

Prototypes, Exemplars, and Theoretical & Applied Ethics

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Abstract Concepts are mental representations that are the constituents of thought. Edouard Machery claims that psychologists generally understand concepts to be bodies of knowledge or information carrying mental states stored in long term memory that are used in the higher cognitive competences such as in categorization judgments, induction, planning, and analogical reasoning. While most research in the concepts field generally have been on concrete concepts such as LION, APPLE, and CHAIR, this paper will examine abstract moral concepts and whether such concepts may have prototype and exemplar structure. After discussing the philosophical importance of this project and explaining the prototype and exemplar theories, criticisms will be made against philosophers, who without experimental support from the sciences of the mind, contend that moral concepts have prototype and/or exemplar structure. Next, I will scrutinize Mark Johnson's experimentally-based argument that moral concepts have prototype structure. Finally, I will show how our moral concepts may indeed have prototype and exemplar structure as well as explore the further ethical implications that may be reached by this particular moral concepts conclusion.

Keywords Concepts · Cognitive science · Moral psychology · Mental representations · Ethics · Thin/thick concepts

Concepts are mental representations that are the constituents of thought. Edouard Machery claims that psychologists generally understand concepts to be bodies of knowledge¹ or information carrying mental states stored in long term memory that are used in the higher cognitive competences such as in categorization judgments, induction, planning, and analogical reasoning [1, 2]. While most research in the concepts field generally have been on concrete concepts such as LION, APPLE, and CHAIR,² this paper will examine abstract moral concepts and whether such concepts may have prototype and exemplar structure. After discussing the philosophical importance of this project and explaining the prototype and exemplar theories, criticisms will be made against philosophers, who without experimental support from the sciences of the mind, contend that moral concepts have prototype and/or exemplar structure. Next, I will scrutinize Mark Johnson's experimentally-based argument that moral concepts have prototype structure. Finally, I will show how our moral concepts may indeed have prototype and exemplar structure as well as explore the further ethical implications that may be reached by this particular moral concepts conclusion.

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¹ By "knowledge," I do not mean true justified belief. Rather, throughout this paper I use it in the psychological sense of an information carrying mental state.

² Concepts will be capitalized while the categories and properties concepts may represent will be italicized.

Philosophical Importance

In the broadest possible terms, we may understand the philosophical import of this paper by examining it in light of Hume's *A Treatise of Human Nature: Being an Attempt to Introduce the Experimental Method of Reasoning Into Moral Subjects* [3]. Hume's *Treatise* is comprised of three books: "Of the Understanding," "Of the Passions," and "Of Morals." One may wonder how and why books on concepts, emotions, and ethics are put together and how and why they are related except perhaps loosely in that they all may be involved with human nature in some way. However, the subtitle of his *Treatise*, which mentions the introduction of the experimental method into the study of moral agents, provides an indication of a more coherent underlying theme that runs throughout his work and that provides a much stronger link between these three apparently loosely related books. If one reads the *Treatise*, one can see that in the first book, Hume lays out a theory of concepts or what he calls "ideas" that are the very building blocks of propositional knowledge claims. In the second book he provides an account of emotions. The final book may be read as one in which Hume combines his theory of concepts with his view on emotions to claim that moral concepts are grounded in the emotions. Thus, there is a clear coherence and underlying commonality to the three books of Hume's *Treatise*.

More recently, Jesse Prinz's three books are: *Furnishing the Mind*, *Gut Reactions*, and *The Emotional Construction of Morals* [4–6]. In his first book he offers a neo-empiricist theory of concepts or, in Lockean terms, he provides an account of how the mind is furnished. In his second book, Prinz expounds a theory of emotions, and in his third meta-ethics book, he coalesces his theory of concepts and emotions to posit a general Humean theory of moral concepts in which Prinz may be interpreted as claiming that all our moral concepts are constituted by sentiments and emotions.³

³ There may be a contradiction between Prinz's view of moral concept in *Furnishing the Mind* and *The Emotional Construction of Morals*. In the former book, he specifically claims that moral concepts are composed of exemplars and emotions, while in the latter work, he only argues that moral concepts are made up of emotions. While we do not have the space in this paper to further examine this apparent contradiction, for our purposes, we will take Prinz to adhere to his more mature view on moral concepts in *The Emotional Construction of Morals*.

Just as Hume and Prinz have the project of establishing a theory of moral concepts as an underlying theme in their three books, this paper is broadly philosophically interesting in that I likewise will be discussing what constitutes moral concepts by attempting to prove that our moral concepts may be made up of prototypes and exemplars. As concepts have sense and reference, this paper is one of meta-ethics as it is a work in moral semantics. As will be discussed and engaged later, philosophers such as Bernard Williams, John McDowell, Simon Blackburn, and Allan Gibbard also examine the constitution of moral concepts in the thick/thin moral concepts debate. The subject matter regarding the nature of moral concepts is a semantic meta-ethical issue in historical and contemporary moral philosophy. By using findings in cognitive science, we can shed light and draw certain conclusions on this issue. Now, while other conceptual structures in the concepts literature such as the theory-theory and emotions also may work for moral concepts, I have discussed such views elsewhere [7], and our focus here only will be on the prototype and exemplar views for moral concepts and whether both of these theories may be supported with the appropriate evidence.⁴

While the main import of this paper is to discuss the prototype and exemplar theories of moral concepts, this prototype and exemplar conclusion also can lead to further conclusions in ethical theory and applied ethics. As will be briefly discussed at the end of this paper, the establishment of the prototype and exemplar views lends evidence against the classical or definitionist view of moral concepts in which concepts are constituted by bodies of knowledge that represent the individually necessary and jointly sufficient features of members of a class. Philosophers such as Stephen Stich, Alvin Goldman, and Mark Johnson argue that the demise of the classical view provides evidence against certain normative ethical theories that presuppose that we can mentally represent moral categories with definitions. Goldman also contends that the end of definitionism has importance in applied ethics when analyzing concepts such as PERSONHOOD in the abortion debate; concepts which some assume to have components that

⁴ Moreover, for space concerns the pluralism/hybridism debate in the concepts literature will not be broached. We will only examine whether the prototype and exemplar theories are viable for moral concepts.

are about necessary and sufficient conditions. Finally, Goldman posits that the fact that our mental representations may have prototype structure rather than a classical one argues against Ayer's particular metaethical claim that because we have a hard time coming up with a definition for moral terms, we should all be emotivists. While these further ethical implications raised by Stich, Goldman, and Johnson in establishing the prototype and exemplar theories of concepts ring true, it will be shown that they have not adequately first proven that these given theories of concepts are viable.⁵ However, once I have shown these views to be viable, only then can we reap the rewards of these further ethical ramifications. Once again, while the main purpose of this paper is to establish the viability of the prototype and exemplar theories for moral concepts, only brief mention will be given to these further ethical implications in the final section of this paper.

The Prototype & Exemplar Theories

Directly inspired by Wittgenstein's notion of "family resemblance," the prototype view states that a concept is a prototype or a body of knowledge that is about a list of statistically frequent features that are a summary representation of the members of a category [8–13]. On this theory, the features that a prototype represents are not necessary and sufficient conditions. In some cases, features are weighted as more heavily important than others. Prototype theory is considered a similarity-based theory because when an object or act is similar enough to the list of features and passes a calculated similarity threshold, then the object falls within the target category. For example, under this view, the list of features one has in mind when representing the category *dog* may be *has hair*, *barks*, *plays fetch*, and *wags its tail*. *Barks* may be weighed more heavily than *wags its tail* when calculating for similarity. Since my pet animal satisfies *barks* and many of the other features but not necessarily all of them, it passes the similarity threshold and is categorized as a dog. Moreover, on the prototype and all other similarity-based views, those objects that hold a higher similarity score are thought by participants to be more

typical or better examples of a category. Due to this graded membership or typicality effects, for example, a golden retriever may be thought to be a more typical dog than a Chihuahua.

If prototype theory is viable for moral concepts, then the list of features an individual may have in mind when representing the category *right actions* may be: *being generous to others*, *helping the homeless is the right thing to do because it benefits those in need*; *prevent harm*; *obey laws*; and *friendliness*. The features that the prototype represents are not necessary and sufficient conditions. As we can see on this view, a list of features may include such things as general features of moral situations, virtues, reasons for action, and basic moral principles or rules that happen to occur or be extracted from many particular instances of situations that are categorized as right actions. For example, when a person points out to another an instance where a stranger is helping homeless people that such is a case of moral rightness, the reason or justification for action that "helping the homeless is the right thing to do because it benefits those in need," when understood as a mental representation, may now be a candidate to be a constituent of this listener's prototype of RIGHT ACTION based on further particular experiences.

Exemplar theory states that concepts are exemplars or bodies of knowledge that are about specific instances of a class [14–16]. Exemplar theory is also considered a similarity-based view because an object's similarity to particular instances of a class determines membership. However, the exemplars of a concept are not taken to be about necessary and sufficient conditions. For example, I may only have personal dog experiences with my Labrador, your German Shepherd, and my sister's Chihuahua. Based on the exemplar view, the mentally represented particular instances of these dogs constitute my concept of DOG. When I run across a Rottweiler, it passes the similarity threshold of my experienced particular instances since it is very similar to my Labrador and your German Shepherd, although it is not similar to my sister's Chihuahua. Thus, it is categorized as a dog. While also able to account for typicality effects, this view differs from the prototype theory in that exemplars are used in the similarity computation rather than a mentally represented list of statistically frequent features.

If moral concepts are exemplars, then particular instances of, for example, right actions for an individual

⁵ By "viable," I mean that a theory of concepts posits a structure that has been experimentally proven to be a possible structure of a concept for human beings at some point in their lives. As will be shown later, it is perfectly possible to have several viable theories of concepts.

may be a grouping of particular cases that one has experienced or heard about that are right acts. For instance, one's exemplars for RIGHT ACTION may be WORKING IN THAT SOUP KITCHEN LAST THANKSGIVING and MY UNCLE, THE FIREMAN, RUSHING INTO THE TWIN TOWERS ON 9/11. A second possibility if exemplar theory for moral concepts is viable is that one's concept of MORALLY RIGHT PERSON may be constituted by exemplars that are about individuals who are moral exemplars. In other words, one's moral concept is composed of bodies of knowledge that are representations of particular individual persons who one takes to be exemplary models of ethical human beings. For example, one's concept MORALLY RIGHT PERSON may be composed of MY MOTHER, MY BROTHER, and MOTHER THERESA.

The prototype and exemplar theories are two important views in the concrete concepts literature with ample empirical evidence supporting both of them. Now, a few philosophers have adopted the prototype theory as a viable view for moral concepts. For instance, Paul Churchland, in *A Neurocomputational Perspective*, can be read as providing an account of moral concept acquisition by positing the existence of moral prototypes [17]. Churchland argues that learning about morality is more about learning *how* rather than a matter of learning *that*. In other words, moral concept acquisition is about learning how to recognize various complex situations and how to appropriately respond to them by way of an at times long and painful process of social learning rather than by applying abstract moral principles.⁶ On this view, certain moral situations will activate prototypes given the situation's similarity to one's general features of previous experiences and training in other moral situations. Through social experience and further development, a child's moral prototype and practical wisdom can change and expand by being impacted by factors such as how society expects them to react to certain situations. Furthermore, many philosophers have claimed that moral concepts have prototype and exemplar structure. For example, Alvin Goldman, Stephen Stich, David Wong, and Andy Clark can be

read as having made such claims [18–21]. For example, Wong in his meta-ethics book *Natural Moralities* states, “On many cases of [moral] classification, we might call up a prototype if the current situation seems typical, but in novel or borderline cases, we might call up from memory the closest exemplar and try to determine whether there is a close enough match [20].”

However, the problem with the above thinkers is that none have provided experimental evidence in support of their claims. James Hampton, in a unique study, ran tests on eight different abstract concepts, such as BELIEF, SCIENCE, and CRIME, in order to determine whether they had prototype structure similar to the successful results of finding prototype structure in concrete concepts [13]. In Hampton's study, the results were a mixed bag where some abstract concepts did show prototype structure, but others did not. For example, SCIENCE and CRIME showed prototype structure while abstract concepts such as A BELIEF and AN INSTINCT, that may intuitively be thought to have prototype structure, as a matter of fact do not have such structure. Thus, the upshot from Hampton's experiments is that we cannot safely presuppose that abstract concepts will have the same theoretical concept structure and cognitive processing as those for concrete concepts. As a matter of caution, we cannot draw conclusions about moral concepts solely based on the findings of concrete concepts. Therefore, further work is required in order to ascertain the structure of moral concepts. As a matter of prudence, Hampton's study indicates that one cannot blindly and dangerously draw constitution claims on abstract moral concepts with only concrete concepts data and without direct or indirect⁷ experimental support from the sciences of the mind that are specifically on

⁶ While Churchland believes that moral concepts may be composed of the general features of moral situations rather than moral principles, my characterization of the prototype theory for moral concepts allows for both in that it is a very realistic possibility that empirical evidence may show that some of our moral concepts for some people are composed of moral principles.

⁷ An indirect method of using experimental support will be shown in proving the viability of the exemplar theory for moral concepts. In an interesting case, Horgan and Timmons imply that the use of particular cases of moral actions may influence moral categorization. They do so not by using explicit concepts studies but by relying on indirect evidence from cognitive science in light of attempting to solve the frame problem in the ethical and non-ethical domains. While they fail to see that this may lead to the viability of the exemplar theory (as I conceive of this concepts view), I make the unequivocal claim that the exemplar theory is viable for moral concepts in “[The Prototype-Exemplar Chain Argument](#)”. As I mention in footnote 8, many individuals fail to see the possibility of making moral concepts claims even though the ability to do so is presented to them right before their very eyes. Terry Horgan and Mark Timmons, “What Does the Frame Problem Tell us About Moral Normativity,” *Ethical Theory and Moral Practice*, vol. 12: (2009), 25–51.

moral concepts. While the enthusiasm of applying the prototype and exemplar theory to moral concepts is duly noted, none of the above philosophers support the fact that moral concepts have prototype and exemplar structure with the appropriate evidence.

Mark Johnson, Prototype Structure, & Thick Concepts

While most experimental work on prototype theory has generally focused on concrete concepts, there are a handful of studies on certain concepts that do not appear to be straightforwardly moral concepts but may be somehow related to moral concepts. For example, Linda Coleman and Paul Kay have run a study that illustrates prototype structure for the concept LIE [22]. The issue with LIE is that it appears to be a concept that has components that are in some way or another merely about descriptive acts. Therefore, LIE may not itself be a normative concept. There does not appear to be any explicit rightness or wrongness associated with the concept LIE, as opposed to if LIE is a constituent in the judgment, ONE OUGHT NOT LIE, where this entire thought itself is about a normative principle. It will be important to keep this potential problem in mind while we examine Coleman and Kay's studies. Now, this initial test is replicated and supported by two further experiments on the concept by Eve Sweetser on the one hand and Abigail Strichartz and Roger Burton on the other [23, 24]. In the Coleman and Kay experiment, they ran a study to see if the following features that are represented by the constituent components of LIE are defining necessary and sufficient conditions or whether they are a summary representation of features for folk in determining when a particular act is a lie:

- 1) P is false.
- 2) S believes P to be false.
- 3) In uttering P, S intends to deceive A [22].

Thus, in essence, they tested for falsehood, deliberate falsehood, and intent to deceive. They provided participants with a host of situations that contained eight various combinations of the three given features; features that may be present or absent in the various combinations, where subjects were asked to circle whether the situation is a lie, is not a

lie, or unknown. They were also questioned on the typicality of each situation as an instance of lying or not lying. Coleman and Kay found that the more of the three features of lying that a situation contained, the more typical or better instance of a lie the situation is deemed to be. Moreover, they discovered weighted features, where 2) is the most heavily weighted and 3) is next in importance. Strichartz and Burton, who were able to successfully replicate this study, also discovered that the weight placed on each of the features differs based on age or maturity [24]. Also, situations that contained any variation of two of the features tended to have a mean score where such situations are still considered as lies. Typicality effects, weighted features, and the fact that the three given features are not held to be necessary and sufficient conditions for determining category membership leads to the conclusion that LIE has prototype structure.

Another study in which the concept in question may or may not be a moral concept is Hampton's aforementioned study on abstract concepts that examined the concept CRIME. This too, like LIE, initially appears to have components that are only about a descriptive kind of act. He was able to produce typicality effects and reach the conclusion that CRIME has prototype structure. By way of a feature listing task where participants list what features they think belong to a category, he was able to discover that participants associated features such as *an act*, *adverse effect on victim*, and *is done deliberately* with the abstract category *crime*, where such features have different weights and account for typicality effects. Furthermore, such features are not necessary and sufficient conditions for determining category membership based on the fact that some situations are deemed to be crimes, but they do not satisfy all of the perceived features of crime.

The question now is whether the perceivably descriptive prototype concepts LIE and CRIME are in fact normative moral concepts that have prototype structure. For, if they are, then this shows that in some cases prototype theory is a viable theory of moral concepts. Mark Johnson argues that specifically LIE is in fact a moral concept that has prototype structure [25]. He makes this claim based on Sweetser's insight that the prototype structure of LIE is dependent on one's background knowledge or what George Lakoff calls an idealized cognitive model [26]. As Lakoff

contends, “category structures and prototype effects are by-products of that [idealized cognitive models] organization [26].” Idealized cognitive models are structural organizations of our background knowledge, where such models are themselves exercised in the higher cognitive competences. They are similar to a complex version of the theory-theory of concepts in that they associate general background knowledge and beliefs with a concept. Idealized cognitive models or organized abstracted background beliefs and information we have acquired through our experience with the world becomes selected during cognition based on the context or situation we find ourselves in. Such knowledge may be in the form of imaginative structures that help us make order and sense out of the world by aiding us in such things as categorization and concept combination. Moreover, such knowledge provides a way for us to evaluate certain circumstances and judgments based on our previous social experiences. Lakoff claims that idealized cognitive models underwrite the prototype structure of concepts. In this sense, it appears that the idealized cognitive model and prototype theory are necessarily fused or bound together.

Johnson claims that LIE is dependent on the idealized cognitive model of “ordinary communication.” Thus, such a cognitive model provides the requisite background information when we converse with others, such that we have the proper expectations that in normal conversations we may assume such things as that the truth will normally be told. This cognitive model may account for the fact that communication is even possible among human beings given that we do not always have to worry that any and every person we talk to could very well be lying to us. Thus, we have:

The Idealized Cognitive Model of “Ordinary Communication”

- (1) People intend to help rather than harm one another.
- (2) Truthful information is helpful.
- (3) The speaker intends to help the hearer by sharing information.
- (4) A Speaker who knowingly communicates false information intends to harm the hearer [26].

Since the cognitive model of “ordinary communication” accounts for the background beliefs (1)–(4)

that most people have with respects to *lie* and the prototype effects for LIE is grounded in this cognitive model as well, Johnson claims that LIE is a moral normative concept.

[W]e need only remind ourselves why lying is usually considered to be a bad thing to do. The answer is that lying is typically *harmful* to others. But notice that the relevant notion of harm is partially specified by the idealized cognitive model of ORDINARY COMMUNICATION. A notion of helping and harming is *built into* that model. Therefore, to the extent that our determination of what counts as a lie in a particular situation depends on the idealized cognitive model of ORDINARY COMMUNICATION, our understanding of *lie* is inextricably tied up with an evaluative notion of help and harm [25].

Johnson may be on the right track here in that he appears to want to bring in the notion of the moral wrongness of harming others as part of “ordinary communication.” Insofar as there is some connection between the prototype of LIE and the idealized cognitive model, LIE may then be considered to be a normative moral concept that has prototype structure. However, the first problem is that if we closely examine the four beliefs in the idealized cognitive model for “ordinary communication,” we still do not see anything explicitly normative. The concepts HELPING and HARMING, by themselves, may be thought of as merely referring to a descriptive class of acts that have to do with alleviating or instigating physical or psychological harm from or to another human being, respectively. Therefore, since there is no explicit notion of moral wrongness in (1)–(4), it still may not be the case that LIE is a moral concept.

Second, and what is even more problematic, is that since the idealized cognitive model is claimed to be one of the fundamental structures of the abstract concept LIE in virtue of which Johnson takes LIE to be a moral concept, no experimental evidence is given to indicate that LIE has such a structure. Idealized cognitive models such as “ordinary communication” are purported structural aspects of LIE, but no empirical data on this potential moral concept has been collected to warrant this assertion. Rather, such a conclusion is blindly given based on concrete concept studies and speculation, which Hampton’s study on

abstract concepts shows is a dangerous game to play. Without the proper evidence for the idealized cognitive model “ordinary communication,” Johnson cannot potentially claim that LIE is a moral concept. Therefore, Johnson’s argument for the prototype theory for moral concepts has not been supported with the proper experimental data to warrant its conclusion.

The question still remains as to whether LIE may be shown to be a moral concept with prototype structure. While there may be various ways to show that our moral concepts may have prototype structure,⁸ for our purposes here, we specifically will attempt to do this by bringing in the aid of Bernard Williams and his discussion of thin and thick moral concepts; a view which is influenced by John McDowell [27, 28]. Williams argues that there are thin moral concepts which appear to be purely normative such as RIGHT, GOOD, BAD, and OUGHT. On the other hand, there exist thick concepts that have both a normative and descriptive component to them; components that are not separable and are culturally formed. Williams does explicitly list LIE as a thick concept among others such as PROMISE, BRUTALITY, COURAGE, and GRATITUDE [27]. For example, LIE has a descriptive or factual component in that such a component is typically about a particular kind of verbal act of deception and members of a particular community that have this concept can point out when an instance of lying has occurred. However, it also has a normative or value component that is about “oughtness” which provides

reasons for action that generally one ought not to lie. It is contended that these features the two components represent are necessarily intertwined and inseparable in that they are represented by the components of culturally-conditioned concepts, where, as McDowell argues, an outside observer of a community cannot fully pick up and understand the features represented by the descriptive component of a community’s thick moral concepts without also imaginatively grasping the features represented by the normative evaluative component of the concept. What we can see here is that even though *lie* first appears to have features pertaining to descriptive acts, it generally is thought to have a negative normative feature attached to it in the United States, where there is an initial defeasible presumption that acts of lying are wrong. Something similar to this may be at work for *promise* as well, albeit in a positive normative sense. It is this normative aspect that is represented by the components of LIE that allows LIE to be a proper thick moral concept.

Given that it has been determined that LIE has a prototype structure and that it may be a thick moral concept where members of a community that acquire the concept understand it to have components that are about descriptive and normative features, we should expect that experimentally, at least one of the components of the prototype for LIE will be about a moral normative feature. However, the three prototype studies for LIE are not feature listing tasks where participants list what features they believe belong to the category a concept represents. Rather, the possible features for the class are already preconceived by the experimenters and given to the participants with no room for expansion. The predetermined features for *lie* are not explicitly normative features. Thus, we cannot know for certain whether participants attributed a normative moral feature to the class. However, Hampton’s feature listing task study for *crime*, which was run in the U.S., did show that the corresponding concept had prototype structure in which one of the features for *crime* frequently listed by participants is morally normative: *breaks the moral and social code*. This feature implies that crimes are morally wrong and ought not to be committed. Therefore, since CRIME is now shown to be a thick moral concept, Williams’ contention for dual components to thick concepts is to a certain extent empirically vindicated. This prototype study validates this particular structur-

⁸ While I will attempt to demonstrate in this section that some of our moral concepts have prototype structure, I do not claim that this particular method of argumentation exhausts the possible means for showing that the prototype view is viable. Elsewhere I have shown that the causal judgment literature in moral psychology, where philosophers and psychologists attempt to determine whether reasoning or the emotions influence our moral judgments, may be used to draw constitution claims for moral concepts. Insofar as concepts are functionally defined as playing a causal role in moral categorization, concepts are constituted by whatever structure realizes the causal role. Thus, evidence that principles, reasons for action, or virtues influence our moral judgments leads to a prototype conclusion for moral concepts such as MORALLY RIGHT and MORALLY WRONG. While I believe there is a rich untapped data set for a variety of moral concepts in the causal judgment literature, I leave this means for drawing prototype constitution claims for another time. John Park, “Theories of Concepts & Moral Truth,” *Truth Matters*, ed. by Lambert Zuidervart, *forthcoming*.

al aspect of Williams' theory of thick moral concepts. Given that CRIME is a thick culturally-formed moral concept with a component that represents a moral normative feature and that it has prototype structure, we may conclude that some moral concepts have prototype structure, although it has not been empirically proven nor need it be proven for our purposes that the dual components are inextricably linked. All that needs to be shown is that there is a normative component to CRIME which then qualifies it as a thick moral concept in the U.S. and most likely in other cultures as well that view crimes in a negative normative light. Nothing need be said here about whether the normative component is in principle separable from the descriptive component. To note, the relevant component that is about a normative feature is a prototype component of the concept and is not a component of an idealized cognitive model that underwrites prototype structure. Furthermore, a predictive inference may be drawn that if a feature listing task for *lie* is actually conducted, a statistically frequent moral normative feature will most likely be given by subjects since it is the case that such a feature has been discovered to exist for *crime*. Based on experimental data, we may now infer that it is likely the case that other thick concepts such as PROMISE, BRUTALITY, COURAGE, LIE, TRUST, and JUSTICE have prototype structure. Thus, the prototype theory is a viable theory for many moral concepts.

Two more points need to be discussed and clarified. First, the given conclusion that the prototype theory is a viable theory of moral concepts has the proper experimental support. By using experimental data on certain specific abstract thick concepts that initially appear to refer to only a descriptive class of acts along with the application of a philosophical argument regarding such concepts, we have discovered that some moral concepts have prototype structure. Second, whether or not the descriptive and normative features one has in mind when representing a thick category are inextricably linked is a contentious matter in ethics with Allan Gibbard and Simon Blackburn standing in opposition to this claim [29, 30]. For example, Gibbard uses the example where in the Old American South, whites called those blacks who did not strongly abase themselves before whites "uppity." In this circumstance, UPPITY is a thick moral concept that has a descriptive component that is

about blacks not acting subserviently towards whites, but, in this context, it supposedly also has a normative component that is about whites having reason to take offense and act repressively against assertive blacks. Gibbard claims that the features represented by these two components to UPPITY may be in principle separated where it is possible for an outside observer of the Old American South to determine when a black person is acting uppity without being normatively governed to take offense. Gibbard writes, "A thick judgment naturally represents a state of affairs, true enough, but we can understand what it would be for the judgment naturally to represent that same state of affairs and be non-normative [29]." Taken in a hard-line way that goes beyond Gibbard's intention, if we assume that Gibbard and Blackburn are right that the normative component may be extracted from the thick concept, this may create a problem for the contention that potentially thick concepts are normative concepts with prototype structure in that thick culturally-formed concepts may not be thought to normally have a component that is about a normative feature [29]. If in principle the normative component may be disentangled from a thick concept, it may be the case that most people do not consider their own thick culturally-formed concepts to have a component that is about a normative feature and thus, such concepts are not moral. Therefore, since this may be the case, we cannot with confidence claim that such concepts are moral ones. Since here we are assuming the Gibbard/Blackburn disentanglement thesis to be correct and the normative component can be extracted from the concept, this potential objection is a possibility, albeit a radical one. On the other hand, for instance, if we were to assume the Williams/McDowell thesis to be right, then this is not a possibility since the descriptive and normative components are always entangled. The Gibbard/Blackburn disentanglement thesis allows for the possibility that CRIME is not a moral concept because it may be the case that it does not usually have a normative component. To note, Gibbard does not claim that most people do not take thick concepts to have a normative component. Rather, he merely states that in principle, we may extract the normative features out of thick categories, not that we always do so. He actually states that thick concepts are moral concepts: "Thick judgments, let me agree, are normative...[29]" Thus, this objection I am anticipating is taking

Gibbard's position in a hard-line way; an objection that Gibbard will not adopt himself.

However, in response to the present anticipated objection, notice that the conclusion that CRIME has a component that is about a normative feature is in part brought about by way of experimental evidence from a prototype feature listing task and need not be solely reliant on Williams and McDowell's arguments that the normative and descriptive features to thick categories are necessarily tied together. The prototype experimental data is consistent with their claim that it is thought that there are normative and descriptive features to thick moral categories, and this is all we need for the argument at hand. Insofar as the issue is to whether the folk generally take their thick culturally-formed moral concepts to have a component that is about a normative feature, such a conclusion is to an extent experimentally confirmed from Hampton's study, and thus, concepts such as CRIME are indeed moral concepts in given cultures, and we may then claim that at least some moral concepts have prototype structure.

The Prototype-Exemplar Chain Argument

There are no psychology studies explicitly showing exemplar structure for moral concepts. Thus, initially it appears that there is doubt as to whether it may be shown that exemplar theory is a viable theory of moral concepts with some foundation in experimental evidence specifically on moral concepts. Nevertheless, it may still be shown that exemplar theory is a viable theory of moral concepts without exemplar studies. In order to accomplish this feat, we will need to introduce a style of argument in the concepts literature that I call *chain arguments*. Chain arguments are claims that if one structure of concepts is already established, then based on this fact, a different concept structure may be established. It is called a chain argument because the established concept structure is linked or chained to another concept structure such that this other concept structure represents a viable theory of concepts with the already established concept structure based on the viable existence of the first established concept structure. The argument at hand is the *prototype-exemplar chain argument*.

This argument begins by acknowledging that as previously stated, a prototype is an abstracted *summary*

representation of features for a category, and it has been shown in the previous section that through empirical tests and philosophical reasoning, some moral concepts do have prototype structure. However, given that a prototype is a summary representation of features, it takes several experiences with instances of moral or immoral actions, cases, or encounters with virtuous or non-virtuous agents to arrive upon a summary representation of, for example, CRIME. Thus, there is a point in early childhood where we do not have enough experiences to form a summary representation. If we do not have a prototype for CRIME yet in early childhood but we will at a later point, then at this earlier time, we must be relying on representations of specific acts or, in other words, conceptual *exemplars* for filling out the concept of CRIME. In this fashion, we can see that there is a chain linking prototype theory to exemplar theory because if some moral concepts have prototype structure, then it is the case that at some earlier stage, moral concepts have exemplar structure.⁹ Thus, prototype theory, by way of concept acquisition, has built into the theory the existence of exemplar structure at some earlier time.¹⁰ In this somewhat indirect fashion, we can show that individuals may have exemplar structured moral concepts based in part on experimental prototype studies of moral concepts. This exemplar theory conclusion is not given blindly without the relevant studies on moral concepts. Experimental data on moral prototype concepts combined with philosophical reasoning justifies the conclusion that our moral concepts may have exemplar structure with the requisite relevant empirical data.

Further Ethical Implications

Up to this point, I have shown that philosophers such as Stich, Goldman, and Johnson do not prove

⁹ This point that prototype theory acknowledges the viability of the exemplar view has been anticipated by the likes of Murphy and Wong. Gregory L. Murphy, *The Big Book of Concepts*, (Cambridge, MA: The MIT Press), 2002.[20].

¹⁰ It is also noteworthy to mention that when one has had enough experiences with exemplars to form a summary representation, it is highly unlikely that one's exemplars of a moral category will simply disappear. While there may be a debatable issue in regards to our memory capacity for retaining exemplars, when a prototype is formed, it is also the case that we will still have exemplars as well.

the viability of the prototype and/or exemplar theories for moral concepts. These above listed philosophers in particular reach further ethical conclusions based upon their possible concepts conclusions. Nevertheless, since they have not established their conclusions for moral concepts, they cannot validate these further ethical ramifications. However, now that we have shown such theories to be viable, we now may actually demonstrate that these further ethical implications hold. In what follow, I only briefly mention these further ramifications not only for space concerns and because the main purpose of this paper is to establish the viability of the prototype and exemplar theories, but also due to the fact that what is stated here has already been said before by the authors in question (although they have not proven it).

As is well known in the concepts literature, in that prototype and exemplar theories predict that there are typicality effects, where some members are viewed as more typical members of a category over other members, these theories may provide evidence against the classical view. The classical view, as a theory, predicts that there will be no typicality effects because so long as a potential member satisfies the necessary and sufficient conditions, each member should be regarded equally amongst its other members. However, the mere fact that there are indeed typicality effects indicates that the prototype and exemplar views rather than the classical are viable based on the factor of predictive success. This detail coupled with the fact that there is no positive experimental support for definitionism but there are for the prototype and exemplar theories, in which the relevant features are not necessary and sufficient conditions, leads to the serious question of whether definitionist moral concepts are even psychologically real.

Given this argument we can now put forth against the classical view, we then may discuss the further ethical implications mentioned by Stich, Goldman, and Johnson [18, 19, 25]. These three philosophers argue against normative ethical theories that require us to have mental representations with definitional structure. If an ethical theory claims that terms such as “justice” have necessary and sufficient conditions and that competent speakers of a language may arrive upon implicit knowledge of such a definition through conceptual analysis, such a theory is fundamentally

wrong in that our very concept JUSTICE does not have definitional structure. Ethical theories need to take into account the findings in cognitive science in order to construct a view that is at least psychologically plausible. While it is a question whether many contemporary moral philosophers are immune from this criticism in that the likes of Richard Boyd and John Rawls do not posit necessary and sufficient conditions in their normative theories [31, 32], Stich and Goldman point out that Plato is guilty of this crime. Moreover, Johnson accuses the modern day Kantian Alan Donagan of positing necessary and sufficient conditions for moral terms in his ethical theory [33].

Another implications is that our thick moral concepts such as PERSONHOOD do not have definitional structure, but in applied ethics, some debates such as those regarding abortion and embryonic stem cell research, appear to proceed as if they do [18]. Goldman argues that some debates in applied ethics rely on whether a fetus or embryo is a person or not. He states that often philosophers attempt to resolve these disputes by trying to find the necessary and sufficient conditions for being a person. However, the problem is that we do not mentally represent personhood in terms of a definition, and such a definitions will not be forthcoming. Goldman suggests that while this in no way impugns the relevant debates in their entirety, some moral philosophers must alter their theoretical reflections on these issues.

Finally, Goldman notes that Ayer in part argues for emotivism and for the view that moral judgments are the expression of our emotions by relying on the fact that we are unsuccessful at arriving upon a definition of our moral terms [34]. Ayer claims that since moral philosophers have great difficulty in providing a definition for moral terms, descriptivism in ethics should be replaced by emotivism. However, given that our moral concepts do not have classical structure, it should come as no surprise that it is hard to come up with a definition for moral terms. Moreover, given the viability of the prototype and exemplar theories for moral concepts, our concepts may still have descriptive content, although not a definitional descriptive content. In this manner, we can see that it does not immediately follow that descriptivism is false and emotivism is true just because our moral concepts do not have classical structure.

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References

1. Machery, E. 2005. Concepts are not a natural kind. *Philosophy of Science* 72: 444–467.
2. Machery, E. 2009. *Doing without concepts*. Oxford: Oxford University Press.
3. Hume, D. 2000. In *A treatise of human nature*, ed. D. Norton and M. Norton. Oxford: Oxford University Press.
4. Prinz, J. 2008. *The emotional construction of morals*. Oxford: Oxford University Press.
5. Prinz, J. 2002. *Furnishing the mind*. Cambridge: The MIT Press.
6. Prinz, J. 2004. *Gut reactions*. Oxford: Oxford University Press.
7. Forthcoming. “Theories of concepts & moral truth.” *Truth matters*, ed. Lambert Zuidervaat.
8. Rosch, E. 1975. Cognitive representations of semantic categories. *Journal of Experimental Psychology: General* 104: 192–233.
9. Rosch, E. 1973. Natural categories. *Cognitive Psychology* 4: 328–350.
10. Rosch, E. 1978. Principles of categorization. In *Cognition and categorization*, ed. E. Rosch and B. Lloyd. Philadelphia: Lawrence Erlbaum Associates, Inc.
11. Rosch, E., and C. Mervis. 1975. Family resemblances: studies in the internal structure of categories. *Cognitive Psychology* 7: 573–605.
12. Smith, E., E. Shoben, and L. Rips. 1974. Structure and process in semantic memory: a featural model for semantic decisions. *Psychological Review* 81: 214–241.
13. Hampton, James A. 1981. “An investigation of the nature of abstract concepts.” *Memory and Cognition* 9 (2).
14. Medin, D., and M. Schaffer. 1978. A context theory of classification learning. *Psychological Review* 85: 207–238.
15. Medin, D., and P. Schwanenflugel. 1981. Linear separability in classification learning. *Journal of Experimental Psychology: Human Learning and Memory* 7: 355–368.
16. Brooks, L. 1978. Nonanalytic concept formation and memory for instances. In *Cognition and categorization*, ed. E. Rosch and B.B. Lloyd. Hillsdale: Lawrence Erlbaum.
17. Churchland, P. 1989. *A neurocomputational perspective*. Cambridge: The MIT Press.
18. Goldman, A. 1993. Ethics and cognitive science. *Ethics* 103: 337–360.
19. Stich, S. 1993. Moral philosophy and mental representation. In *The origin of value*, ed. M. Hechter, L. Nadel, and R. Michod, 215–228. New York: Aldine de Gruyter.
20. Wong, D.B. 2006. *Natural moralities*. Oxford: Oxford University Press.
21. Clark, A. 1996. Connectionism, moral cognition, and collaborative problem solving. In *Mind and morals*, ed. L. May, M. Friedman, and A. Clark. Cambridge: The MIT Press.
22. Coleman, L., and P. Kay. 1981. Prototype semantics: the english word lie. *Language* 57(1): 26–44.
23. Sweetser, E. 1989. The definition of lie: an examination of the folk models underlying a semantic prototype. In *Cultural models in language and thought*, ed. D. Holland and N. Quinn, 43–66. Cambridge: Cambridge University Press.
24. Strichartz, A., and Roger Burton. 1990. Lies and truth: a study of the development of the concept. *Child Development* 61(1): 211–20.
25. Johnson, M. 1993. *Moral imagination*. Chicago: The University of Chicago Press.
26. Lakoff, G. 1987. *Women, fire, and dangerous things*. Chicago: The Chicago University Press.
27. Williams, B. 1985. *Ethics and the limits of philosophy*. Cambridge: Harvard University Press.
28. McDowell, John. 1978. “Are moral requirements hypothetical imperatives?” *Proceedings of the Aristotelian Society*, suppl. Vol. 52.
29. Gibbard, A. 1991. *Wise choices, apt feelings*. Oxford: Clarendon.
30. Blackburn, S. 1998. *Ruling passions*. Oxford: Oxford University Press.
31. Boyd, R. 1988. How to be a moral realist. In *Essays on moral realism*, ed. G. Sayre-McCord, 181–228. Ithaca: Cornell University Press.
32. Rawls, J. 1971. *A theory of justice*. Cambridge: Harvard University Press.
33. Donagan, A. 1979. *The theory of morality*. Chicago: University of Chicago Press.
34. Ayer, A.J. 1936. *Language, truth and logic*. London: Gollancz.