description of experiential accompaniments of anxious states (what, for example, is person *A* thinking during his anxious states?); (d) the study of the characteristics of dispositionally anxious people (e.g., how does being dispositionally anxious affect the interpersonal relationships of those who are dispositionally anxious?); (e) the study of the charac-

teristic activity of the human brain during anxious episodes; and (f) the study of physiological correlates and precursors of the human capacity to be anxious. These are distinct components of investigation, with (b) to (f), empirical facets of investigation, presupposing (a), for in (a) it is settled what is to be studied in research of types (b) to (f).

Finally, McGrath (2005/this issue) states that

> If anxiety is perceived as a socially useful label to capture demonstrable correlations among self-report, behavior, and physiological state, then it is clear that a self-report measure provides an insufficient basis for portraying one's standing in terms of severity (or presence/absence) of anxiety. (p. 115)

However, once again, this is a conflation of empirical and conceptual issues, for the concept anxiety is not correctly ascribed to another on the basis of correlations, and in fact, such contingent facts about anxiety (e.g., the relationship between physiology and the onset of anxious states) are learnable just because linguistic rules indepedently fix to what the concept anxiety can correctly be ascribed.

Now, the personality researcher might respond that McGrath (2005/this issue) is using the concept anxiety in a distinct, technical sense as a denoter of such correlations. However, there is no evidence that this is the case, for the personologist's employments of the term *anxiety* correspond in every other way to the ordinary language employments of the term. Moreover, McGrath's "unfootnoted" use of the term (and other psychological terms) in discussions of his work implies that he expects those who grasp ordinary language to find his employments intelligible. If McGrath were using the term in a technical sense to denote correlations, he could, with no loss in intelligibility, employ arbitrary labels, for example, c_1, c_2, …, c_r, to denote these correlations. McGrath does not do so because the language of his work is, pretty much uniformly, ordinary language. Finally, if sharp, technical senses were in play in personality research, there would be no basis for the conceptual uncertainty evident in comments such as "is warmth even a component of extraversion as opposed to a correlate?" (McGrath, 2005/this issue, p. 114), "Depression and paranoia are two constructs likely to be considered conceptually quite distinct" (p. 117), and "there is general agreement on the constructs subsumed by depression including suicidality, helplessness, and so forth" (p. 118). The type of conceptual uncertainty manifest in these quotes arises when the personologist is attempting to draw conclusions based on the grammars of ordinary language psychological concepts without realizing it and without having clarified the correct employments of these concepts.

3. Given McGrath's (2005/this issue) sensitivity to conceptual issues, it is unfortunate that much of his discussion is couched within the framework of construct validation theory.[3] Since Cronbach and Meehl (1955) popularized construct validation theory, there has existed in the psychological literature equivocation over the concept "construct," and this equivocation becomes full-fledged confusion when paired with the conceptual/empirical conflations that are a hallmark of construct validation theory (the latter the result of initial misunderstandings of the empirical realist philosophy on which construct validation was based). Certainly, in his discussions of the concept "theoretical term" (e.g., Tuomela, 1973) the empirical realist has usually been clear in drawing the distinction between a given term and the unobservable referents the term is alleged to have, these referents, presuming their existence, hypothesized to be causally responsible for a particular set of effects. Not so the psychologist in his or her use of construct, for he or she at times speak as if *construct* should be taken as a synonym for *theoretical term* and at other times as if it is an unobservable constituent of natural reality, something having empirical characteristics. The former sense is implied when construct is employed in a manner that is roughly synonymous with the concept "concept," and when ordinary language psychological concepts are called constructs. The latter sense is implied in speaking of constructs as having indicators (concepts do not have indicators, whereas entities, processes, and properties can: e.g., litmus is used as indicator of acidity, and tracks left in bubble chambers indicate the presence of various subatomic particles) and as having causal roles and in the use of the metaphor of "tapping various constructs" (McGrath, 2005/this issue, p. 117).

   In their popularization of construct validation theory, Cronbach and Meehl (1955) claimed that the problem facing the test analyzer was to decide "What constructs account for variance in test performance" (p. 282) and that

[3] It should also be noted that it is inaccurate for McGrath (2005/this issue) to claim that "Prediction occurs in the context of operationism in that the goal of successful measurement is solely the maximization of an observable relationship" (p. 120). The failure of their program notwithstanding, the operationists fully grasped the distinction between conceptual and empirical issues and in fact criticized the early construct validators for conflating meaning and "significance" (the correlates of the referents of a concept; see, e.g., Bechtoldt, 1959). Moreover, they neither believed that measurement had anything to do with maximizing "an observable relationship," nor did they see prediction as having a necessary connection to operational definitions (prediction did play a significant role in the associated positivist understanding of laws).

> *The meaning of theoretical constructs is set forth by stating the laws in which they occur, our incomplete knowledge of the laws of nature produces a vagueness in our constructs* … We will be able to say "what anxiety is" when we know all of the laws involving it; meanwhile, since we are in the process of discovering these laws, we do not yet know precisely what anxiety is. (Cronbach & Meehl, 1955, p. 294)

Certainly, concepts are not the objects of laws, nor can they "account for test performance" because they are not constituents of natural reality. The referents of denotative concepts can be said to enter into laws, and some might, indeed, play causal roles. It is the job of science to study the causal powers of such referents and to formulate the laws that describe their behavior. On the other hand, the referents of concepts cannot coherently be said to have meanings! It is the concepts that denote such referents that have meanings, and these meanings are manifest in their correct employments.

Constructs are often described as being unobservable or "latent." Various material entities (e.g., neutrinos with respect to unaided human visual capacities) can rightly be said to be perceptually unobservable, but concepts are neither observable nor unobservable, for they are not constituents of natural reality. It is noteworthy that sciences that have had to deal with true cases of perceptually unobservable entities have not felt the need to invoke the concept construct. The concept "neutrino" denotes entities that are perceptually unobservable to humans without the aid of instrumentation. These entities have properties and their behaviors can be described by laws. However, neither facts about properties $\{p_1, \ldots, p_t\}$ of neutrinos nor laws $\{l_1, \ldots, l_r\}$ describing their behavior bear on the meaning of the concept neutrino. In fact, the generation of $\{p_1, \ldots, p_t\}$ and $\{l_1, \ldots, l_r\}$ presupposes the capacity to identify entities as neutrinos, which, in turn, presupposes a grasp of the meaning of the concept (for the researcher must comprehend to which entities the concept is correctly applied).

It is undoubtedly the case that certain of the physiological preconditions necessary for humans to experience anxiety are perceptually unobservable (e.g., because of their microscopic size). However, the concept anxiety (and this applies to every ordinary language psychological concept) neither denotes unobservable referents nor has anything whatever to do with perceptual unobservability. It is instantiated on the basis of behavioral criteria. The confused account of science that is construct validation theory is perhaps the most damaging orientation ever adopted by psychology, and its blurring of conceptual and empirical facets of science is a chief source of the interpretive ambiguities inherent to test results mentioned by McGrath (2005/this issue).

4. When McGrath (2005/this issue) states that the tests employed in psychology are complex, he is making a conceptual point with which we agree. We would paraphrase his claim as follows: In employing a test, one is attempting to use responses to its items as behavioral criteria that justify ascription of some particular concept to the test taker. Thus, technical details aside, the contents of a given test should be behavioral criteria rather than, for example, contingent correlates of such criteria. However, perhaps under the sway of construct validation theory, McGrath fails to grasp the type of analysis required to identify the criteria of a given concept, distinguish these criteria from mere correlates, choose "scales that ostensibly measure the same construct" (p. 118), or develop scales "in a manner consistent with a well-specified construct" (p. 118). These are all conceptual tasks whose resolutions are the products of conceptual analyses, and conceptual analyses are explications of the rules of correct employments of concepts. Thus, to come to an understanding of what are and are not behavioral instantiators of the concept anxiety (i.e., grounds for correctly ascribing the concept to an individual), the researcher must clarify the grammar of the concept anxiety.
5. McGrath (2005/this issue) contends that

> There are two purposes served by psychosocial indicators. … They can be used to predict status on another variable. … A measure can also be used as a representation of a construct. This occurs when the measurement is primarily intended to reflect an individual's location on the construct that ostensibly underlies the measure. (p. 113)

It is interesting to discuss purposes so long as the components of such a discussion—in this case measurement, representation, and prediction—are themselves well understood. Unfortunately, these aspects of scientific practice are often confused in psychological discourse as is evident in McGrath's mistaking *indicator* and *measure* for synonyms.

According to psychology, the measurement of a given construct, say, "σ," is achieved as some kind of union of general "measurement techniques" and σ. Individuals are taken as having measurements on the latent, underlying σ, and the aim of a measurement procedure is to infer these "locations" on the basis of

indicators. However, this misdescribes the logic of measurement. Whereas measurement practices have empirical components (e.g., those having to do with the physical bedrock on which such practices are erected), the grounds of justification of measurement claims (e.g., that the number 7.6 is the height, in feet, of our Christmas tree) are conceptual issues, for in making a measurement claim involving concept "ψ," one is claiming that the rules that fix the employments of ψ warrant application of ψ to numbers produced in some particular fashion. Thus, measurement claims involving a given concept necessarily make claims about the concept's meaning (for expansion on these points, see Maraun, 1998). Only certain concepts (e.g., "height," "weight," "density") are embedded in practices of measurement, and the meanings of these concepts are tied up with measurement operations, units of measurement, methods of translation of one set of units into another. Part of what it is to teach the meanings of concepts such as height and density is to teach the means by which measurements of the heights of objects and densities of materials can be measured. Measurements are not unobservable, for they are not constituents of natural reality. One takes measurements, and this taking implies the active following of normative rules of measurement.

A representation of *A* by *B,* on the other hand, is an isomorphism between features of *A* and features of *B.* Representation is not the same thing as measurement and in fact does not even presuppose measurement. Representational relationships have conceptual components: Notably, they presuppose criteria of identification of the relata of the representational relationship, for to represent features $\{a_1, a_2, \ldots, a_t\}$ of *A* presupposes the capacity to identify $a_1, a_2, \ldots, a_t$ as features of *A,* which, in turn, presupposes a grasp of the employments of concepts "a_1," "a_2," …, "a_t" that denote such features.[4] In contrast to measurement cases, the grounds of justification of representational cases are often empirical in nature. For example, the existence of a monotone relationship between the correlations that describe a set of personality variates on the one hand and the distances between points standing for the variates in an *r*-dimensional multidimensional scaling solution on the other is support for the claim that the scaling solution is a representation of the bivariate linear relationships of the set of variates. We agree with McGrath (2005/this issue) that it is representation and quantification and not prediction (nor even measurement) that is essential for the carrying out of fruitful science. More enlightened terminology would have psychologists speaking of the validity of their representations rather than of their measures (see Guttman, 1971, for related observations concerning the distinction between representation and quantification on the one hand and measurement on the other and the primacy in science of the former).

[4]Thus, it is incoherent to speak of representing the locations of individuals with respect to something (a construct) that "ostensibly underlies the measure" (McGrath, 2005/this issue, p. 113), for the representation of features of *A* is possible only given intimate knowledge of these features. Construct validation's confused notion of "underlyingness" can play no role in coherent discussions of representations in science.

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REFERENCES

Baker, G. P., & Hacker, P. M. S. (1982). The grammar of psychology: Wittgenstein's bemerkungen über die philosophie der psycholgie. *Language and Communication, 2,* 227–244.

Bechtoldt, H. (1959). Construct validity: A critique. *American Psychologist, 14,* 619–629.

Bennett, M. R., & Hacker, P. M. S. (2003). *Philosophical foundations of neuroscience.* Oxford, England: Blackwell.

Cattell, R. (1965). *The scientific analysis of personality.* Baltimore: Penguin.

Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin, 52,* 281–302.

Guttman, L. (1971). Measurement as structural theory. *Psychometrika, 36,* 329–347.

McGrath, R. E. (2005/this issue). Conceptual complexity and construct validity. *Journal of Personality Assessment, 85,* 112–124.

Mach, E. (1960). *The science of mechanics: A critical and historical account of its development.* LaSalle, IL: Open Court.

Petrianov-Sukolov, I. (1985). *Elementary order: Mendeleyev's periodic system* (J. Weinstein, Trans.). Moscow: Mir.

Schulte, J. (2001). *Experience and expression: Wittgenstein's philosophy of psychology.* New York: Oxford University Press.

Ter Hark, M. (1990). *Beyond the inner and the outer: Wittgenstein's philosophy of psychology.* London: Kluwer.

Tuomela, R. (1973). *Theoretical concepts.* New York: Springer-Verlag.

Waismann, F. (1965). *Principles of linguistic philosophy* (R. Marré, Ed.). London: Macmillan.

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