Concepts and Characterizations

Recent theorizing about concepts has been dominated by two general models: crudely speaking, a philosophical one on which concepts are rule-governed atoms, and a psychological one on which they are associative networks.¹ The debate between these two models has often been framed in terms of competing answers to the question of ‘how the mind works’ or ‘the nature of thought’. I argue that this is a false dichotomy, because thought operates in both these ways. Human thought utilizes representational structures that function as arbitrary re-combinable bits. This supports a version of the Language of Thought Hypothesis – though a significantly more modest one than is typically advanced by advocates of that view. But human thought also employs representational structures that are contextually malleable, intuitive, and holistic; I call these ‘characterizations’. ‘Dual systems’ models of cognition (e.g. Sloman 1996, Evans 2007, Evans and Frankish 2009) recognize this multiplicity of mental processes, but typically 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.

§ 1. 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, e.g. a is F, is intertwined with the ability to think a host of other, related thoughts, e.g. b is F, c is F, d is F...; a is G, a is H, a is I.... Systematicity is generally taken to be fundamental for several reasons. Most importantly, systematicity generates 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, it is because the thoughts that a is F and b is F share a common concept, F, that when combined with the thought that a is not b² that they entail the thought that at least two things are F.

Many philosophers believe that if conceptual thought is systematic, it must also therefore be essentially linguistic in form. Systematic representational abilities, the argument goes, must be implemented by a mechanism that is itself systematic, and ultimately by a vehicle with a compositional

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. Paul Bloom (2002), Susan Carey (2011), Steven Pinker (1994)) and philosophers who adopt a more associationist or at least holistic one (e.g. Jesse Prinz (2004), Donald Davidson (1973, 1975)).
² Or at least with a de jure non-co-indexing of a and b.
format. And this, it is claimed, is tantamount to the conclusion that there must be 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.3

I agree that conceptual thought does – indeed must – involve at least a significant degree of systemativity; but I reject the inference that conceptual thought must therefore be linguistic in any interesting sense of that term. One major weakness of the Language of Thought Hypothesis has been a lack of specificity about exactly what systemativity means, and why it is so important for conceptual thought. A second major weakness has been a lack of specificity about exactly what language is, and so about what it means to say that thought is language-like. In this section, I unpack three major features that are closely tied to systemativity: semantic arbitrariness, combinatorial neutrality, and digitality. In each case, I argue that language, either natural or formal, provides us with a paradigmatic instance of the relevant feature, but also that the feature comes in degrees, and that it can be manifested in clearly non-linguistic formats. Thus, to insist that conceptual thought must be language-like either begs the question under discussion or trivializes the operative notion of language. The upshot is that there are good reasons to think that at least a significant portion of human thought is importantly language-like, but only because human conceptual thought happens to exhibit these specific features to an exceptionally high degree, and not because thought or concepts per se must be inherently linguistic.

If we step back and consider what concepts are for – what their most fundamental job is – the most basic thing we can say is that concepts enable thinkers to bring together multiple instances as belonging to the same kind: either ascribing a common property to multiple distinct objects, or identifying a single object as it gains and loses properties. This already constitutes a weak species of systemativity, insofar as a concept treats all of its instances as the same, and produces certain stable cognitive consequences in virtue of this classification. It also means that concepts are in an important sense abstract, in that they cannot be essentially tied to any one instance, but must apply in the same way to multiple distinct instances. Conceptual thought is also abstract in the sense of not being tied to any particular mental attitude about what is being represented. That is, it is an important job of conceptual

3 A second philosophical tradition tends to be 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, and especially for reflection on one’s epistemic credentials; and it is further assumed that only language enables such reflection. This position is perhaps 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 (2009a) against this that the crucial differentiation from stimulus-response can be satisfied in a more minimal way, so long as the thinker’s representational capacities are significantly stimulus-independent.
thought to enable thinkers to take up distinct attitudes toward the same content – 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 content being thought about remaining constant across these shifts in attitude. Finally, concepts are arguably abstract in a further sense, not just of what a given concept represents and what attitude the thinker takes toward it, but of when the thinker deploys it. That is, conceptual thought goes beyond mere differential response to one’s environment in that a given concept is capable of being 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 2009a).

So far, I have merely argued that concepts are abstract in being free from any particular represented or representing context. But for concepts to be context-free in this sense, they must also be cross-contextually stable: the same concept must be able to be re-deployed on different occasions and in different applications, with the same representational import or significance each time. Cross-contextual stability is itself an important aspect of systematicity. Further, though, a capacity for re-deployment has suggested to many philosophers and psychologists that concepts must be construed, not merely as abilities to represent objects and properties, but as items within a representational vehicle which causally underwrites those abilities: that is, as entities with ultimately physical (e.g. neural) properties, albeit individuated in functional terms. As a general matter, such an inference from representational abilities to vehicles is controversial; Gareth Evans (1982, 100) for one, resisted this move, and as an abductive (‘how else?’) argument, it is vulnerable to alternative explanations and accusations of imaginative failure. But if one does accept a need for representational vehicles, then abstraction and re-deployability together imply that the relation in virtue of which a particular vehicular type, \( C \), represents a particular object or property type, \( F \), must be at least somewhat arbitrary. That is, the representing vehicular item must have some stable formal properties which it retains across tokenings, in virtue of which it counts as an instance of the relevant concept. At the same time, though, the properties in virtue of which the vehicular item represents what it does cannot simply replicate the represented thing or property’s appearance, because there is in general no constant appearance for that content to have across all the contexts in which it can be represented.

The paradigmatic case of an arbitrary principle mapping vehicle to content is the merely conventional linguistic connection between word and object; thus, concepts are like words at least in respect of being semantically arbitrary. However, semantic arbitrariness is a matter of degree, and can be achieved in a variety of ways. In particular, a range of non-pictorial systems, like maps and diagrams, employ partially formalized principles of perceptual resemblance. For example, 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 stylized or formalized in the sense that they significantly
simplify both what physical features the vehicular item has, and what range of its physical features are representationally significant. But the semantic principle is still partially perceptual, insofar as the item represents what it does because it looks (or sounds, etc.) like it in important ways.

To the extent that a representational system does employ an arbitrary semantic principle, this underwrites at least two important advantages. First, it permits flexible implementation: any type of token can be deployed as a symbol, subject only to constraints such as ease of production and discrimination. Second, it helps to underwrite to topic-neutrality in the system’s representational range: any sort of content can be the value of a symbol. By contrast, the more heavily a system relies on resemblance, the more constrained its representational range will be. At the limit, pictorial systems can only represent objects and properties with a distinctive visual appearance—a quality which is obviously missing from many things it is quite useful to represent, and that we and other creatures are able to represent. At the same time, though, semantic arbitrariness also curtails or undermines certain representational advantages possessed by resemblance-based systems. In particular, resemblance-based systems require less translation from perceptual inputs, which may both make them easier to acquire and facilitate the smooth integration of perception and cognition.

By themselves, abstractness, re-deployability and arbitrariness can all be implemented with entirely unstructured representational abilities: thus, a simple thinker might represent a situation-type on multiple occasions using a wholly atomic representation $P$ (and simply delete $P$ should contravening evidence arise). But in that case there would be no point in ascribing concepts, as opposed to whole undifferentiated thoughts, to her; and her thoughts would be systematic only in the comparatively minimal sense of treating a variety of situations the same way across representing contexts and attitudes. The heart of the intuition that conceptual thought is systematic is the assumption that concepts are compositional: that they form a (finite) 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 constituent concepts plus their mode of combination. Here again, the driving idea is that concepts remain stable across re-deployment in various contexts; what we now add is the idea that the operative 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 re-deployability and abstractness entail semantic arbitrariness. With the shift to compositionality, we turn to questions of syntax; and here too, re-deployability is closely connected to abstraction, with important consequences for how and what a system can represent. In order for the same concept to be re-tokened in multiple combinations, the result of combining any given concept with some other(s) must not depend on specific interactions between that concept and those it is combined with; otherwise we couldn’t ascribe a
stable, cross-contextual representational contribution to it. But this in turn means that the principle or operation which combines those concepts must itself also 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 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’ or ‘The F’), 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. By contrast, many non-linguistic systems employ combinatorial principles that make a much more robust representational contribution (Camp 2007). For instance, maps employ a spatial combinatorial principle: the spatial arrangement of vehicular items represents an isomorphic spatial structure among the corresponding entities in the world (up to a distance metric). And in turn, the fact that these non-linguistic systems employ representationally robust combinatorial principles significantly limits their expressive flexibility. For instance, because combining items on a map necessarily represents their referents as being arranged in an isomorphic spatial structure, maps are only capable of representing objects and properties as having spatial structures and locations. (Similarly, phylogenetic trees employ the spatial structure of branching lines, where those lines have the representational significance of differentiation with common descent, and this in turn means that phylogenetic trees can only represent objects that have ancestors and descendents.)

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 correlative 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, combined with semantic arbitrariness, does make language distinctively topic-neutral in comparison with other formats. This is obviously a desirable property in a representational system. Further, to the extent that a thinker’s conceptual abilities display a similarly high degree of topic-neutrality, this suggests that it too employs something like a linguistic format.

I believe that such an argument from topic-neutrality – along with the more quotidian fact that we talk so much – does support an inference to the conclusion that much of human thought is in language, or at least is language-like in a fairly strong sense of the term: that is, that it employs semantic and syntactic

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4 For ease of exposition, I focus on predication; the point goes a fortiori for other combinatorial principles, such as functional application and Merge.
principles which impose few representational constraints because they are highly abstract in the sense of being semantically arbitrary and combinatorially neutral. However, we need to lodge two crucial caveats about the combinatorial properties of language in particular, and thus in turn about just how language-like (human) concepts are or must be.

First, combinatorial neutrality, like semantic arbitrariness, cannot be treated as a distinctive feature of languages, either natural or formal, because some diagrammatic systems also employ combinatorial principles with a similarly minimal representational contribution. For instance, Venn diagrams work by combining circles (along with some other symbols, like shading and dots), such that those circles’ spatial relations represent the denoted sets as exhibiting an isomorphic logical relation. But set union and intersection are as if not more abstract than the possession relation denoted by predication. The comparative neutrality of their combinatorial principle, and the relative arbitrariness of their semantic principle, makes Venn diagrams (and their cousins, such as Euler diagrams) expressively quite powerful; 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 for a conceptual system’s topic-neutrality merely supports the claim that its underlying format is either linguistic or diagrammatic. Further, it is possible that human thought operates achieves expressive generality by employing multiple distinct formats (a fortiori for the thought of non-human animals). 5

The second caveat is that natural languages themselves don’t come close to being fully systematic. For one thing, the intuitive meaning of whole phrases and sentences often appears to depend on interactions among the particular constituent words, plus the context of utterance and/or interpretation. Thus, the action of cutting denoted by ‘cut’ in the sentence ‘Jane cut the grass’ might intuitively seem to be substantially different from the actions denoted by that word in ‘Jane cut the cake’ and ‘Jane cut her finger’ (Searle 1978, Travis 1994). So it is not clear that natural language is really compositional. More importantly, many pairs of expressions that appear to be syntactically and semantically quite similar

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5 It is important to note that diagrammatic systems like Venn diagrams do still exhibit significant expressive limitations relative to language because their combinatorial principles are less abstract in second sense, with respect to the way in which they exploit their representational vehicle (as opposed to the representational significance of combination that is discussed in the text). Diagrams in general differ from language in deploying 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.
cannot be freely inter-substituted; to take just one example, “John put his gear down” is well-formed and “John put his gear” is not, while the reverse is true for “John stowed his gear down” and “John stowed his gear.” Given this, the claim that language permits general recombinability of items of the same syntactic type is either false or else relies on typology that is so fine-grained as to trivialize the claim to systematicity (Johnson 2004). One might dismiss these limitations as following from merely contingent limitations imposed by the interface between syntax and lexical or phonological systems, rather than from the fundamental nature of language per se. However, many philosophers and linguists have wanted to restrict the systematicity of both language and thought much further, by imposing purely semantic, non-syntactic constraints on recombinability. Thus, Strawson (1970, 95), Evans (1982, 101), and Peacocke (1992, 42) all follow Ryle (1953, 76) in assuming that category mistakes involving grammatically well-formed sentences, such as ‘Julius Caesar is a prime number’, are nonsense, and so that their concepts cannot be meaningfully combined. I myself reject such purely semantic restrictions: I have argued (2004) that such ‘cross-categorial’ strings have comprehensible inferential roles, and that there is no compelling reason to deny them genuine truth-conditions. Indeed, I’ll suggest in §3 that such apparently absurd combinations are an important source of the imaginative power of human cognition. But the pervasiveness of the more purely syntactic class of restrictions on systematicity should not be underestimated – nor, I think, their theoretical importance ignored.6

With these two important caveats noted, we can reiterate the main point so far: compared with other representational systems, language is extremely abstract, both in virtue of the highly arbitrary semantic principle by which vehicular items map to contents, and in virtue of the highly neutral syntactic principle by which vehicular items combine into representational wholes. Languages combine these two forms of abstractness to produce a high degree of topic-neutrality, and hence of expressive power. To the extent that human conceptual thought displays a similar degree of topic-neutrality, this provisionally suggests that it too may employ similarly abstract semantic and combinatorial principles.

The third major feature I want to draw out of systematicity follows directly from the requirement of syntactic re-combinability. We can only identify concepts as forming a stable, systematic structure if it is possible to segment representational wholes into parts which can be re-tokened in different

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6 Further, even if we focus exclusively on formal languages which lack such ‘non-fundamental’ syntactic limitations, such as predicate logics, we still encounter strong limitations on systematicity, insofar as they only permit inter-substitutability within fundamental syntactic types (e.g., among predicates, singular terms, or quantifiers). In this sense, formats like maps and diagrams are arguably more systematic than language, because they employ fewer syntactic types and only a single combinatorial rule which applies to all their constituents. The corollary is that such systems only need so few types because their more robust combinatorial principles heavily restrict what sorts of things their basic constituents can represent; hence, they achieve maximal systematicity within a much more restricted domain than language.
combinations on different occasions. That is, a systematically recombinable representational system must be digital. Here again, language provides a paradigm of digitality. Words are (assumed to be, modulo the worries about compositionality above) stable atoms of meaning; and linguistic combinatorial operations like predication are discrete functions that take (typically) 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 representational units independently of assigning them an interpretation; moreover, to the extent that this is possible, the semantic significance of such elements – say, of three lines coming to a point – typically depends on their role within the larger context.

One might think that for the purposes of systematicity, all that matters is that a representational system be digital, so that it has parts which can be assigned stable semantic significance and recombinable. And one might also think that for this reason, any digital representational system is de facto linguistic, because a language just is a representational system with semantically stable, recombinable atoms. 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, 107-8) 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 whether the representational whole has “a canonical decomposition.” However, like semantic arbitrariness and combinatorial neutrality, digitality is a matter of degree, with many representational systems falling between the two extremes given by pictures and language. And once again, a system’s degree of digitality makes a substantive difference for what and how it represents. For instance, many map systems, such as city maps, employ a finite base of recurrent elements (e.g. crosses for churches, green squares for parks, circles for sites of historical interest); but they also permit those icons to be placed in any of 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 spatial arrangement. (Seating charts provide an even clearer example.) The map system is still technically digital or discrete so long as there is some lower bound on the fineness of grain of the semantically significant locations at which icons can be placed; but it is much denser, in contrast to the relative sparseness of language.

The fact that linguistic systems are highly digital helps to make them robust against certain kinds of interpretive error, because it renders many small differences in implementation representationally irrelevant. Thus, different utterances of the same word differ significantly in their bare physical features of pronunciation or inscription; but because those differences don’t make a representational difference,
hearers simply *hear* or *see* the same word as being tokened each time. By comparison, analogous differences in an icon’s location on a map or diagram are likely to produce a much bigger representational difference. On the other hand, 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, and with typically more radical results.

In addition to being more representationally dense than language, many other systems are also more highly relational. Thus, maps, phylogenetic trees and Venn diagrams all work by placing elements in relation to one another, with no upper limit on the number of items, and with every item automatically placed in a substantive relation to all the others. By contrast, language has as its fundamental unit a propositional or sentential phrase: on standard models, a verb phrase predicated of a noun phrase. Below that level, additional information can be included as qualifications; and above it sentential connectives link propositions together. But the basic unit of linguistic significance tends to contain less information than other representational systems, and stores that information as a discrete unit. As with our first two features, a system’s degree of relationality brings both advantages and disadvantages. On the one hand, it can be unwieldy to compile and manipulate lots of information linguistically – say, the locations of all the Dunkin’ Donuts in the city – linguistically. By contrast, adding or altering one symbol in a map or diagram automatically updates the represented relations to all the other symbols’ referents, informational compilation and transformation which would require active inference in language comes along as a ‘free ride’ in those systems (Shimojima 1996). On the other hand, the high degree of relationality in maps and diagrams can also make it difficult or impossible to extract bits of information from them, and especially to represent general states of affairs without representing their specific instances (Camp 2007). Thus, insofar as humans are adept at extracting and manipulating isolated units of abstract quantificational information, this suggests that the underlying conceptual format is in language or at least language-like in this respect.

In this section, I have attempted to motivate and articulate the intuition that conceptual thought is systematic. The basic job of concepts is to classify multiple instances as belonging to the same kind. This means they must abstract away from some (indeed, indefinitely many) features of those disparate instances, remaining stable while being redeployed across a variety of environmental and cognitive contexts. If we assume that thought requires a vehicle at all, then these intertwined features of abstractness and redeployability entail that the relation mapping vehicle to content 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 different combinations, and to 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 re-combinable elements must also 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 are arbitrary re-combinable bits, then they must be a lot like words. Further, the considerations supporting systematicity are highly plausible. The possibility of thinking about the same thing as the same on multiple occasions, and of subsuming multiple instances as belonging to the same kind; the possibility of using inference to produce belief in or justification for new thoughts; the possibility of changing one’s attitude about the same thought – these are all fundamental tasks for concepts to perform, and all depend on conceptual thought employing systematically re-deployable, re-combinable representations. Further, it is highly plausible that humans actually perform these cognitive tasks on a regular basis. Finally, we 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 found 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, all of the features I have discussed can be satisfied by non-linguistic 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, types of error and breakdown, and expressive power, delivering distinctive profiles of representational advantage and weakness.

Second, the conclusion that the format of human conceptual thought is either in or is significantly like those of natural and formal languages does not involve a general inference about thought as such, but relies upon the contingent fact that human conceptual thought manifests a pattern of abilities that mirrors the representational advantages of language, particularly its expressive power. Other creatures display different profiles of representational ability and limitation, which suggest that their thought may employ a different format(s) (Camp 2007, 2009b). So long as their cognition is significantly systematic and stimulus-independent, I have argued, it is also ‘conceptual’ in a substantive sense of that term (Camp 2009a).

Third, the conclusion that human conceptual thought is language-like must be tempered by the realization that natural languages themselves do not fit the paradigm suggested by the Language of
Thought hypothesis. In particular, they exhibit significant limitations on full syntactic recombinability, and it often seems as if the intuitive meaning of whole sentences depends on the context of utterance, including interactions among their constituent words, in ways that cannot be traced back to otherwise obvious semantically-legislated context-sensitivity (as exemplified by ‘I’) plus general compositional rules. Thus, it is controversial whether words themselves are systematically re-deployable, re-combinable representational atoms. The assumption that they are should be seen more as a methodological commitment, borne out of the need to explain somehow how speakers and hearers converge on common communicative contents. Instead, the idealized model of ‘language’ assumed by the Language of Thought hypothesis is much closer to that of formal logics like the predicate calculus.

§2. Association: Characterizations as Contextual Gestals

Faced with the considerations above about the systematicity of conceptual thought, many psychologists are likely to diagnose a typical case of philosophical legislation: of stipulating features that thought must exemplify if it is to fulfill a philosophers’ fantasy of rationality. I noted at the end of §1 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 answer questions 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 sub-condition, in cases where the 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 anti-nuclear 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% of subjects opted for the second response, even though logically, no conjunction can be more probable than either of its conjuncts (and as subjects themselves willingly concede).

More generally, it is increasingly well-established that associative thought, in the form of 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 range of studies have
demonstrated that presenting the same set of facts against the background of different interpretive perspectives, or through descriptions emphasizing different features, produces dramatically different emotional and moral responses, as well as different estimates of probability and assignments of causal responsibility. However, stereotypes, perspectives, and ‘framing’ also play a pervasive role in our thinking more generally, even when we aren’t explicitly focused on emotion, moral evaluation, probability, or causality.

The considerations from §1 about how linguistic formats function show that if human concepts are recombinable representational atoms, then they are ill-equipped to produce associative thinking. In particular, concrete images play an important role in associative thought, especially in facilitating rapid recognition and in motivating emotion and action. But insofar as concepts employ arbitrary mappings between vehicle and referent, 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 precisely their cross-contextual stability, and in particular their capacity to be re-deployed in multiple cognitive contexts while retaining the same significance. Finally, associative thought is highly synthetic, bundling lots of information into intuitive clusters; but the digital quality of linguistic systems leads them to store much information in separate bits, with many connections retrievable only through active inference.

It should not be controversial that associative thought employs intuitive, context-driven, synthetic classifications which rely on images and emotions and depart from the deliverances of logic. However, many philosophers appear to assume, at least implicitly, that nothing more substantive can be said at a theoretical level about how associative thought actually 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. So, for example, Proust’s bite into a madeleine reminds him of his Aunt Leonie not for any logical reason, but only because she used to give him a bite of the cookie on Sunday mornings. If this is all association amounts to, we shouldn’t expect

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much in the way of interesting interpersonal generalizations about which associations people form and what they do with them.

I think we can identify a more substantive, nuanced cognitive structure in play – one that warrants theoretical investigation in its own right and that interacts with conceptual thought, of the form discussed in §1, in interesting ways. We do sometimes engage in purely Proustian association. And ‘associative thought’ itself comprises a variety of distinct, partially overlapping capacities and dispositions (Evans 2007). But at least some of our intuitive, holistic, affectively- and imagistically-laden thinking manifests a sufficiently high degree of functional integration and interpersonal similarity to be worth picking out in its own terms. 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). 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 I am a philosopher, and because most advocates of prototype and ‘theory’ theories of concepts have taken prototypes and theories to perform the cognitive tasks identified in §1 – that is, classification of instances under kinds which permit re-deployment and thereby underwrite inference and attitude revision – when I speak of ‘concepts’ I mean concepts of the sort described in §1. By understanding the distinctive functional roles played by concepts and characterizations, we get a clearer overall picture of the cognitive terrain; perhaps more importantly, we free ourselves to appreciate characterizations for the tasks 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 collections, 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. Importantly, these include affectively-laden properties concerning how the subject in question tends to make one feel: for

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8 Recently, Tamar 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 often less cognitively sophisticated and contextually malleable than characterizations. I believe that aliefs and characterizations are both theoretically rewarding constructs, with overlapping but non-identical extensions. A more systematic comparison remains a topic for further work.

9 Or metaphorically; see Camp 2006.
instance, the terror one feels upon encountering a stern professor in the hallway, or the awe one feels upon walking into a sunlit cathedral.

I take the characterization of quarterbacks I 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 necessarily ways of thinking about *types*, characterizations can also represent individual persons, objects, and events: Barack Obama, the Notre Dame Cathedral, or the March on Washington. (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.) 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 anyone else’s), and I may have a characterization of something that 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 in 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 which I take to be fitting albeit false: thus, John just is 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 actually possess because they don’t fit well into my characterization: thus, I might tend to forget, or otherwise downplay, the fact that Bill 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.) It might be nice if fittingness could be reduced to statistical norms across the board. However, I strongly doubt that this is possible; in particular, intuitions of fittingness often appear to have a more squarely aesthetic basis.

Arthur Danto (1981, 207) invokes what I take to be the relevant notion of ‘fit’ 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 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.

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.10

The third major feature of characterizations is that they don’t merely consist in 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 as a function 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 much in identifying him.11

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 et al 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.12

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 the two ways of seeing Figure 1. On either way of seeing the figure, the role that each constituent element plays depends on the roles played by 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

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10 I discuss the role of perspectives and fittingness (and stereotypes) in connection with slurs in Camp 2013.
11 I take it that prominence is the most influential determinant of a feature’s prototypicality relative to some class of objects – although this is obviously a matter for empirical investigation.
12 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 within which attributions of causation are the most important species.
basic elements themselves to represent different things: the same set of pixels comes to be seen as a nose, say, or as a wart.

![Image](image1.png)

*Figure 1: The Old Crone/Young Lady*

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 a central factor in his personality, then his teasing remarks might seem like harmless attempts at bonding; while if I take his desire to be in control to be more central, those same remarks will appear malicious and manipulative.\(^{13}\) In each case, I acknowledge that he is both sociable and values control; the difference lies in how I weigh those features and connect them to others. However, these differences in assignments of centrality may in turn lead me to make different judgments about Bill’s future actions and about what evaluations of and responses to him are warranted; and they affect which other features appear fitting or odd. Moreover, the particular species of sociability and control that I attribute to him are themselves a holistic function of the roles that these features play in relation to the rest of my characterization. This sort of holistic structural context-dependence is especially obvious and forceful with respect to emotional significance, which typically ‘colors’ a wide range of features, and engenders distinct high-level 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;\(^{14}\) and as noted above, there is ample psychological

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\(^{13}\) 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.

evidence that different characterizations of the same set of facts both produce and are produced by different emotions.

§3. Concepts and Characterizations: Differences

Given this sketch of characterizations, it is obvious that they cannot simply be identified with concepts as discussed in §1. Among other things, many concepts lack any intuitive characterization, or have characterizations that are so minimal as to be vacuous: for many people, ‘1/4 inch hex nut’ or ‘square roots of 4’ might be examples. More fundamentally, the role of fittingness precludes characterizations from fixing the reference of what they represent, insofar as thinkers don’t necessarily take either the presence or absence of fitting features to determine whether a something belongs to the relevant category: we all recognize, for instance, that counter-stereotypical quarterbacks or birds are still actually quarterbacks or birds.\textsuperscript{15} It also means that characterizations cannot be equated with what are sometimes called ‘conceptions’ (e.g. Woodfield 1991): 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, though, the discussion in §1 allows us to identify three more basic differences between concepts and characterizations, grounded in the fundamental functions we identified concepts as performing.

The first job of concepts is to be capable of being re-deployed across various cognitive and environmental contexts. A concept’s representational significance must remain stable if the thinker is to subsume different instances under the very 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 a thinker to engage intuitively with her 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, one can alter a thinker’s cognitive context by priming for different concepts, even quite briefly, which in turn dramatically alters how people intuitively construe and act in relation to a given subject.\textsuperscript{16} More generally, much of the cognitive work – and the cognitive and imaginative interest – of personal conversations and of reading narratives consists in aligning one’s own intuitive characterizations and overall perspective with someone else’s.\textsuperscript{17}

\textsuperscript{15} This is a familiar philosophers’ complaint against prototype theories of concepts: see e.g. Rey 1983, Fodor and Lepore 1996, and Laurence and Margolis 2000.
\textsuperscript{17} See Camp (ms.).
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 which 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 characterization’s overall structure, and in turn the significance of particular constituent features, can be dramatically affected by the thinker’s emotional state or mood.

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 job 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.

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 the individuation of concepts is obviously a contentious topic in its own right, they are typically individuated by reference plus inferential role (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 re-deployability is so important for concepts, most theorists reject strong holism, by restricting a concept’s individuating inferential role to just 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 only which features but also the organizational structure of those features is crucial for characterizations, and because that structure is itself responsive to context-specific factors like intensity, diagnosticity and centrality, characterizations typically differ from one another in 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 current cognitive or communicative purposes – but we shouldn’t expect that there will be a specific standard or degree of sameness that applies across individuating contexts.

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 this sort of systematic recombinability. Merely 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 (sadly) no substantive characterization of feminist bank tellers. Similarly, I have a fairly rich characterization of Anna Karenina, and another of what’s involved in being President of the United States, but little in the way of a characterization of Anna Karenina being President. More importantly, when characterizations do combine, the combination may contain features that are not contained in either of the individual characterizations, but that ‘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, if we think of characterizations as performing the tasks of concepts, failures of combination and emergent features seem like serious problems. But if we acknowledge characterizations as having their own representational function, it makes 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 about the referent of the combined concepts – of NAPOLEON’S MISTRESS, say – that determines which features go into the combined 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 re-deployed across a variety of combinations and mental attitudes, entertaining or endorsing a thought containing a certain concept is both necessary and sufficient for exercising the corresponding conceptual ability. By contrast, characterizing a subject requires actually structuring one’s thinking about the subject in the relevant way, so that the relevant lower-order features really play an appropriately prominent or central role in one’s overall thinking about that subject. As a result, it is neither necessary nor sufficient to have a characterization that one explicitly entertain or endorse a propositional thought with some particular content. 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 its constituent features. Rather, what matters is that one actually structure one’s thoughts in the relevant way, so that those features actually are appropriately prominent or central, and ‘fit’ in the right way, within one’s overall intuitive thinking about the subject.

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18 These are familiar objections to prototypes as candidates for concepts; see e.g. Margolis 1994, Fodor and Lepore 1996.
The analogy with perception is helpful here. There is a phenomenologically striking and practically efficacious difference between “seeing-as” and “looking plus thinking” (Wittgenstein 1958, 197): for instance, I might know that this feature in Figure 1 above represents the old crone’s nose, and that one a wart, without successfully seeing the figure as (a picture of) an old crone. So too in the case of 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 in thought is partly, but not entirely, under one’s willful control: that is, 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 non-propositional 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 may be quite idiosyncratic, they are not just Jamesean causal associations. Endorsing a characterization amounts to accepting that its assignments of fittingness, prominence, and centrality are consistent 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 to even entertain my characterization, let alone to endorse it by giving you propositional reasons, I can help you to ‘get it’, by suggesting that you focus your attention on the features that are most prominent and central for me, and explaining why I take them to be highly intense, diagnostic, central, and fitting.

§4: 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 which is fast, heuristic, and imagistically and affectively laden; and another, more recent and distinctively human system which is effortful, abstract, and logical. The standard picture is that the associative system shoulders the bulk of unreflective, relatively automatic interaction with a messy, rapidly-changing environment, with the

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19 See e.g. Sloman (1996), Stanovich and West (2000), Evans (2003, 2007), and Carruthers (2006); for recent discussion, see the essays in Evans and Frankish (2009). As noted above, Gendler (2008)’s distinction between alief and belief is also relevant here.
logical system serving as a kind of overseer, stepping in only 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, cases where the two systems conflict are those where it is methodologically easiest to discern both systems in operation. 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 re-deployability is so crucial, result from a demand for cross-contextual stability which, while clearly advantageous, is arguably not essential to cognition as such: a cognitive agent could, after all, represent and respond to multiple instances in similar, but only roughly similar, ways, so that they couldn’t really entertain the same thought twice, adopting different attitudes toward it on different occasions. These are the sorts of considerations that lead 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 human cognition, there is an important sense in which concepts are more basic than characterizations. Concepts are recombinable representational atoms, with stable referential and inferential significance. Given this, the conditions on possessing a concept (as opposed to full mastery of it) are comparatively minimal: one only needs to be able to think about the relevant object or property and draw a few core inferences about it; in many cases not much more than hearing a word in the public lexicon is required for this. As noted in §3, though, we lack substantive characterizations for many of these concepts.

Further, characterizations themselves depend upon concepts, insofar as concepts provide the stable anchors which preserve characterizations’ referential import through changes in its 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. 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 she possesses two distinct concepts for that thing, with the failure to recognize co-

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20 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 she fails to realize that two concepts are in face co-extensional.
referentiality between the concept and the characterization holding in virtue of a failure to recognize coreferentiality between those two concepts. 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 is 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 §3 I resisted full-blown pluralism, by emphasizing the fundamental differences between concepts’ and characterizations’ functional roles. I think much philosophical and psychological confusion has been sown by thinking of characterizations as concepts, and that we gain a clearer understanding of each by separating them – and indeed, 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 the deeply intimate relationship between them; and for this purpose, the ‘pluralist’ model is quite helpful.

More specifically, I want to suggest that the minimal, abstract, systematic structure of concepts serves as a scaffold which undergirds the contextually-malleable complexity of characterizations, and that the combination of both structures is key to the fertile imagination distinctive of human creativity.

As we saw in §1, other 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 and semantically arbitrary representational atoms, and combines them using just one or a few highly abstract, 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

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21 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.

22 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.
condition on conceptual thought in its own right (Camp 2009a); but even more clearly, it is an essential condition for imagination.

By itself, however, merely possessing a representational system with the capacity to represent a wide range of non-actual states of affairs doesn’t give a thinker any motivation to exploit this capacity, or even to realize that she has this capacity. Here again, linguistic systems are distinctively well-equipped for exploring the space of unrealized possibilities, not just because they are potentially topic-neutral and stimulus-independent, but because they permit hierarchically recursive representations, of a sort that underwrites an ability to represent one’s thoughts explicitly to oneself (McGeer and Pettit 2002). By itself, however, possessing a representational system with the capacity to represent a wide range of non-actual states of affairs doesn’t give a thinker any motivation to exploit this capacity, or even to realize that she has this capacity. Here again, linguistic systems are distinctively well-equipped for exploring the space of unrealized possibilities, not just because they are potentially topic-neutral and stimulus-independent, but because they permit hierarchically recursive representations, of a sort that underwrites an ability to represent one’s thoughts explicitly to oneself (McGeer and Pettit 2002). 23 Observing the compositional structure of one’s representations may in turn 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’, 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 should count as a genuine kind of understanding. 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 the combination of Anna Karenina and 21st century 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). Other times, the result may be 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 broader characterizations associated with the operative terms.

§5. 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; and this in turn requires that concepts be arbitrary, re-

23 Although some other representational systems, such as phylogenetic trees, permit hierarchical recursion, their operative syntactic principles lack the semantic neutrality to underwrite a general metacognitive ability.
deployable, recombinable representational atoms. The specific contours of human thought, and in particular its high degree of topic-neutrality, its adeptness at manipulating quantificational information, and its capacity for truth-preserving transitive 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 – holistic and associative. Among other things, this means that it is experientially-grounded, relational, and intuitive. This in turn requires some representational structures – call them characterizations – that are rich, contextually-malleable, imagistically- and affectively-laden. For better and for worse, characterizations are operative throughout our immediate, everyday engagement with the world. But they build on the more minimal and more universal structure of concepts. As a result, they also play an essential role in metaphor, fiction and scientific and philosophical exploration. Instead of arguing over ‘how the mind works’ or ‘the nature of thought’ in general, then, we should probe – and appreciate – the multiplicity of functions that cognition fulfills, and the ways in which the structures underwriting those functions interact.

Given these conclusions, I see three main areas for future research. First, I think more attention needs to be paid to representational formats that fall between the extremes of pictures and language. There has recently been a renewed interest in the semantics and even syntax of pictures (e.g. Kulvicki 2006, Greenberg 2011). This is a vitally important and interesting project in its own right. But too often philosophers assume a sharp dichotomy between pictorial and sentential modes of representation. As we glimpsed in §1, 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, including non-human animals, at different times.

Second, we need to further investigate forms of associative thought that are not merely idiosyncratic chains of causal association, but that display significant, distinctive, and even normative 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 thought? (In this context, a sustained comparison with Tamar Szabó Gendler’s notion of aliefs would be especially useful.) It also involves getting clearer on the distinctive norms governing characterizations. Assignments of fittingness in particular involve a crucial aesthetic dimension; but prominence and centrality both depend on 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?

Third, we need to attend to ways in which concepts and characterizations interact, both antagonistically and symbiotically. I have argued that getting clear on the distinct functional roles played by both types of representational structures allows us to recognize each structure for what it is. But where ‘dual systems’ approaches tend to emphasize the ways in which associative thought falls short of logical norms, I have suggested exploring the ways that the two structures support and enrich one other. This includes not just the standard tasks tested 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, in general philosophers (and psychologists) assume that the job of language is to express thought, and that the lexical values of words are concepts. But a range of expressions and uses of language have as at least part of their function to express and manipulate characterizations and perspectives; among these are metaphor (Camp 2006, 2008), slurs (Camp 2013), and generics (Leslie 2007, 2013). This again suggests that characterizations and related structures of associative thought are not merely concepts manqué, but representational structures in their own right, which find systematic expression in and through language.
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