

# **Predicative Minds**

**The Social Ontogeny of Propositional Thinking**

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# 1 The Many Faces of Predication

This chapter maps the territory to be covered in this book. Section 1.1 begins with a conceptual portrait of predication drawn along two sets of dimensions, which I call *list S* and *list P*. The list S contains such standard dimensions as language, its expressions, and their formal structure, concepts, and truth conditions, among others, whereas the list P contains less visible but as important, if not more important, mental and pragmatic dimensions, such as predicate-to-subject directedness, topic-comment-presupposition format, and intended descriptiveness. Section 1.2 suggests that as the content of a thought, a predicative proposition is one that meets the conditions on both lists S and P. An S-dimensioned proposition is only minimal and nonpredicative. According to section 1.3, if the content of a thought is only S-dimensioned, so to speak, it merely joins the representation of an object to that of a property, an agent to that of an action, and so on. This is coinstantiation, as I will call it, but not predication. The notion of coinstantiation will be the main critical weapon used against a variety of accounts of predication.

## 1.1 Dimensions of Predication

Predications are the bread and butter of human propositional thinking and language use. When I think or judge, and say, that this pig is fat, I predicate—mentally and linguistically—a property (fatness) of an individual (this pig). I could have also predicated a relation of two (or more) individuals, as when I think and say, for example, that this pig is fatter than the one over there, or that this pig is the same as the one I saw yesterday. If I think that [the large and beautiful tree is to the left of the car], I predicate a relation (to the left) of two items of variable complexity (the large and beautiful tree, the car). The predicative mind also treats identity, analogy, or comparison as relations, hence predications, in largely similar terms.

Most of our predicative thoughts are of these sorts—object-property, agent-action, and various kinds of relations between two or among three or more items. Most of our deliberate and conscious thoughts are predicative, although not as simplistic as these examples may suggest. Predication, in short, is a way of linking concepts in a thought or judgment, expressed propositionally in an utterance or written sentence, to the effect that certain arrangements obtain among the items that the thought or judgment represents. This formulation is almost right but not quite, as we shall see. But it will do for the moment.

We can look at predication from (at least) three distinct angles. One angle is that of the *output*, the resulting representation, whether in the form of a judgment or utterance. I will treat the notions of judgment and thought as equivalently about the occurrent representational output of some mental act, and leave the notion of proposition to characterize the content of a thought or judgment. Another angle on predication is that of the *mental act* of predicating—or rather the activity, because it is a fairly complex set of acts—that produces the output representation. And a third angle is that of the *mental competence* whose exercise results in predicative acts. The aim of this book is to understand this competence, what it is, and where it comes from—to understand, in other words, what it takes to become a predicative mind and operate like one. But understanding the competence depends on getting the right story of the outputs, the predications, because it is through the latter that the competence is manifested and thus approachable theoretically. So the first task is to have a clear idea of what predication is. Given the examples just given, a sensible suggestion seems to be that a predication is a union or joining of two or more mental and/or linguistic representations that satisfy certain conditions. Common-sense reflection joins a philosophical and psychological consensus that a predicative judgment or thought, linguistically expressed, must at least have the following features or dimensions.

### The S-List

A predicative judgment or thought

- represents information in some *code* or language [encoding]
- its information is *categorized* under some recognition devices, from sensory discriminations to *thematic* categories and concepts that represent objects, properties, agents, actions, etc. [thematic categorization]
- is *structured* by some combinatorial capacity into distinct components [linkage]

- reflects structurally thematic relations, such as object-property, agent-action, or object-relation-object [thematic structure]
- there are items, facts, and situations in the world that the thought is *about* and *true* of [aboutness and truth conditions]

I call these the *S-dimensions*. For exegetical reasons, the wording of the first dimension, concerning encoding, is left vague to allow for the possibility (later denied) of nonlinguistic animal or infant predication. Likewise, the wording of the linkage dimension is left vague to allow for the possibility of nongrammatical combinations in animal or infantile thinking. For the purposes of our discussion, the difference between categories and concepts is that the latter alone are embedded in complex networks that allow logical transitions and inferences. A dog surely has the category of cat (full stop), but may fail to connect it to the related categories of animal, mammal, feline, bird hunter, and so on, in which case the dog is a categorizer but not a conceptualizer.

The list S reflects (what we may call) a *structural perspective* on predication. It is the *standard* perspective on predication. It is also a perspective that reveals the *surface* form of predication. (Three good reasons for the S prefix.) According to the list S, predication is manifested and visible in its symbolic expression, grammatical organization, logical form, the concepts employed, and the resulting semantic content as propositional meaning.

The S-dimensions are clearly necessary for predication. But are they also *sufficient*? If they were, as the sole guide to predication, then the competence for predication would consist basically of the language resources, whether mental or natural, thematic categories or concepts, and some combinatorial or general reasoning abilities. The acts of predication would then amount to recognizing and categorizing inputs along thematic lines (objects, properties, etc.), and linking the thematic categorizations in (what I will call) minimally propositional coinstantiations. It turns out, as noted in the next chapter, that most theories of predication—in philosophy, linguistics, and psychology—take the list S to be definitive of predication, thus adopting the structural perspective, and differ only over which S-resources are involved and at what level of cognitive complexity.

What else is there, one may reasonably ask? After all, an S-dimensioned output does seem to be all there is to predication as a form of representing information; and the mental acts that produce the output, by exercising the underlying faculties, seem all that is required psychologically to have a predicative mind. *Seem* is, indeed, the right word, and *representing* not quite the right one. On the analysis proposed here, the S-dimensions, and

the mental acts and faculties they reveal, are only the tip of an iceberg. Most of the predication iceberg is under the S-surface, so to speak, and not visible without the right theoretical eyes. When, with the right eyes, we peek below the surface, we realize that predication is not just a representational enterprise and certainly has not initially developed as one. To see why, consider the strikingly parallel—and indeed quite related—story of propositional meaning.

### The Meaning Parallel

There are different accounts of propositional meaning. Until recently, most focused on the sentence and regarded its propositional meaning in terms close to the S-dimensions such as truth conditions, what its concepts represent, the inferential role of the sentence, the larger contextual conditions in which the sentence can be asserted or its truth established, or so on. Simplifying somewhat but not too much, these structural accounts can be said to analyze propositional meaning in terms of what it takes for a sentence (or some other sort of symbolic expression) to *represent* what it does. This is the semantic notion of meaning as representation.

This structural perspective on propositional meaning has been challenged by a pragmatic perspective, adopted by a variety of accounts, most of them tied to communication and the use of ordinary language. The one of interest here is what may be called the *psychopragmatic* account of communicative meaning, anticipated by George Mead (1910, 1934) and elaborated analytically by Paul Grice (1957). Grice replaces the sentence with the (token) *utterance* as a basic unit of analysis, and the sentential meaning with the speaker's intended meaning that is directed at an audience on a particular occasion. As a result, the meaning of a sentence results from what its speaker intently means by uttering it. For Grice, then, sentential meaning derives from the mental act of the speaker, which is the act of meaning something on a particular occasion. And the act of meaning itself expresses the intent to convey information by producing a mental effect in an audience. There will be more on this Gricean story and its implications for predication in chapter 4, section 4.1.

Important to note right now is the fact that the Gricean account switches the frame of analysis of propositional meaning from the formal and conceptual structure and the semantics of a *sentence* (as a visible and frozen output, so to speak) to the psychology of the mental act of *intending* to communicate through a particular *utterance*. It is a switch from meaning as representation to meaning as intent to use information with a social effect. I will propose a rather similar switch in the analysis of predication,

from the set of representation-bound structural and semantic S-dimensions to a set of dimensions that reflect the unique psychopragmatic design of *predicating*. I call them the P-dimensions. They go beyond semantic representation, and reflect mental intent and, at least in early development, its social impact.

### The P-List

According to the new list, a predicative thought also

- intently and *explicitly directs* the content of a thematic representation or more at the referent of another thematic representation or more, thus instantiating a thematic relation, such as object-property, agent-action, or agent-relation-object [intended directedness]
- organizes the resulting content in a specific, limited, and well-structured *topic-comment-presupposition format*, and makes this content, so organized, available to further predicatively sensitive mental operations [topic-comment-presupposition format]
- and does so in an intently *descriptive*, reportorial, or declarative manner [intended descriptiveness]

Suppose I think that [this house is big]. This thought emerges out of the exercise of a mental competence that selects and directs the representation of a property (bigness) at the representation of an object (house), and in so doing, describes or states a fact. According to the analysis of the next few chapters, the predicative nexus between property and object (or other thematic patterns of predication) is not just joining them in some pattern. The notion of intended directedness is meant to identify an additional factor that is involved in the predicative nexus. What the predicate represents (e.g., a property) is mentally directed, intendingly, at what the subject term refers to (e.g., an object), even though this intended directedness may no longer be apparent in most routine predications.

This first P-dimension reflects the mental activism of predications (so to speak)—that is, the fact that the predicator has initiative and control over what and how they represent propositionally. A mere coinstantiation of thematic categories, triggered by some perceptual or memory input, usually is passive and reflex, as in general is nonpredicative thinking. *Mutatis mutandis*, this difference is echoed in that between Grice's speaker's meaning and the standard representational meaning of a sentence.

Another factor, also responsible for the specificity and unity of predication, is identified in the next dimension. Unless it emerges out of the blue, in a sort of "mental ballistics" (to use a metaphor of Galen Strawson), a

predicative thought normally occurs within a presuppositional envelope, whose main elements are: a broader theme or context, as part of a train of thought, discourse, or conversation; some background information; some expectations; and some goal, as part of a well-aimed “mental artillery.” Within this envelope, a predicative judgment has a specific topic, which it focuses on (the house, in our earlier example), and makes a comment about it (that it is big). Although in this example and many others the grammatical subject is the topic and the grammatical predicate is the comment, the topic-comment tandem can be extremely flexible, often transcending the narrow distinction between grammatical subject and predicate.

Finally, a predication is (again) intendingly or deliberately descriptive or reportorial, as it aims to state, describe, or inform about a definite and limited fact or situation. Moreover, it does so in terms that are publicly intelligible or shared, as opposed to egocentric or self-centered. This dimension may look trivial but it is not. Like the other two P-dimensions, it is not implicit in and cannot be derived solely from the S-dimensions. As argued later, an intended descriptiveness is not inherent in just having thoughts, nor is it inherent in such thoughts just being propositional.

### Two-Tiered Operation

This way of looking at predication anticipates a two-tiered operation of the predication competence. To put it somewhat metaphorically, we may say that the mental abilities responsible for the P-dimensions—P-abilities, as I call them—form the hidden and underground core of predication, whereas the S-abilities form its outer and visible shell. The mental acts of predication can be said to convert the work of the P-abilities into the work of the S-abilities, thus mapping the deeper psychopragmatic P-dimensions onto the surface expressive, conceptual, and formal (logical and grammatical) S-dimensions. So construed, the predication competence can be said to operate at two levels: the P-level first, and then the S-level.

The proposal, elaborated in later chapters, is that the predicator *begins* by intending to direct the meaning of a predicate word at the referent of a subject word, as a comment about a topic, in order to share or convey descriptively some information (level P), which is then represented according to the S-dimensions (level S). The intentful act of directing is the *mental* (or *psycho*) component of predicating. The *pragmatic* component reflects the context-dependent topic-comment-presupposition matrix underlying a predication. So construed, predicating amounts to a set of psychopragmatic acts whose output is encapsulated in an explicit representation with



propositional content. Neither the mental nor the pragmatic components of a predication are necessarily manifest in the output structure that normally reflects only the surface S-dimensions—whence the tempting illusion of predication as mere representation.

For both the producer and consumer of predications, activating or tracking (respectively) the P-dimensions of predication requires *going beyond the output or surface representation* that embodies only the S-dimensions. For the producer, it is a matter of thinking or judging predicatively, according to the P-dimensions; for the consumer, it is a matter of inferring the P-dimensions from the context, other clues, and what is literally said in terms of S-dimensions. This is how communication works in general (Sperber and Wilson 1986). As in the parallel case of the Gricean notion of meaning, the communication angle is crucial, if we want to understand the origins of and reasons for predication.

Think, for a moment, of the alternative angle. If human thinking were built solely around a competence to represent the world, as widely assumed in philosophy and cognitive science, then it could do the job just fine with the mental faculties, acts, and structures that reflect the S-dimensions—hence nonpredicatively. This will be the critical point about coinstantiation in the next chapter: it could well do the job of representation, without predication. This contrast begins to suggest that predication might not originate in the representational resources of the mind, and might not have evolved for reasons having primarily to do with success in representation. Indeed, I will argue, although it ends up as the inextricable core of human thinking, predication actually enters the house of thinking, in early childhood, not through the front door of mental representation, but rather through the back doors (there are several) of interpersonal coregulation, intersubjective interactions, and the intent to influence other minds, all converging on word acquisition as the antechamber of predication.

## 1.2 Two Kinds of Propositions

For both the critical and constructive side of my argument, the distinction between the S- and P-dimensions needs to be related to, and further refined in terms of, other notions that are technically associated with predication. I begin with the controversial notion of proposition, modestly intended here to characterize the content of a representation, whether mental, linguistic, or logical.

Suppose I say, “This guy is not nice,” and you ask, “What do you mean?” You fully understand the literal meaning of what I said. That literal meaning

is what I will call a *minimal proposition*. I call it “minimal” in order to contrast it with a predicative proposition. A minimal proposition can be the semantic content of a list, such as <this, guy, not nice>, conjunction <this&guy&not nice>, an abstract formula, as in the predicate calculus, on which more anon, or psychologically, of a thought that has a specific combinatorial pattern, with its own unity, which is *not* predicative. In the case of the list, conjunction, or the abstract formula, I would say that the content is a *logically* minimal proposition, and in the case of the (nonpredicative) thought a *psychologically* minimal proposition.

Your question was about what *I meant* to say—that is, what *I intended* to convey, informationally and attitudinally, by saying what I did. It may be that the guy was the topic of some prior conversation, in a context where being nice or not mattered. My predication projects the literal meaning of what I said, and hence the logically minimal proposition expressed, onto this psychopragmatic background. The intended result is a *predicative proposition*—that is, one that also satisfies the P-dimensions. A thought, therefore, is predicatively propositional only when, and thus because, it is intended to represent some state of affairs according to the P-dimensions.

According to later chapters, an animal or infant thought has only a *psychologically* minimal proposition as content. Such kinds of thoughts are mental vehicles (though not necessarily sentences in a natural language or symbol structures in a mental language) that represent various kinds of items, according to the S-dimensions, and therefore have truth-values in virtue of what they represent in some combinatorial pattern. As noted in the next section, this combinatorial pattern has its own sort of functional unity, but one that is not predicative.

### The Unit Question

One may ask why two notions of proposition are needed to characterize psychologically the contents of thoughts—that is, one minimal (list S) and one predicative (lists S and P). Why not a single, standard notion of S-proposition as the predicative content of thoughts, leaving inference and context to fill in the P-dimensions? This is a fair and reasonable question. My preference for two notions is motivated by two related reasons. First, I do not think that minds, whether animal or human, think and communicate just by having semantic contents—that is, by representing, literally, in terms of minimal propositions. Such contents are likely to be cognitively and behaviorally inert, unless inserted in wider dynamic ensembles that

reflect psychopragmatic parameters, such as those on the P-list in the human case (Bogdan 1989). In that case, the *unit* of thinking and communication is bound to be a psychopragmatic rather than merely semantic content. If a predicative thought or utterance is such a deliberately formed unit, then it must reflect more than its S-core of representation as semantic content.

Second, and relatedly, there is the tough problem of the “unity of the proposition” (the fact that as a content of thought, a predicative proposition is more than the sum of its parts). The unity is assumed to define the nature of predication. Mighty minds, from Plato and Aristotle to Frege, Bertrand Russell, Ludwig Wittgenstein, Willard Van Orman Quine, and Peter Strawson, among others, have struggled with this problem, apparently without much success (for recent surveys and evaluations, see Davidson 2005; Gibson 2004). Their attempted solutions in general focused on the logically minimal propositions as the contents of predicative thoughts. Yet again, these contents are cognitively inert, and no different from the list or sum of their parts. Indeed, these contents are inert *because* they lack unity.

It stands to reason, then, that what secures the unity of predication also demarcates the *unit* of predication. By lacking unity, a list or sum of elements cannot be a unit of predication. Nor can a minimal proposition, either logically or psychologically. The unity and therefore the unit of predication are in the eyes of the beholder, so to speak—that is, of the one who predicates or understands a predication. And the eyes of the beholder, as predictor, see not only the S-dimensions but also, and essentially, the P-dimensions. Seeing only the S-dimensions, as necessary and sufficient for predication, leads to a different, popular, yet misguided notion, already anticipated but further elaborated next.

### 1.3 Coinstantiation

The distinctions introduced in this chapter—between S-dimensions and P-dimensions, and correlatively, between minimal and predicative propositions as the contents of thoughts—provide the main critical tool that will be employed, mostly in the next chapter but also later, against alternative accounts of predication.

The basic idea is simple. It is that representations that possess only the S-dimensions are *coinstantiations*. A coinstantiative representation is one that joins or links thematic representations in some combinatorial but

*nonpredicative* pattern. The content of a coinstantiative representation may be propositional minimally, and hence truth-valuable, without being predicative. Given the earlier distinction between logically and psychologically minimal propositions, we can distinguish between *logical* and *mental* coinstantiations. Both are nonpredicative, but the logical coinstantiation, unlike the mental one, is an abstract representation that satisfies the S-dimensions only and makes no assumption about the mental pattern in which thematic categories are linked, and hence has no unity. (Think of the difference as that between the notion of a circle defined in geometry and the representation of a physical circle.) A mental coinstantiation satisfies the S-dimensions in mental terms, which confer a psychologically coinstantiative unity to it.

A logical coinstantiation is a unit only by stipulation, not intrinsically. Consider the predicate calculus. A logician or mathematician may translate the logical or set-theoretical formula " $Cx$ " in ordinary language as " $x$  is  $C$ " without actually predicating  $C$  of  $x$ , but rather indicating the co-occurrence of a property and a variable, or the exemplification of the concept  $C$  by a class of entities subsumed under the variable  $x$ . This example suggests that even when the copula is treated as a "truth rule" that establishes when a sentence is true—namely, when the predicate term is true of the referent of the subject term (Wiggins 1984)—it does not follow that the sentence is actually predicative and that the "is" in question is of predication. On my analysis, as a truth rule, this "is" (as in " $x$  is  $C$ ") is an "is" of logical coinstantiation. One might suggest that logical coinstantiation is actually *logical* predication. I have no quarrel with the words employed, only with the concepts assumed. The point is that such "logical predication" has little in common with mental predication in thinking or linguistic predication in communication.

In contrast, mental coinstantiations normally result from the concomitant or successive application, through innate programs or acquired habits, of thematic categories, in a spontaneous, usually automatic or reflex manner, without reflection, deliberation, or intent. Spontaneous perceptual or memory judgments that lead to the recognition of objects, properties, or relations, in some patterns, are standard examples of coinstantiative representations. Animals constantly form such representations and so do we, a good deal of the time. As mental representations, coinstantiations are psychologically real and causally effective thoughts. Such thoughts have *their own* functional unity, as they represent more than a list of elements, in light of the cognitive role of the thoughts, their behavioral implications, and the goals they service. For a hungry cow, for instance,

the visual coinstantiative judgment <green lawn ahead> has a motivational and behavioral unity that the separate recognition of lawn and greenness (say, in an experiment) would not have. But that unity is not of the predicative sort, because the P-dimensions are not involved.

From what was said so far, one may conclude that coinstantiation is the core of predication, so that predication would amount to coinstantiation plus. The syllogism behind this conclusion may run as follows. The S-dimensions are necessary for predication; coinstantiation also satisfies the S-dimensions; therefore, coinstantiation is necessary (though not sufficient) for, and thus is a constitutive part of, predication. Necessary in what sense, though? Logically or mentally? Logically, yes, any predication cannot fail to be a coinstantiation of thematic concepts. This is to say, more or less, that a predication cannot fail to have semantic content. If I think that the lawn is green, I cannot fail to conceptualize both the object <lawn> and its property <green>. In this logical sense, I can be said to think *of* a green lawn. But *psychologically*, no, emphatically no: the predicative judgment *that* the lawn is green is vastly different (P-different, that is) from a coinstantiative representation generated (say) by an animal mind. The mental coinstantiation and the predicative thought may converge on the same thematic categories, but mentally speaking, they link and employ them in quite different ways. A wasp and a wolf share a good number of properties, from genetic to phenotypic, but that does not make the wasp biologically necessary for and constitutive of the wolf.

In short, when a predication satisfies the same S-conditions as a coinstantiation, the overlap is necessarily logical but not mental. Even though a predication encodes information, classifies it under thematic categories, links the latter in some combinational fashion, and so on, down the S-list, it does so in a *mental* format vastly different from that of a coinstantiative thought, even though the latter, too, may satisfy the same S-conditions, yet in its *own* format and terms.

### Transition

The thrust of the critical strategy in the next chapter will be twofold: to show that various theories of predication actually are theories of coinstantiation, logical or mental, but also that in such theories, coinstantiation is often confused with predication or taken to be sufficient for predication. This is because most accounts of predication adopt a structural and standard perspective, limiting themselves to the S-dimensions, which is why they are at best accounts of coinstantiation rather than of predication. As