

## 21 Logical Concepts and Associative Characterizations

Elisabeth Camp

### 21.1 Introduction

Recent theorizing about concepts has been dominated by two broad models: crudely speaking, a philosophical one on which concepts are rule-governed atoms, and a psychological one on which they are associative networks.<sup>1</sup> The debate between these two models has often been framed in terms of competing answers to the question of “cognitive architecture” or “the nature of thought.” I argue that this is a false dichotomy, because thought operates in both these ways. Human thought utilizes word-like representational structures that function as stable, arbitrary, recombinable bits. This supports a version of the language of thought hypothesis—though a significantly more modest one than its advocates typically assume. But human thought also employs representational structures that are contextually malleable, intuitive, and holistic, which I call *characterizations*. *Dual systems* models of cognition (e.g., Sloman 1996; Evans 2008; Evans and Frankish 2009) recognize this multiplicity of mental processes but posit largely separate structures, and emphasize conflicts between them. By contrast, I argue that the two forms of representation are more closely integrated, and more symbiotic, than talk of duality suggests.

### 21.2 Logic and Systematicity: Concepts as Words

The starting point for much philosophical theorizing about concepts is that conceptual thought is *systematic*. That is, either as an a priori or an empirical matter, the ability to think one thought, *a is F*, is intertwined with the ability to think a host of other, related thoughts, *b is F, c is F, d is F ...; a is G, a is H, a is I. ...* Systematicity is generally

1. This description is crude both because it neglects important variations among views within each model, and because it ignores psychologists who adopt the word-like model (e.g., Bloom 2002; Carey 2011; Pinker 1994) as well as philosophers who adopt a more associationist or at least holistic one (e.g., Prinz 2004; Davidson 1973, 1975).

taken to be fundamental for several reasons. Most importantly, it produces cognitive *flexibility*: the ability to track objects and properties across a wide range of situations. It also underwrites *productivity*: acquiring one new concept brings with it the capacity to think a wide range of other thoughts. Finally, the structural similarities and differences among these various thoughts also entail certain inferential relations among them: for instance, because the thoughts that *a is F* and *b is F* share a common concept, *F*, when combined with the thought that *a is not b*,<sup>2</sup> they entail the thought that *at least two things are F*. Thus, systematicity supports the ability to *reason*.

Many philosophers believe that if conceptual thought is systematic in these ways, it must also be fundamentally linguistic. Systematic representational abilities, the argument goes, must be implemented by a systematic mechanism, which in turn requires a vehicle with a compositional format. And this, it is claimed, is tantamount to accepting a language of thought. Jerry Fodor is most closely associated with this view (e.g. Fodor 1987; Fodor and Pylyshyn 1988); but Georges Rey (1995), Martin Davies (1991), José Bermudez (2003), and Michael Devitt (2005) are among the many others who have endorsed and developed arguments along these lines.<sup>3</sup>

I agree that conceptual thought does—indeed must—involve a significant degree of systematicity; but I reject the inference that it must therefore be linguistic in any interesting sense. One major weakness of the language of thought hypothesis has been lack of specificity about exactly what systematicity is, and why it is so important for conceptual thought. A second weakness has been lack of specificity about exactly what language is, and so about what it means to claim that thought is *language-like*. In this section, I address both shortcomings by unpacking three major features that are closely tied to systematicity: semantic arbitrariness, combinatorial neutrality, and digitality. In each case, I argue that language (either natural or formal) constitutes a paradigmatic instance of the relevant feature, but also that the feature comes in degrees and is manifested in formats that are clearly nonlinguistic. Thus, to insist that conceptual thought must be language-like either begs the question under discussion or trivializes the notion of language. The upshot is that there are indeed good reasons to hold that a significant portion of human thought is importantly language-like, because it deploys arbitrary

2. Or at least with a de jure non-co-indexing of *a* and *b*.
3. A second philosophical tradition is more skeptical about the idea that thought requires a stable representational vehicle, but still ties thought tightly to language. Here the claim is that genuine thought, as opposed to mere stimulus response, requires the capacity for higher-order reflection, especially on one's epistemic credentials; and it is further assumed that only language enables such reflection. This position is most strongly associated with Davidson (1982), but versions of it have been articulated by Peacocke (1992), McDowell (1994), Dummett (1994), and Bermudez (2003). I have argued (2009b) against this that the crucial differentiation from stimulus response can be satisfied in a more minimal manner, as long as the thinker's representational capacities are capable of being exercised in a wide variety of circumstances.

recombinable representational bits. But this conclusion follows not from inherent features of thought or concepts per se, but rather from the fact that some human thought happens to exhibit these three features to an exceptionally high degree.

If we step back to consider what concepts are for—their most fundamental job—perhaps the most basic thing we can say is that concepts bring together multiple instances as belonging to the same kind, either by ascribing a common property to multiple objects or by re-identifying a single object as it gains and loses properties. This already constitutes a weak species of systematicity, insofar as a concept treats all of its instances as the same. It also means that concepts are inherently *abstract*, in at least three respects. First, they are not essentially tied to any one instance: they apply in the same way and with the same results to multiple instances. Second, concepts are not essentially tied to any particular attitude: conceptual thought enables thinkers to enter into multiple mental states—say, to wonder whether *a* is *F*, to fear or desire that *a* be *F*, and eventually to believe that *a* is, or is not, *F*—with the represented content remaining constant across those attitudinal changes. Finally, concepts are arguably abstract, not just in terms of what they represent and what attitude the thinker takes, but of when the thinker deploys them. That is, conceptual thought goes beyond mere differential response in that a concept can be exercised in a variety of cognitive contexts, independent of any particular triggering stimulus. In this sense conceptual thought is importantly *active* or under the thinker's control (Camp 2009b).

So far, I have merely argued that an extremely minimal interpretation of systematicity, which follows from concepts' most basic function, entails that concepts are abstract in being essentially independent of both represented and representing contexts. But for concepts to be context-independent in this sense, they must also be cross-contextually stable: the same concept must be able to be *redeployed* on different occasions and in different applications with a common representational import. Cross-contextual stability is an important feature of systematicity in its own right, and one might simply want to stop there. However, it has seemed to many philosophers and psychologists that a capacity for stable cross-contextual redeployment in turn requires that concepts be construed, not merely as representational abilities, but as items in a representational vehicle: as entities with ultimately physical (e.g., neural) properties, albeit individuated in functional terms. This inference from abilities to vehicles is controversial; Gareth Evans (1982, 100), for one, resisted it, and as an abductive ("how else?") argument, it is vulnerable to alternative explanations and accusations of imaginative failure. I take such worries seriously. But supposing one does accept a need for representational vehicles, then the above criteria of abstractness and redeployability together imply that the relation in virtue of which instances of a particular vehicular type, *C*, represent a particular object or property type, *F*, must be at least somewhat *arbitrary*. That is, the various instances of *C* must have some stable formal property in virtue of which they count as tokens of *C*; but this property

cannot simply be that of replicating the appearance of *F*, because there is in general no constant appearance for the content of *being F* to have across all the contexts in which it can occur and be represented.

The paradigmatic case of an arbitrary principle mapping representational vehicle to content is the conventional linguistic connection between word and object. However, semantic arbitrariness is a matter of degree, and can be achieved in a variety of ways. In particular, a range of nonpictorial systems, like maps and diagrams, employ semantic principles which are partially resemblance-based but also significantly formalized: thus, city maps often employ iconic elements, such as a cross for a church or a picnic table for a park. (And indeed, there are pictographic written languages.) These icons are partially perceptual, insofar as *Cs* represent *Fs* because they look (sound, etc.) like them in important respects. But they are also formalized or stylized first because only some of *C*'s physical properties are semantically significant, and second because those properties of *C* that are significant do not reflect the full determinacy of the corresponding properties as instantiated by particular *Fs*.

To the extent that a representational system does employ an arbitrary semantic principle, it can achieve at least two key representational advantages. First, arbitrary semantic principles permit flexible implementation: any type of token can be deployed as a symbol, subject only to constraints like ease of production and discrimination. Second, they permit *topic neutrality*: any sort of content can be the value of a symbol. By contrast, the more heavily a system relies on resemblance to underwrite semantic significance, the more constrained its representational range is. At the limit, pictorial systems can only represent objects and properties with distinctive visual appearances—a quality that many properties it is quite useful to represent, such as tastiness, obviously lack. Conversely, though, greater semantic arbitrariness also compromises certain representational advantages that are possessed by resemblance-based systems; in particular, such systems require less translation from perceptual inputs, which can facilitate both acquisition and integration between perception and cognition.

By themselves, these three key features abstractness, redeployability and arbitrariness can all be implemented with unstructured representational abilities: thus, a simple thinker might represent a single situation-type across multiple occasions by using an atomic representation *P* (simply deleting *P* should contravening evidence arise). But in that case there would be no point in ascribing concepts to the thinker, as opposed to whole undifferentiated thoughts; and his or her thoughts would be systematic only in the comparatively minimal sense of treating a variety of situations the same way across various representing contexts and attitudes. The core of the intuition that conceptual thought is systematic is the assumption that concepts are *compositional*: that they form a base of recurrent elements, which combine in different ways to produce wholes whose representational significance is a rule-governed function of the significances of those constituents and their mode of combination. Here again, the driving idea is that concepts remain stable across redeployment in various contexts; what we now add is

the idea that those contexts include other concepts, in addition to represented contents and representing attitudes.

Above, I described the principle that maps vehicles to contents as semantic, and argued that redeployability and abstractness together entail semantic arbitrariness. With the shift to compositionality, we turn to questions of syntax; and here too, redeployability and abstraction are closely connected, with important consequences for how and what a system can represent. In order for one and the same concept to be retokened across multiple combinations, the result of combining that concept with some other(s) must not depend on specific interactions between those concepts; otherwise we couldn't ascribe a stable representational contribution to each of them individually. But this in turn means that the principle or operation that combines those concepts must itself apply generally, depending only on the type of concept in question (e.g., predicative or singular), and abstracting away from the particular contents represented.

We can say that a combinatorial principle is abstract in this sense insofar as it makes only a minimal contribution to the representational significance of the resulting whole, and so is relatively *neutral* about which types of concepts it can combine. Natural languages and formal logics are, of course, highly abstract in this sense. For instance, predication can combine any predicate phrase (e.g., "is an F" or "Fs") with any noun phrase (e.g., "a G" or "the G"), regardless of what objects and properties those phrases denote; and the representational significance of that combination is just that the object denoted by the noun phrase *possesses* the property denoted by the predicate.<sup>4</sup> By contrast, many nonlinguistic systems employ combinatorial principles that make a much more robust representational contribution to the whole. For instance, maps employ a spatial combinatorial principle such that the spatial arrangement of vehicular items represents an isomorphic spatial structure among the corresponding represented entities (up to a distance metric). The fact that these systems employ such representationally robust combinatorial principles significantly limits their expressive flexibility (Camp 2007). For instance, because placing items on a map necessarily represents their referents as arranged in an isomorphic spatial structure, maps are only capable of representing objects and properties as *having* spatial structures and locations. (Similarly, because phylogenetic trees employ a spatial structure of branching lines representing differentiation with common descent, they can only represent objects as having ancestors and descendants (Camp 2009).)

In principle, the more neutral a representational system's combinatorial principle is, the wider a range of concepts it can combine: the relative abstractness of its syntactic operation(s) permits correlatively greater compositional systematicity. As with semantic arbitrariness, it is natural to think of formal and natural languages as paradigms of abstractness. And indeed, the relative neutrality of predication as a combinatorial

4. For simplicity, I focus on predication; the point holds a fortiori for other combinatorial principles, such as functional application and Merge.

principle, added to a high degree of semantic arbitrariness, does make language distinctively topic neutral. This is obviously an advantageous feature for a conceptual system to possess. Moreover, to the extent that a thinker's conceptual abilities display a high degree of topic neutrality, this suggests that it is employing something like a linguistic format (Camp 2007; Carruthers 2006).

I believe that an argument from topic neutrality along these lines—along with the more quotidian fact that we talk so much—does support an inference to the conclusion that much of human thought is language-like in a fairly strong sense. More precisely, the fact that humans can think about such a wide range of things suggests that our thinking takes place in a highly abstract, semantically arbitrary, and combinatorially neutral medium. However, we need to lodge two crucial caveats about the combinatorial properties of language, and in turn about just how language-like human concepts must be.

First, combinatorial neutrality, like semantic arbitrariness, is not distinctive to language, because some diagrammatic systems also employ combinatorial principles whose representational contribution is similarly minimal. For instance, Venn diagrams work by combining circles (along with some other symbols, like shading and dots) such that the spatial relations among those circles represent isomorphic logical relations among the denoted sets; but set union and intersection are just as if not more abstract than the possession relation denoted by predication. Their comparatively neutral combinatorial principles and relatively arbitrary semantic principles gives such diagrammatic systems significant expressive power; indeed, Shin (1994) demonstrates that a sophisticated version of Venn diagrams is expressively equivalent to first-order predicate calculus. Thus, the first caveat is that by itself, evidence from topic neutrality only supports the claim that the conceptual system's underlying format is either linguistic or diagrammatic. Moreover, it may also be possible to achieve topic neutrality by employing multiple distinct formats in combination.<sup>5</sup>

5. Diagrammatic systems like Venn diagrams do still exhibit significant expressive limitations relative to language because their combinatorial principles are less abstract than language's in a second sense: with respect to the way they relate to their representational vehicle. Diagrammatic systems deploy physical, specifically spatial, relations among vehicular constituents to represent logical or other relations among represented constituents; by contrast, linguistic syntactic principles are defined entirely in terms of *operations* on the semantic *values* of the system's basic constituents (Rey 1995). As a result, the linguistic vehicle (the sentence) only needs to signal the appropriate order of operations on constituents, which can be done by any implementationally convenient means. By contrast, Venn diagrams can only represent logical relations that are isomorphic to intersecting figures drawn in a single plane (Lemon and Pratt 1998). Discussion about vehicular format is complicated here by the fact that the vehicle is to be understood at a functional, rather than physically implementing, level (e.g., Fodor and Pylyshyn 1988). I believe it does make sense to talk about differences in format at the functional level (Camp 2007), but such talk must be interpreted carefully.

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The second caveat is that natural languages fall far short of full systematicity. Semantically, the intuitive meaning of whole phrases and sentences often appears to depend on interactions among their constituent words, as well as their contexts of utterance and interpretation. Thus, "cut" intuitively seems to make substantially different contributions to "Jane cut the grass," "Jane cut the cake," and "Jane cut her finger" (Searle 1978; Travis 1994); similarly for the contribution of "soccer" to "soccer shirt," "soccer fan," and "soccer mom." More importantly, preserving the assumption that language employs one or a few generally applicable combinatorial principles has forced linguists to posit massive hidden complexity in logical form, by means of covert movement, deletion, and type-shifting (Szabo 2012).

Worse, many syntactically and semantically similar expressions, such as "put" and "stow" in "John put/stowed his gear down," cannot be freely intersubstituted. As a result, the claim that language permits general recombinability of items within a given syntactic type is either false or relies on a typology that is so fine grained as to trivialize the claim to systematicity (Johnson 2004). One might dismiss these restrictions as the result of contingent limitations arising from the interface between syntax and lexical or phonological systems, rather than from the fundamental nature of language per se (Hauser, Chomsky and Fitch 2002). But many philosophers and linguists have also wanted to restrict the systematicity of language and thought at a more fundamental, purely semantic level. Thus, Strawson (1970, 95), Evans (1982, 101), and Peacocke (1992, 42) all follow Ryle (1953, 76) in assuming that category mistakes like "Julius Caesar is a prime number" are nonsense, because their correlative concepts cannot be meaningfully combined. I have argued (2004) that such cross-categorial strings do have comprehensible inferential roles, and that there is no compelling reason to deny them truth conditions; indeed, I'll suggest in section 21.5 that such apparently absurd combinations are an important source of human cognition's imaginative power. A well-formed sentence is a powerful communicative and cognitive tool; however, it cannot be constructed simply by repeatedly subsuming pairs of words under universal concatenation rules, as a simple view of compositionality would allow. By contrast, diagrams and many maps are significantly more compositionally straightforward in this respect.<sup>6</sup>

With these two caveats noted, we can reiterate the main point thus far: compared with other representational systems, language is extremely abstract, both in employing a highly arbitrary semantic principle mapping vehicular items to contents, and in employing a highly neutral syntactic principle combining vehicular items into representational wholes. Languages combine these two forms of abstractness to produce

6. The corollary is that such non-linguistic systems only need so few syntactic types because their more robust combinatorial principles restrict what sorts of things their basic constituents can represent; hence, they achieve maximal systematicity within a more restricted domain.

a high degree of topic neutrality, and hence of expressive power. To the extent that human conceptual thought displays a similar degree of systematicity and topic neutrality, this provisionally suggests that it may employ similarly abstract semantic and combinatorial principles as well. In this sense, human conceptual thought is like language and concepts are like words.

The third major feature I want to draw out of systematicity also follows from the requirement of recombinability and also supports the analogy between concepts and words. We can only identify concepts as forming a stable, systematic structure if it is possible to segment representational wholes into parts that can be retokened in different combinations on different occasions. And this in turn appears to entail that a systematically recombinable representational system must be *digital*. Here again, language provides a paradigm of digitality. Words are (assumed to be) stable atoms of meaning; and predication or functional application are highly discrete functions that takes two such atoms to produce a determinate result. By contrast, pictures approach continuity (or, in Nelson Goodman's [1968] terms, *density*), both in terms of which syntactic features of the vehicle make a representational difference and of which semantic values they denote. (For instance, in a color photograph any difference in the picture's color represents a correlative difference in the color of the represented scene.) More importantly, it is not clear that elements in a picture can even be isolated as syntactic units independently of assigning them a semantic interpretation; and to the extent this is possible, the semantic significance of such elements—say, of three lines coming to a point—often depends heavily on their role within the larger representing context.

One might think that all that matters for systematicity is *that* a representational system be digital, so that it has recombinable parts with stable semantic significance. And one might think further that any digital representational system is *de facto* linguistic, because a language just is a representational system with semantically stable, recombinable atoms.<sup>7</sup> However, digitality too is a matter of degree, with a system's degree of digitality again making a substantive difference for what and how it represents. For instance, some map systems, like city maps and seating charts, employ a finite base of recurrent elements (e.g., crosses for churches, green squares for parks, circles for sites of historical interest), but permit those icons to be placed in very many—perhaps indefinitely many—locations, with the representational significance of the whole being a rule-governed function of the representational significance of those icons and their

7. Thus, Eliot Sober (1976, 141) claims that "where [picture-like representational systems] are digital, they simply *are* linguistic systems of a certain kind." This also seems to be what Fodor (2007, 107–108) is thinking when he argues that "'iconic' and 'discursive' are mutually exclusive modes of representation," where the distinction between the two modes is defined in terms of whether the representational whole has "a canonical decomposition."

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spatial arrangement. The system is still technically digital or discrete as long as there is some lower bound on the fineness of grain of the semantically significant locations at which icons can be placed; but its relative density stands in clear contrast to the relative sparseness of language.

The fact that linguistic systems are highly digital renders them robust against certain kinds of error in production and interpretation, by making many small differences in the vehicle's physical properties representationally inert. Thus, distinct utterances of a word can differ significantly in their pronunciation or inscription without producing correlative representational differences, where analogous differences in a map or diagram would be significant. Conversely, though, when a word is misinterpreted—say, when we hear *set* instead of *let* or *can* instead of *can't*—the resulting representational error is also one of kind rather than degree, with correlative radical representational results.

In addition to being more dense, many representational systems are also more highly *relational* than language. Thus, maps, phylogenetic trees, and Venn diagrams all work by placing many elements in relation, with no upper limit on the number of items, and with every represented object or property thereby automatically placed in a substantive semantic relation to all the others. By contrast, language has as its fundamental unit a propositional or sentential phrase. Below that level, additional information can be included as qualifications of verb and noun phrases, while above it sentential connectives can link propositions together, in both cases indefinitely. But the basic unit of linguistic significance contains less information than in other representational systems, and stores that information as a discrete unit. Again, relationality brings both advantages and disadvantages. On the one hand, compiling and manipulating information that would require active, unwieldy inference in language comes along as a "free ride" in a map or diagram, because adding or altering one symbol automatically updates the represented relations to all the other symbols' referents (Shimojima 1996). On the other hand, those systems' high degree of relationality can also make it difficult or impossible to extract isolated bits of information, and especially to represent general states of affairs without representing specific instances (Camp 2007). Thus, insofar as humans are adept at manipulating isolated units of abstract quantificational information, this again suggests that their underlying conceptual format is strongly language-like.

In this section, I have offered a tempered justification of the analogy between concepts and words by motivating the intuition that conceptual thought is systematic. The basic job of concepts is to classify multiple distinct instances as belonging to the same kind. This means they must *abstract* away from many features of those instances and remain stable while being *redeployed* across a variety of contexts. If we assume that thought requires a vehicle at all, then these intertwined features of abstractness and redeployability entail that the relation which assigns contents to vehicles must be at

least somewhat *arbitrary*. The heart of systematicity is the requirement that conceptual thought be compositional. But if concepts are to retain stable significance across combinations and enter into a wide range of combinations, then their operative syntactic principle must be *combinatorially neutral*, making only a minimal contribution to the representational import of the whole. Finally, a system with recombinable elements must be *digital*, so that representational wholes can be segmented into parts with independent representational import.

Putting these features together makes the conclusion that conceptual thought is fundamentally linguistic seem very natural: if concepts must be arbitrary recombinable bits, they must also be a lot like words. Further, our initial considerations in support of systematicity were highly plausible. Thinking of the same thing as a single thing on multiple occasions and subsuming multiple instances under the same kind; using inference to produce belief in new thoughts; changing one's attitude about the same thought—these are fundamental tasks for a conceptual system to perform. Moreover, it is highly plausible that humans do actually perform these tasks on a regular basis. We also excel at thinking about an enormous range of topics, without obvious limitation; and we are capable of, and sometimes quite good at, manipulating abstract, especially quantificational information. These abilities require a high degree of semantic and syntactic abstractness, of the sort paradigmatically encountered in language.

However, we've also seen that the usual argument from systematicity to a language of thought is too quick, in at least three respects. First, semantic arbitrariness, syntactic neutrality, and digitality can all be satisfied by nonlinguistic representational systems, and all are a matter of degree. Thus, instead of a sharp dichotomy between imagistic and discursive systems, we have a variety of systems that are more or less arbitrary, combinatorially flexible, and digital. Language lies at or near the top of the continuum along each of these dimensions, while other formats display each feature to different degrees and in different ways. The differences among these formats are not merely notational: they produce substantive differences in ease of use, expressive power, and types of error and breakdown, delivering distinctive profiles of representational advantage and weakness.

Second, the connection between conceptual thought and language cannot therefore be justified by a general inference about thought per se, but must rely on the contingent fact that human conceptual thought manifests a distinctive pattern of abilities (and limitations) that mirrors the distinctive features of language. Other creatures display different profiles of ability and limitation, suggesting that their thought may employ a different format(s) (Camp 2007, 2009a). So long as their cognition is significantly systematic and stimulus-independent, it should be treated as conceptual in a substantive sense of that term (Camp 2009b).

Third, the conclusion that human conceptual thought is language-like must be tempered by the realization that natural languages do not fit the paradigm suggested by

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the language of thought hypothesis. In particular, natural languages exhibit significant limitations on recombinability; and the intuitive meaning of whole sentences often appears to depend on their internal and external context in ways that cannot be traced back to obvious semantically legislated context sensitivity plus general compositional rules. Thus, it is controversial whether words themselves are systematically recombinable representational atoms. The assumption that they are should instead be seen as a methodological commitment, borne out of the desire to explain how speakers and hearers converge on common communicative contents (Szabo 2012). The model of "language" assumed by the language of thought hypothesis is an idealization, much closer to that of artificial formal logics like the predicate calculus.

### 21.3 The Malleability of Association: Characterizations as Contextual Gestalts

Faced with the above considerations about the systematicity of conceptual thought, many psychologists are likely to diagnose a typical case of philosophical imperialism: of stipulating features that thought must exemplify if it is to fulfill a philosopher's fantasy of rationality. I noted at the end of section 21.2 that human thought does at least sometimes fit this model. But it is also undeniable, and important, that much of our thought is not systematic or logical, but *associative*: intuitive, holistic, and context sensitive. Much of the research on associative thinking has focused on how it interferes with logical thought, causing us to respond in ways that are absurd by our own reflective lights. Perhaps the most famous example of this is the *conjunction fallacy* (Tversky and Kahneman 1982): the tendency to rank a conjunction of two conditions as more probable than one subcondition when the entire conjunction better fits a stereotype. Here is the classic example:

Linda is 31 years old, single, outspoken, and very bright. She majored in philosophy. As a student, she was deeply concerned with issues of discrimination and social justice, and also participated in antinuclear demonstrations.

Which is more probable?

1. Linda is a bank teller.
2. Linda is a bank teller and is active in the feminist movement.

When posed this question, 85 percent of subjects opted for the second response, even though logically (and as subjects themselves willingly concede), no conjunction can be more probable than either of its conjuncts.

More generally, it is increasingly well established that intuitive, stereotypical thinking drives a wide range of our everyday engagement with the world, by disposing us to *frame* or *gestalt* subjects in certain ways. These effects are especially palpable and influential, and have been especially well studied, in the context of judgments of probability and actuality, and in the domains of emotional and moral response. In

particular, a wide range of studies has demonstrated that presenting the same set of facts against the background of different interpretive perspectives, or through descriptions that emphasize different features, can produce dramatically different emotional and moral responses, as well as different estimates of probability and assignments of causal responsibility.<sup>8</sup> More generally, stereotypes, perspectives, and “framing” play a pervasive role in our thinking even when we aren’t explicitly focused on emotion, moral evaluation, probability, or causality.

The considerations about systematicity from section 21.2 show that if human concepts are indeed arbitrary, recombinable representational bits, then they are ill-equipped to support associative thinking. For instance, concrete images play an important role in associative thought, especially in facilitating rapid recognition and motivating emotion and action. But insofar as concepts employ an arbitrary semantic principle, they can only access such images indirectly. Similarly, associative thought is highly context sensitive: the same feature can be framed in dramatically different terms, and produce dramatically different responses, when embedded in different situations. But the most fundamental feature of concepts is their cross-contextual stability. Finally, associative thought is highly synthetic, bundling lots of information into intuitive clusters; but the digitality of linguistic systems leads them to store much information as discrete bits, with many connections retrievable only through active inference.

It should not be controversial that associative thought employs intuitive, context-driven, synthetic classifications that rely on images and emotions and depart from the deliverances of logic. However, many philosophers appear to assume, at least implicitly, that there is nothing of theoretical substance to say about how associative thought works. The extreme version of this view is that outside the domain of rational concepts, there are only idiosyncratic “trains of images suggested one by another,” as William James ([1890] 1950, 325) says, where these trains are purely causal processes, grounded in the spatial and temporal contiguity of their sources. Thus, Proust’s bite into a madeline reminds him of his Aunt Leonie not for any logical reason but only because

8. On the effects of framing on evaluative response, see Tversky (1981), Kahneman and Tversky (1982), Bartels (2008), and Bartels and Medin (2007). See Levin, Schneider, and Gaeth (1998) and Iliev et al. (2009) for overviews of framing effects, especially in moral contexts. See Wallbott and Scherer (1986), Ortony, Clore, and Collins (1988), Smith (1989), and Mauro, Sato, and Tucker (1992) for discussions of connections between cognitive appraisal and emotional response. See Judd and Park (1993), Ryan, Judd, and Park (1996), and Nelson, Acker, and Manis (1996) for discussion of the effect of stereotypes on judgments of probability. Conversely, priming for different emotions also affects how subjects frame the presented situation, which in turn alters which features they notice, what causal explanations they assign, and the valence and intensity of their moral judgments; seeForgas (1990), Keltner, Ellsworth, and Edwards (1993), Lerner et al. (2003), Small, Lerner, and Fischhoff (2006), and Dasgupta et al. (2009); see Musch and Klauer (2003) for an overview of affective priming.

the same set of through descriptive assignments of "taming" play a role on emotion,

if human concepts are ill-equipped to play an important role in motivating emotions, they are highly context-dependent, and produce clusters. But the most salient, associative clusters; but often as discrete

intuitive, context-dependent from the at least implicational thought of concepts, "as William James, grounded site into a madrat only because

man and Tversky and Gaeth (1998) and See Wallbott and Sato, and Tucker (1996) for distinguishing for different alters which feature intensity of their inner et al. (2003), Klauer (2003) for

she used to give him a bite of the cookie on Sunday mornings. If this is all association amounts to, we shouldn't expect much in the way of interesting generalizations.

Against such pessimism, I think we can identify a more substantive, nuanced cognitive structure in play—one that merits theoretical investigation in its own right and that interacts in interesting ways with the sort of conceptual thought discussed in section 21.2. We do sometimes engage in purely Proustian association, but associative thought comprises a variety of distinct, partially overlapping capacities and dispositions (Evans 2008), at least some which manifests a sufficiently high degree of functional integration and interpersonal similarity to warrant independent classification. I call these patterns of thought *characterizations*; they are close to what many psychologists have thought of as concepts, and especially to stereotypes and prototypes (Rosch 1978).<sup>9</sup> However, as we will see, they depart markedly from concepts as philosophers conceive of them. I am not interested in legislating the use of terminology; but because most advocates of prototype and "theory" theories of concepts have taken prototypes and theories to perform the basic cognitive tasks identified in section 21.2—specifically, the classification of instances under kinds in a way that permits redeployment, thereby underwriting inference and attitude revision—when I speak of *concepts*, I will mean concepts as described there. By limning the distinct functional roles played by concepts and characterizations, I will argue, we achieve a clearer overall picture of the overall cognitive terrain; perhaps more importantly, we free ourselves to appreciate characterizations for the tasks that they perform well, rather than simply treating them as concepts manqué.

As I think of them, characterizations are constituted by three main features: their *content*, the sort of *endorsement* they involve, and their *structure*. First, characterizations apply collections of properties, often quite rich, to their subjects. For instance, my characterization of quarterbacks includes their being natural leaders, affable, and a bit shallow. In addition to such general traits, characterizations also often include more specific, experientially represented properties: thus, I think of quarterbacks as having a certain sort of square, clean-shaven jaw, gleaming teeth, and a ready smile. Some such properties, like certain ways of walking or talking, are so specific and experientially dependent that we lack established expressions for them and can only refer to them demonstratively.<sup>10</sup> Importantly, these include affectively laden properties concerning

9. Recently, Tamar Szabo Gendler has drawn philosophers' attention to a related range of phenomena, which she collects under the term "alief" (Gendler 2008). Like characterizations, aliefs are intuitive and associative, but they include much more basic reflexes and "action potentials," and hence are typically less cognitively sophisticated and contextually malleable than characterizations. I believe that aliefs and characterizations are both theoretically rewarding constructs, with overlapping but distinct extensions. A more systematic comparison remains a topic for further work.

10. Or metaphorically; see Camp (2006).

how the subject in question tends to or should make one feel: for instance, the terror one feels upon encountering a stern professor in the hallway, or the awe one feels upon entering a sunlit cathedral.

I take the characterization of quarterbacks alluded to above to be in line with an entrenched (and very American) cultural stereotype. And stereotypes are the most obvious class of characterizations. But where stereotypes are ways of thinking about *types*, characterizations can also represent individual persons, objects, and events, such as Barack Obama, the Notre Dame Cathedral, or the March on Washington.<sup>11</sup> Further, where stereotypes are communally shared ways of thinking, characterizations can be quite idiosyncratic: my characterization of a romantic afternoon excursion may not match yours (or sadly, anyone else's), and I may have a characterization of something the rest of the community simply doesn't notice, such as my route to work. Thus, stereotypes are a special case of the broader category of characterizations.

The second major feature of characterizations is that they don't require commitment to their subjects actually possessing the properties ascribed to them. Thus, I'm under no illusion that quarterbacks are especially likely, in fact, to have gleaming teeth or square jaws. Still, there is a species of commitment involved in my characterizing quarterbacks this way: I take those features to be *fitting* for them. If I were casting a quarterback in a movie, for instance, I would look for an actor with those features. Similarly, some features in my characterization of an individual might be "just-so" or apocryphal facts that I take to be fitting albeit false: thus, John might be the kind of guy who *should* have locked the principal out of his office in high school, even if he never actually did any such thing. Conversely, I might also marginalize some features that I acknowledge a subject does in fact possess because they don't fit the rest of my characterization: thus, I might tend to ignore or forget that John once attended seminary, because I take it not to fit with his sporty, carefree manner.

When assessments of fittingness do come apart from how we take a subject to actually be, it's often because we believe that an individual is exceptional or aberrant for its type. (In particular, the generic force of stereotypes allows us to maintain them in the face of exceptions.) Although it might be nice if fittingness could be straightforwardly reduced to statistical norms, intuitions of fittingness often appear to have a more squarely aesthetic basis, which Arthur Danto (1981) nicely articulates in connection with style:

The structure of a style is like the structure of a personality. ... This concept of consistency has little to do with formal consistency. It is the consistency rather of the sort we invoke when we say

11. Where it obviously makes an enormous difference whether a concept represents a type or an individual, or an object or a property, the sort and specificity of what a characterization represents makes no inherent difference to its basic structure; in particular, characterizations of types can include equally precise, vivid properties as those of individuals.

that a rug does not fit with the other furnishings of the room, or a dish does not fit with the structure of a meal, or a man does not fit with his own crowd. It is the fit of taste which is involved, and this cannot be reduced to formula. It is an activity governed by reasons, no doubt, but reasons that will be persuasive only to someone who has judgment or taste already. (207)

If we were more fully rational, we would sharply distinguish what we take to be fitting from what we believe to be actual or even probable. But in fact, we often allow intuitions about fit, especially in the form of stereotypes, to drive our beliefs about probability and actuality, with highly problematic, sometimes repugnant, results.<sup>12</sup>

The third major feature of characterizations is that they don't merely consist of collections of attributed properties, but *structure* those properties in a complex pattern with powerful cognitive effects. Characterizations' structures involve at least two distinct dimensions of psychological importance. Along the first dimension, some features are more *prominent* than others. Prominence is roughly equivalent to what Amos Tversky (1977) calls "salience," which he in turn defines in terms of intensity and diagnosticity. A feature is *intense* to the extent that it has a high signal-to-noise ratio: it sticks out relative to the background, like a bright light or a hugely bulbous nose. A feature is *diagnostic* to the extent that it is useful for classifying objects as belonging to a certain category, like the number of stripes on a soldier's uniform. Both intensity and diagnosticity are highly context sensitive: in a room full of bulbous noses, or on a heavily scarred face, an ordinary bulbous nose will not stand out; and in such a room, knowing that the man I'm looking for has a bulbous nose won't help me to identify him.<sup>13</sup>

Along the second dimension, some features are more *central* than others, insofar as the thinker treats them as causing, motivating, or otherwise explaining many of the subject's other features (Thagard 1989; Sloman, Love, and Ahn 1998; Murphy and Medin 1985). For instance, I take a quarterback's being a natural leader to explain more of his other features—why he's popular and confident, why he smiles so readily, indeed why he's a quarterback at all—than his having a square jaw does. A good measure of centrality is how much else about the subject one thinks would change if that feature were removed.<sup>14</sup>

Structures of prominence and centrality are highly intuitive and holistic, in a way that the oft-cited analogy with seeing-as and perceptual gestalts makes vivid. Contrast

12. I discuss the role of perspectives and fittingness (and stereotypes) in connection with slurs in Camp (2013).

13. I take it that prominence is the most influential determinant of a feature's prototypicality relative to some class of objects—although this is a matter for empirical investigation.

14. The "theory theory" of concepts (e.g., Murphy and Medin 1985) is often presented as antidote to prototype theory, replacing the purportedly vacuous notion of similarity with more substantive attributions of causal relations. Centrality is a broader genus of which attributions of causation are the most important species.



**Figure 21.1**  
The Old Woman/Young Lady.

the two ways of seeing figure 21.1. On either way of seeing the figure, the structural role of each constituent element depends on the roles of many other elements. When I switch from seeing the figure one way to the other, the relative prominence and centrality of those various elements shift dramatically. Further, this can cause those basic elements themselves to represent different things: the same set of pixels comes to be seen as a nose, say, or as a wart.

Much the same effect applies with characterizations: the same property may be assigned different structural roles within the same overall set of elements, which in turn can imbue that property with different emotive, evaluative, and even conceptual significance. Thus, if I take Bill's jovial sociability to be central to his personality, then his teasing remarks might seem like harmless attempts at bonding; while if I emphasize

his desire to be in control, those same remarks will appear malicious and manipulative.<sup>15</sup> In each case, I acknowledge both that he is sociable and that he values control; the difference lies in how I weigh those features and connect them to others, and these differences may in turn underwrite different judgments about Bill's future actions and about what evaluations of and responses to him are warranted. Such holistic, structural context-dependence is especially obvious and forceful in the case of emotional significance, which "colors" a wide range of features and can engender markedly distinct evaluations and responses without necessarily changing our outright beliefs about which lower-level features are actually possessed. Many philosophers have argued that emotions impose an intuitive gestalt on a field of constituent features;<sup>16</sup> and as noted above, there is ample psychological evidence that different characterizations of the same set of facts both produce and are produced by different emotions.

#### 21.4 Concepts and Characterizations: Differences

Given this sketch, it is obvious that characterizations cannot be straightforwardly identified with concepts as discussed in section 21.2. Among other things, many concepts, such as 1/4 INCH HEX NUT OR SQUARE ROOTS OF 4, lack corresponding characterizations with any intuitive substance for most people. More fundamentally, the role of fittingness in characterizations precludes them from fixing the references of what they represent, since thinkers don't typically take either the presence or absence of fitting features to determine category membership, but readily classify counter-stereotypical birds or quarterbacks *as* birds or quarterbacks.<sup>17</sup> It also means that characterizations cannot be equated with what are sometimes called *conceptions* (e.g., Woodfield 1991): that is, a richer and potentially more idiosyncratic "theory" (Murphy and Medin 1985) associated with a conceptual core, which can shift while the core remains constant. Beyond these relatively obvious differences, the discussion in section 21.2 allows us to identify

15. Such interpretive effects have been especially well documented in the case of stereotypes. Devine (1989) found that nonconscious priming with stereotypically associated traits for blacks led white subjects to interpret ambiguous actions by racially unspecified actors as more hostile, even though no traits directly related to hostility were primed. Likewise, Duncan (1976) found that whites interpreted the same ambiguous move as a hostile, violent shove when the actor was black, and as just playing around when the actor was white. Sager and Schofield (1980) replicated these findings in children.

16. For instance, Noël Carroll says, "The emotions focus our attention. They make certain features of situations salient, and they cast those features in a special phenomenological light. The emotions' 'gestalt', we might say, situations" (2001, 224). See also Rorty (1980), de Sousa (1987), Calhoun (1984), Robinson (2005), and Currie (2010, 98).

17. This is a familiar philosophers' complaint against prototype theories of concepts: see for example, Rey (1983), Fodor and Lepore (1996), and Laurence and Margolis (1999).

three more basic differences between concepts and characterizations, grounded in the fundamental functions we identified concepts as performing.

The first fundamental job of concepts is to be capable of stable redeployment across cognitive and environmental contexts, so that the thinker can subsume different instances under the same concept, track the same object as it gains and loses properties, and take different attitudes toward the same content. By contrast, characterizations' basic job is to enable thinkers to engage intuitively with their current cognitive and environmental context. As the special case of stereotypes brings out, thinkers do have some default, cross-contextual dispositions to characterize certain subjects in certain ways. But as work on stereotypes, specifically on combating stereotype threat, also shows, priming for different concepts, even briefly, can alter thinkers' cognitive contexts significantly, with dramatic consequences for how they intuitively construe and act toward the focal subject.<sup>18</sup> More generally, much of the cognitive work—and cognitive and imaginative interest—of personal conversations and of reading historical and fictional narratives consists in temporarily aligning one's own intuitive characterizations and overall perspective with someone else's.<sup>19</sup>

Context plays a direct role in structuring characterizations through prominence, both in determining the background "noise" against which a particular feature's intensity is defined, and in fixing the cognitive interests and needs that determine a feature's degree of diagnosticity. It also plays a role in determining centrality, by affecting which sorts of properties, and which connections among properties, are explanatorily relevant. Finally, a thinker's emotional state or mood can dramatically affect a characterization's overall structure, and in turn the significance of particular constituent features.

If we think of characterizations as implementing the functional role of concepts, then their contextual malleability seems like a drawback or a bug: a failure of full rationality. But if we instead think of them as functional structures in their own right, and in particular as patterns of thought whose primary task is to enable thinkers to engage with their environments in an intuitive, nuanced way, then context sensitivity becomes an important desideratum. Different features really do matter more or less in different contexts and for different purposes, and thinkers need to be immediately and intuitively sensitive to these variations. This is not to deny that there are real conflicts between the deliverances of the two functional roles, but only to emphasize that they may occur for good reason.

Characterizations' pervasive contextual malleability also means that questions of individuation are much harder to settle, but also considerably less important, than they are in the case of concepts. Although individuation is obviously a contentious

18. See, for example, Steele and Aronson (1995), Steele, Spencer, and Aronson (2002), Marx and Roman (2002), McIntyre, Paulson, and Lord (2003), and Martens et al. (2006).

19. See Camp (unpublished ms.).

grounded in the deployment across diverse contexts and loses properties, characterizations are irreducible cognitive units, thinkers do subjects in certain contexts, stereotype threat, thinkers' cognitive activity construe their work—and adding historical context characterizes

in prominence, feature's intentionality determines a feature's effect on which explanatory relations affect a characterization's constituents. Role of concepts, use of full rationality, their own right, able thinkers to detect sensitivity more or less immediately and real conflicts emphasize that they

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topic, concepts are often individuated by some appeal to reference plus inferential role (e.g. Block 1987). Intrapersonally, concepts differ just in case a thinker could rationally believe a thought containing one while disbelieving an otherwise identical thought containing the other (Frege 1892; Peacocke 1992); interpersonally, two thinkers possess the same concept if they endorse many of the same inferences and would apply their concept to many of the same instances. Because redeployability is such an important feature of concepts, most theorists reject strong holism, restricting a concept's individuating inferential role to a small subset of its inferential connections (weighted by degree of importance if not identified as absolutely analytic). By contrast, characterizations need to be informationally rich, relating as many properties, images, and responses as possible into intuitive wholes. Further, because not just which features but also how those features are structured is crucial for characterizations, and because this structure is itself strongly responsive to context-specific factors like intensity, diagnosticity, and centrality, characterizations of the same subject will usually differ in at least some functionally important ways both interpersonally and intrapersonally across time. We can say that two people, or the same person on different occasions, are employing the same characterization just in case there is a sufficiently large overlap in their characterizations' constituents and structure for our current cognitive or communicative purposes—but we shouldn't expect there to be any robust standard of identity that applies across the various occasions on which we classify characterizations as same or different.

The second fundamental job of concepts is to combine with a wide range of other concepts to produce whole thoughts. This compositional structure accounts for concepts' productivity and underwrites inferential relations among thoughts. By contrast, characterizations lack such general recombinability: just because I have characterizations of two types, or of an individual and a property, it does not follow that I also have a characterization of their combination. For instance, I have a characterization (or stereotype) of bank tellers, and another of feminists, but none of feminist bank tellers. Similarly, I have a rich characterization of Anna Karenina, and another of what's involved in being president of the United States, but no characterization of Anna Karenina as president. More importantly, when characterizations do combine, the resulting combination may include features not contained in either individual characterization, which *emerge* from their combination. Thus, I have a characterization of Napoleon, and another of mistresses, and I can form a characterization of Napoleon's mistress, but it contains many features (hairstyle, dress, personality) that are not part of my characterization of mistresses *per se* (nor of Napoleon). Again, when we think of characterizations as performing the tasks of concepts, failures of combination and emergent features look like serious problems.<sup>20</sup> But if we acknowledge characterizations as having

20. Again, these are familiar objections to prototypes as candidates for concepts; see for example, Margolis (1994) and Fodor and Lepore (1996).

their own representational function, these results make sense. Characterizations cannot retain the richness, specificity, and relational structure that makes them so intuitively powerful and cognitively useful while also being sufficiently abstract to combine in stable ways with a wide range of other characterizations. Further, when characterizations do combine, it is our knowledge of the referent(s) of the combined concepts—of NAPOLEON'S MISTRESS, say—that determines which features go into the resulting characterization, and how those features are structured.

The third fundamental difference between concepts and characterizations has to do with characterizations' intuitive gestalt structure. Because a fundamental function of concepts is to be redeployable across various combinations and attitudes, merely entertaining or endorsing a propositional thought containing a concept is both necessary and sufficient for exercising the corresponding conceptual ability. By contrast, characterizing a subject requires structuring one's thinking about the subject in such a way that the relevant lower-order features really do play appropriately prominent and central roles in one's overall intuitive thinking about that subject. As a result, it is neither necessary nor sufficient for having a characterization that one explicitly entertain or endorse any particular propositional thought; in particular, it is neither necessary nor sufficient for characterizing something in a certain way that one entertain thoughts about the prominence, centrality, or fittingness of the characterization's constituent features. Rather, what matters is just that one actually structure one's thoughts in the relevant intuitive way.

The analogy with perception is helpful here. There is a phenomenologically striking and practically efficacious difference between "seeing-as" and "looking plus thinking" (Wittgenstein 1953 197); for instance, I might know that *this* feature in figure 21.1 represents the old woman's nose, and *that* one a wart, without successfully seeing the figure *as* (a picture of) an old woman. So too with characterizing in thought. Suppose John tells me, in detail, about his characterization of Bill: which features he takes to be especially important and why, the explanatory relations among them, and so on. I might endorse all of these propositions, because I trust John's judgment, without ever managing to "get" the relevant characterization, because the operative features don't intuitively leap out as prominent or central for me. Further, just as with literal seeing-as, getting the relevant propositions to play the relevant organizational role is partly, but not entirely, under one's willful control: directing one's attention toward some particular features may help induce a certain characterization, but ultimately the "click" of holistic understanding is something that just happens—or doesn't.

Despite this importantly nonpropositional dimension of characterizations, we can still endorse, reject, and argue about them. Even though they are complex, nuanced, context sensitive, and intuitive, and even though they can be highly idiosyncratic, they are not just Jamesian causal associations. Endorsing a characterization amounts to accepting that its assignments of fittingness, prominence, and centrality are consistent

acterizations cannot be characterized so intuitively as to combine ten characterized concepts—of which characteriza-

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logically striking "thinking plus thinking" are in figure 21.1 as fully seeing the thought. Suppose tures he takes to item, and so on. I ent, without ever ve features don't ith literal seeing- nal role is partly, toward some partly the "click" of

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with the objective distribution of properties in the world (modulo discrepancies introduced by fittingness) and conducive to achieving one's current cognitive goals. And although I cannot compel you by propositional means to even entertain my characterization, let alone endorse it, I can help you to "get it" by directing your attention toward the features that are most prominent and central for me, and explaining why I take them to be highly intense, diagnostic, central, and fitting.

### 21.5 Concepts and Characterizations: Connections

The details of my presentations of concepts and especially characterizations may be novel. But talk of two representational dimensions, one systematic and logical and the other associative and holistic, is familiar. In particular, advocates of a *dual systems* approach to cognition argue that humans employ two distinct modes of cognition: an evolutionarily more basic system that is fast, heuristic, and imaginatively and affectively laden; and another, more recent and distinctively human system that is effortful, abstract, and logical.<sup>21</sup> The standard picture is that the associative system shoulders the bulk of unreflective, relatively automatic interaction with a messy, rapidly changing environment, with the logical system serving as a kind of overseer, stepping in when the stakes are high or the associative system delivers an especially implausible verdict. A raft of psychological evidence supports the claim that the logical system plays such a checking role; and as Sloman (1996) notes, it is methodologically easiest to discern both systems in operation in cases where they conflict. Although a full exploration of the interaction between concepts and characterizations is beyond the scope of this article, I want in this section to suggest, first, that talk of two distinct "systems" is overblown; and second, that the relationship between the two types of cognitive structure is often more symbiotic than antagonistic.

There is a fairly clear sense in which characterizations are more basic than concepts. They are less abstract and more closely tied to perceptual inputs and immediate action. Further, the tasks that concepts need to perform, for which systematic redeployability is so crucial, result from a demand for cross-contextual stability that, while clearly advantageous, is not essential to cognition as such. Cognitive agents could, after all, represent and respond to multiple instances in similar, but only roughly similar, ways—in which case they couldn't really entertain the same thought twice, adopting different attitudes toward it on different occasions. These are the sorts of considerations that have led to classifying System 1, associative thinking as basic and System 2, logical thought as a secondary overseer. At the same time, within the context of adult human

21. See, for example, Sloman (1996), Stanovich and West (2000), Kahneman (2003), Carruthers (2006), and Evans (2008); for recent discussion, see the essays in Evans and Frankish (2009). As noted above, Gendler's (2008) distinction between alief and belief is also relevant here.

cognition, there is an important sense in which concepts are more basic. Concepts are recombinable representational bits with stable referential and inferential significance. Given this, the conditions on possessing a concept (as opposed to full mastery) are comparatively minimal: one only needs to be able to think *about* the relevant object or property and draw a few core inferences; in many cases, not much more than hearing a word in the public lexicon is required. As noted in section 21.4, however, we lack substantive characterizations for many of our concepts.

Further, concepts provide the stable anchors that preserve characterizations' referential import through changes in their contents and structure. Because characterizations have their referents determined by way of concepts (as well as having the contents of their constituent features determined via concepts), it appears not to be possible for "Frege cases" to arise between characterizations and concepts.<sup>22</sup> That is, if a thinker has a concept and a characterization for the same individual or kind but fails to recognize that they are co-referential, this will only be because he or she possesses two distinct concepts for that thing, with the failure to recognize co-referentiality between the concept and the characterization holding in virtue of a failure to recognize co-referentiality between those two concepts.<sup>23</sup> In this sense at least, the two "systems" cannot be entirely distinct.

A better metaphor for the relationship between concepts and characterizations than laborer and overseer, then, might be of characterizations as roiling electron clouds orbiting concepts' more stable nuclear structures. Although characterizations do filter and color, and sometimes distort, our intuitive access to the "bare" truth-conditional facts, they do not operate on their own, in isolation from concepts; they piggyback off of them.

In this respect, my view can be seen as a species of the "pluralism" advocated by Laurence and Margolis (1999, 2003), according to which concepts function as representational atoms around which a variety of further informational structures, like prototypes and theories, are organized without actually contributing to the core concept's individuating referential and inferential content. In section 21.4, I resisted full-blown pluralism, by emphasizing the fundamental differences between concepts' and characterizations' functional roles. I think that much philosophical and psychological

22. As noted above, Frege (1892) individuated concepts in terms of the criterion of cognitive significance: the possibility that a thinker might rationally believe a thought containing concept *A* while not believing the same thought differing only in the substitution of *B* for *A*. A "Frege case" is one in which a thinker takes different attitudes toward the same state of affairs because he or she fails to realize that two concepts are in fact coextensional.

23. One can also associate multiple characterizations with a single concept, perhaps in virtue of having access to sociologically distinct sets of assumptions about the kind in question. Again, though, distinctness of characterizations cannot produce Frege cases except through distinctness of concepts.

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confusion has been sown by thinking of characterizations *as* concepts, and that we gain a clearer understanding of each by separating them—and by collecting some but not all of the psychological phenomena that have been subsumed under prototypes, theories, and conceptions under the distinct category of characterizations. My current point, though, is that acknowledging the distinction between concepts and characterizations should not blind us to their deeply intimate relationship; and for this purpose, the pluralist model is helpful.

More specifically, I want to suggest that the minimal, abstract, systematic structure of concepts serves as a scaffold undergirding characterizations' contextually malleable complexity, and that the combination of both structures is key to the fertile imagination distinctive of human creativity.<sup>24</sup> As we saw in section 21.2, multiple representational formats can produce thought that is conceptual in the sense of being systematic, abstract, and flexible. But linguistic systems achieve these qualities to an exceptionally high degree. In particular, because language employs highly digital, semantically arbitrary representational atoms, and combines them using just one or a few combinatorially neutral syntactic operations, it is distinctively topic neutral. Moreover, semantic arbitrariness makes language especially well equipped for achieving a high degree of stimulus independence: the capacity to represent a wide range of contents in the absence of a directly triggering stimulus. Stimulus independence is an important condition on conceptual thought in its own right; but even more clearly, it is an essential condition for imagination (Camp 2009b; Carruthers 2006).

By itself, however, merely possessing a representational system with the capacity to represent a wide range of nonactual states of affairs doesn't give a thinker any motivation to exploit this capacity, or even to realize that he or she has it (Camp 2009b). Here again, linguistic systems are distinctively well equipped for exploring the space of unrealized possibilities, not just because languages are potentially topic neutral and stimulus independent, but because they permit hierarchically recursive representations, of a sort that can underwrite the ability to represent one's thoughts explicitly to oneself (McGeer and Pettit 2002).<sup>25</sup> Explicitly representing the compositional structure of one's own representations may also help to draw one's attention to new potential combinations of concepts, including those one lacks any direct, practical reason to entertain (Camp 2004).

The representational structures constructed by the conceptual system are, however, fairly thin, encompassing only a limited set of formal and material implications. For absurdly impractical combinations of concepts, like "Julius Caesar is a prime number,"

24. I think an analogous interplay is displayed even more clearly in the context of linguistic communication, but that lies even further outside the scope of the current discussion.

25. Although some other representational systems, such as phylogenetic trees, permit hierarchical recursion, their operative syntactic principles lack the semantic neutrality required to underwrite a general metacognitive ability.

this might seem like such a minimal variety of comprehension that it doesn't amount to genuine understanding. I've argued (2004) that such inferential roles do matter, not least because they allow us to make arguments. My current suggestion is that these minimal conceptual structures often serve as seeds for associative thought, including not just Jamesian or Proustian streams, but also for the construction of more substantive, structured, norm-governed characterizations. Sometimes, the result is a novelistic or poetic flight of fancy: thus, although I have no ready-made characterization for Anna Karenina as president of the United States, or for death as an overworked Joe, a writer might take these bare propositions as invitations to traverse new imaginative terrain (Camp 2009c). At other times, the result is a scientific revolution, as occurred when physicists took seriously the possibility that time is a fourth dimension, or that light is both particle and wave, or that the mind is the software of the brain. The insights that followed from exploring these possibilities did not follow as a matter of conceptual necessity from the (then) apparently absurd propositions expressed by those sentences; rather, they required ingenuity and a series of reconstruals of the characterizations associated with the operative terms.

### 21.6 New Directions for Investigation

Human thought is—or at least has the capacity to be—systematic. Among other things, this means that it is abstract, flexible, and productive. This in turn requires that concepts function as arbitrary recombinable representational bits. The specific contours of human thought, in particular its high degree of topic neutrality, adeptness at manipulating quantificational information, and capacity for truth-preserving inference, suggest that at least some human cognition is in language—or perhaps, in a logical format like a predicate calculus.

At the same time, human thought also is—or at least has the capacity to be—associative. Among other things, this means that it is experientially grounded, holistic, and intuitive. This in turn requires some representational structures—call them characterizations—that are rich, contextually malleable, and imagistically and affectively laden. For better and for worse, characterizations operate throughout our everyday engagement with the world. But in doing so, they build on the more minimal and general structure of concepts, which also permits them to play an essential role in metaphor, fiction, and scientific and philosophical exploration. Instead of arguing for a single answer to “how the mind works,” then, we should probe, and appreciate, the multiplicity of functions that cognition performs, and the interactions between the structures underwriting them.

Given these conclusions, I see three main areas for future research. First, more attention needs to be paid to representational formats that fall between the extremes of

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pictures and language. There has recently been a renewed interest in the semantics and even syntax of pictures (e.g., Kulwicki 2006; Greenberg 2011). This is a vitally important project in its own right. But too often philosophers assume a sharp dichotomy between pictorial and sentential modes of representation. As we glimpsed in section 21.2, various other formats mix different degrees of semantic arbitrariness, combinatorial neutrality, and relationality, producing significant differences in what sorts of information they are capable of representing and how they manipulate it. A close examination of the resulting patterns of representational strength and vulnerability may in turn provide clues to what representational formats are employed by different thinkers, of various species, at different times.

Second, we need to further investigate forms of associative thought that are not merely idiosyncratic chains of association, but display significant structure. This involves, at a minimum, getting clearer on the causal mechanisms that underlie characterizations, on their connections to emotion and other aspects of our cognitive lives, and on what (if any) representational format they might have. In particular, in what ways are characterizations subject to voluntary control, both at a given moment or in the longer term, through cultivating habits of attention and response? (In this context, a sustained comparison with *aliefs* (Gendler 2008) would be especially useful.) It also involves getting clearer on the distinctive norms governing characterizations. Assignments of fittingness involve a crucial aesthetic dimension; but prominence and centrality are both functionally responsive to cognitive interests and explanatory purposes in ways that go beyond the straightforward tracking of objective statistical profiles. More generally, how are individual characterizations linked together into coherent overall perspectives, both for particular domains and about the world at large? How do we pick up and modulate these overall perspectives, through conversation and sustained imaginative exercises like fiction? (Camp 2009c, ms.)

Third, we need to attend to ways in which concepts and characterizations interact, both antagonistically and symbiotically. I have argued that distinguishing their functional roles enables us to acknowledge each representational structure as appropriately accomplishing a distinct cognitive task. Where "dual systems" approaches emphasize the ways associative thought fails to meet logical norms, I have suggested that the two structures often support and enrich one other. This includes not just standard tasks probed by psychologists, like object classification and judgments of probability, but also more idiosyncratic, contextually sensitive, and imaginatively demanding tasks like reading fiction and poetry. Finally, philosophers (and psychologists) generally assume that the job of language is to express thought, and that words have concepts as their lexical values. But many words and ways of using language have the function of expressing and manipulating characterizations and perspectives; among these are metaphor (Camp 2006, 2008), slurs (Camp 2013), and generics (Leslie 2007). This again

suggests that characterizations and related associative structures are not merely concepts manqué, but representational structures in their own right, which find systematic expression in and through language.

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