



Dual character concepts and the normative dimension of conceptual representation



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ARTICLE INFO

Article history:

Received 29 August 2012

Revised 8 January 2013

Accepted 9 January 2013

Available online 1 March 2013

Keywords:

Concepts

Natural kinds

Teleology

ABSTRACT

Five experiments provide evidence for a class of ‘dual character concepts.’ Dual character concepts characterize their members in terms of both (a) a set of concrete features and (b) the abstract values that these features serve to realize. As such, these concepts provide two bases for evaluating category members and two different criteria for category membership. Experiment 1 provides support for the notion that dual character concepts have two bases for evaluation. Experiments 2–4 explore the claim that dual character concepts have two different criteria for category membership. The results show that when an object possesses the appropriate concrete features, but does not fulfill the appropriate abstract value, it is judged to be a category member in one sense but not in another. Finally, Experiment 5 uses the theory developed here to construct artificial dual character concepts and examines whether participants react to these artificial concepts in the same way as naturally occurring dual character concepts. The present studies serve to define the nature of dual character concepts and distinguish them from other types of concepts (e.g., natural kind concepts), which share some, but not all of the properties of dual character concepts. More broadly, these phenomena suggest a normative dimension in everyday conceptual representation.

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1. Introduction

Imagine a physics professor who spends her days writing out equations but who clings dogmatically to a certain theoretical perspective against all empirical evidence. Does this person genuinely count as a *scientist*? In a case like this, one might feel that both answers are in some sense correct. It might therefore seem right to say:

- (1) There is a sense in which she is clearly a scientist, but ultimately, if you think about what it really means to be a scientist, you would have to say that she is not a scientist at all.

Now suppose we come upon a person who has never been trained in formal experimental methods but who approaches everything in life by systematically revising her beliefs in light of empirical evidence. In a case of this latter type, it might seem appropriate to make the converse sort of statement:

- (2) There is a sense in which she is clearly not a scientist, but ultimately, if you think about what it really means to be a scientist, you would have to say that she truly is a scientist.

To the extent that people do in fact show these patterns of intuition, we might conclude that they actually have two different characterizations of what it means to be a scientist – one in terms of concrete activities (conducting

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experiments, formulating theories, etc.), the other in terms of more abstract values (an impartial quest for empirical truth). In other words, what we find in this concept is a type of duality: certain concepts seem to involve two ways of characterizing their instances, and thus two ways of determining category membership.

Although these phenomena have been explored with respect to certain specific concepts in philosophy (e.g. Aristotle, 1999/350 BC, on the concept of friendship), as far as we know, there has not yet been any systematic work investigating these phenomena empirically. The implicit assumption in most work on conceptual representation seems to have been that concepts characterize members of a category in a single way – whether via the representation of a definition (e.g. Bruner, Goodnow, & Austin, 1956), a prototype (e.g. Hampton, 1998; Rosch & Mervis, 1975), salient exemplars (e.g. Medin & Shaffer, 1978; Nosofsky, 1988), or a theory (e.g. Carey, 1985; Gelman & Wellman, 1991; Gopnik & Meltzoff, 1997; Keil, 1989; Murphy & Medin, 1985) (but see Machery & Seppälä, 2010; Smith, Patalano, & Jonides, 1998; Weiskopf, 2009). The experiments in this paper provide evidence for a class of cases in which that assumption is violated and a single concept characterizes members of a category using two distinct sets of criteria.

1.1. Dual character concepts

The experiments seek to demonstrate that there is a class of concepts that are represented via both (a) a set of concrete features and (b) some underlying abstract value. These two representations are intrinsically related, but they are nonetheless distinct, and they can sometimes yield opposing verdicts about whether a particular object counts as a category member or not.

We will argue that this pattern of intuitions can be found across a broad array of different concepts: SCIENTIST, ART, CRIMINAL, TEACHER, ROCK MUSIC, MOTHER, LOVE, and many others. Though the concepts in this class differ from each other in numerous important respects, they share a certain kind of structure that supports dual characterization. These concepts, we suggest, differ fundamentally from the types of concepts that have been studied in the existing literature (e.g., from natural kind concepts). We will refer to them as *dual character concepts*.

Not all concepts are dual character concepts. Take the concept BUS DRIVER. It would be odd to say something like (3) of a person who does not have any of the features normally associated with bus drivers:

- (3) There is a sense in which she is clearly not a bus driver, but ultimately, if you think about what a bus driver really is, you would have to say that she truly is a bus driver.

This latter concept does not appear to provide an abstract way of characterizing a category. Similarly for a wide range of other concepts: PHARMACIST, ACQUAINTANCE, RUSTLING NOISE, SECOND COUSIN, and so on. These concepts are not seen as having dual character (at least by most people; Leslie,

in press), and we will use them in the experiments below as control concepts.

Of course, it is sometimes possible to use even concepts of this latter type in sentences that in some ways resemble (1)–(3). For example, if a person has been working informally as a pharmacist but is not officially certified to perform that sort of work, one might say: ‘There is a sense in which she is a pharmacist, but technically, she is actually not a pharmacist.’ The use of sentences like these is well explained by existing theories of hedges (Lakoff, 1973; Malt, 1990) and task variation (Gelman, 2003), but we will argue that there is something importantly different, and therefore worthy of further examination, at work in people’s use of dual character concepts.

1.2. From concrete features to abstract values

What makes dual character concepts unique? We suggest that it is the fact that each dual character concept contains two different ways of characterizing members of the category to which it applies and that these two ways of characterizing members of the category stand in a particular type of relationship. We now introduce a specific hypothesis about the nature of this relationship.

Consider again the concept SCIENTIST. If you asked someone to explain what it meant to be a scientist, that person might begin by giving you a list of concrete features that scientists typically display:

Conducting experiments
Analyzing data
Developing theories
Writing papers

But when you received this answer, you would immediately notice that you were not simply receiving an arbitrary list of features. On the contrary, it should be clear that all of these features have something important in common. Specifically, they are all ways of realizing the same abstract value: *the pursuit of empirical knowledge*. Hence, you might guess that what the person was trying to communicate to you was not just this list of features but also the abstract value that they all serve to realize.

We propose that dual character concepts have precisely this sort of structure. Like many other concepts, dual character concepts are associated with a list of concrete features (e.g., Murphy, 2002). However, unlike most other concepts, the features associated with dual character concepts can all be seen as ways of realizing the same abstract values. People therefore come to represent the concept not only in terms of the concrete features themselves but also in terms of the abstract values that these features serve to realize.

The structure we are hypothesizing for dual character concepts should be contrasted with the structure to be found in two other classes of concepts. On one hand, it is quite different from the structure found in our control concepts. The concept BUS DRIVER is associated with certain concrete features (*driving, transporting passengers*, etc.), but these concrete features would not normally be seen as ways of realizing any more abstract value. The concept is

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