

I An Introduction to the Puzzles of Understanding

The knowledge of every understanding, or at least of the human understanding, must be by means of concepts, not intuitive, but discursive.

—Kant, *Critique of Pure Reason*

When our daughter Joan was little more than a year old, on a whim I said to her, “Joanie, go get your shoes.” To that point, she had never said a word or given any indication of understanding language, so my request was clearly unrealistic. Yet she looked at me briefly, wheeled around, and disappeared down the hallway. Moments later, she returned, shoes in hand and a smile on her face that expressed a pride matched only by that felt by her astonished father. She understood!

But what happened? What is understanding? John Locke’s (1689) *An Essay Concerning Human Understanding* was among the first of a long list of attempts to explain understanding, work continued by such luminaries as Hume, Spinoza, Kant, and Husserl. In the twentieth century, inspired in part by Wittgenstein, the study of understanding shifted from mental processes to linguistic analysis, from mental states to language about those states.

Psychologists ordinarily take little interest in such philosophical or linguistic analyses, preferring to begin with observations of what subjects do under various conditions. They attempt to explain behavior without preconceptions. They tell stories, ask questions, and invent puzzles that seem to require understanding and, based on observations of the subject’s performance, attribute mental representations and mental operations to them. Indeed, psychologists take it as odd that philosophers bother to analyze such vague and abstract

notions as belief and understanding. They prefer to examine what subjects do, not investigate the properties of the word that appears to merely label the process: as if one could learn about horses by consulting a dictionary rather than visiting a farmyard.

Developmental psychology holds some promise of explaining what it means to understand by capturing young children's first understanding of language and later their learning the concept of understanding. By examining young children's understanding, it may be possible to throw light on the emergence of mental states in general. Experimental research on children's concepts often crosses the disciplinary boundaries between psychological, philosophical, and linguistic analysis. Boundary crossing is always hazardous.

Understanding would seem to be the most commonplace of all forms of experience. It is seeing what is going on, what is happening, putting two and two together, and reaching agreements. And we have all had the experience of understanding as insight, the dramatic grasping of the significance of an experience or the meaning of a story. We understand the feelings of others, and we know how distressing it is to realize when no one understands us. We understand or at least try to understand what we read. Some even know of the "fourfold meanings of scripture" – the literal, the allegorical, the metaphorical and the anagogical – and we know how to understand a variety of specialized forms of literature. If we want to know more, we can consult a dictionary that will inform us that to understand is to "grasp the meaning." So what's the problem?

The problem, as I hope to show, is that our certainties about understanding may be somewhat illusory, an illusion that leads us to think we understand when we actually do not and to uncritically attribute or ascribe understanding to young children, to other animals, and even to brains and computers. Furthermore, it leads educators to assess understanding through tests and texts, without considering the relation between what readers accept as making sense and what teachers insist meets the objective standards of the school. Psychologists assume that understanding is a trainable mental skill

and see no need to ask what we mean by understanding. Admittedly, both scientific and educational approaches to understanding have been sufficiently successful that few have seen any necessity for asking the question. I hope to show that it is worth asking what understanding means.

“Understanding” is a verbal concept in ordinary language with a sufficiently precise meaning that it has a place in ordinary discourse. Understanding is one of a set of mentalistic concepts, including “believe,” “remember,” “think,” and “know,” that make up a “theory of mind.” Nevertheless, understanding is also taken as referring to a set of cognitive processes or skills that psychologists explore by experimental means. To date, there is no exploration of the relation between these two enterprises.

I was drawn to the problem by considering understanding as an emotion, the feelings of understanding and puzzlement that we share with even infants and perhaps other animals. “Making sense,” as I shall define it, is the subjective feeling of understanding, the emotional significance, value, and certainty that permits one “to go on” and that, when lacking, brings action to a halt. This subjective side of understanding is inescapable, but is the feeling of understanding what we mean by understanding?

“Understanding” – that complex faculty that puzzles philosophers and psychologists, I eventually come to argue – is little more than the knowledge of the identity conditions to be met in correctly ascribing understanding to oneself and others. This bold and somewhat opaque claim is developed in six steps throughout the book. The first two steps are fundamental, the other four spell out implications of the first two.

The first step in the analysis of understanding, I conclude, is to determine what the word “understanding” means. To learn what “understanding” means is to learn the identity conditions for the correct application of the word. I argue that the two primary identity conditions for understanding are correctness and intersubjectivity; correctness is determined by evidence, intersubjectivity by agreement

between self and others. The identity conditions for the word “understand” are precisely those for the concept of understanding, thereby reducing the concept to a word meaning. The objects of understanding are expressions in a language that we may believe, as well as those that require us to withhold belief while we consider alternatives.

The second step is to ask who is doing the ascribing. This allows me to distinguish between entities that we, as adults, may ascribe understanding to, from those entities, like ourselves, capable of actually doing the ascribing. Clearly, only one in possession of the word “understand” can make ascriptions. Consequently, it may be appropriate for us as adult speakers to ascribe understanding to young children, dogs, and computers so long as their behavior meets the two criteria for understanding mentioned earlier. What those subjects cannot yet do is ascribe understanding, that is, claim, avow, or attribute understanding to themselves or others. For that, they require knowledge of how to use the word “understand.” Children learn this at about six years of age and they continue to broaden their appreciation of the evidence relevant to correctness and of the expectancies of possible listeners and readers through the school years. Thus, they learn to ascribe understanding to themselves and others.

The third step is to determine why the ability to ascribe “understanding” is cognitively significant. I argue that ascription is not a mere label but a speech act, a claim about understanding that is true or false and justifiable by appeal to evidence and reason, specifically, knowing that the conditions for applying the concept of understanding have been met. Such ascriptions are, therefore, rational judgments for which the speaker is responsible.

The fourth step is to show that treating ascription of understanding as a rational judgment would explain not only the assumptions that govern everyday oral and written discourse but also those involved in the literary practices of written composition and “comprehension monitoring.” Both involve self-conscious decisions as to whether or not the ascription of understanding meets the demands of correctness, as well as agreement with a possibly skeptical audience.

The fifth step is to provide some account of the cognitions and actions of creatures that we sometimes ascribe understanding to but who, as yet, are incapable of ascribing understanding. What I take away from such creatures by denying that they have concepts, I give back by acknowledging and exploring the nature of complex emotions, including the feeling of understanding. To do so, we require a concept of emotion that goes well beyond the traditional notion of emotion as pleasures and pains and grant them the cognitive richness that modern theories of emotion claim. Schacter and Singer (1962) and Oatley (1992; see also Oatley and Johnson-Laird, 1996) pointed out that feeling states are not mere tingles and buzzes but complex cognitive-emotional states with a "content" that accumulates with experience and that provides the basis for expectation as to what is likely to happen next and what to do about it. These rich cognitive-emotional states are the basic sources of behavior and they are shared with all sentient creatures. The relation between the emotional feeling of understanding and the concept of understanding is the central theme of the book.

Finally, the success of artificial intelligence (AI) in understanding language poses a new challenge to a theory of understanding. Computers that pass the Turing test are said to understand. Computer cognition serves as a stalking horse throughout this volume in that the triumphs of AI continue to astonish us and claims about computer understanding are well known, if controversial. Nonetheless, I argue that the difference between humans and computers may be explained by my distinction between "ascribed to" as opposed to "ascribed by" – that is, computers are childlike in that while it is not incorrect to ascribe understanding to them, yet as they lack a public language, they cannot ascribe understanding to themselves or others and in this way are importantly different from human understanders.

It must be pointed out that these principles were formulated not at the outset of my inquiry into understanding but rather as the outcome of the evidence and argument I consider throughout the

book. For me as a writer, they are conclusions; for you as a reader, they are to serve rather as a guide through the arguments and evidence presented throughout this volume.

Understanding is one of the mental states that Descartes claimed he could not doubt. I chose that concept for two further reasons. One was that I had a long, productive, and collaborative research program at the Ontario Institute for Studies in Education of the University of Toronto (OISE/UT) on children's mental states, such as thinking, knowing, pretending, and believing, the domain now referred to the children's theory of mind, and I thought that understanding deserved a place in such an account. The second, more immediate reason was a series of interesting discussions with my friends and colleagues Keith Oatley and Brian Stock as to whether or not computers understood the languages they translated. I suspected not, not only because I agreed with John Searle's suspicions about the validity of the Turing test but also because, to me, there seemed to be an inescapable subjective feeling to understanding, a kind of consciousness of and responsibility for understanding, that computers lacked. Once I began to say why understanding had this conscious, experiential feeling – the feeling that something “makes sense” – I discovered that there is no satisfactory or agreed-upon conception of what it means to understand. Consequently, there are no clear rules for ascribing understanding either to young children or to computers. While some, primarily educators, take subjective “sense-making” as understanding, others, primarily researchers, accept only meeting an objective standard as understanding.

The conclusion I reached, as mentioned earlier, is that understanding is little more than the linguistic concept of “understanding” with rules for correct use and ascribable equally to self and others. The feeling that something makes sense provides only the motivation and confidence to persevere and the satisfactions of achievement. Thus, both conceptual knowledge and emotional commitments are important to the growth of understanding in children and to the achievement of understanding in adults.

The relationship between nonlinguistic feeling of understanding and linguistic concept of understanding may be characterized by the distinction suggested by philosopher Robert Brandom (1994) between sentience and sapience. Nonlinguistic creatures are no doubt sentient; they respond to what is going on and adapt their behavior to fulfill their desires. Only linguistic creatures are sapient in that their actions are shaped by concepts and justified by reason. Consequently, my account of cognitive development is essentially one of semantic development, learning how to use words. But what is usually seen as seamless, I see as marking a watershed. Astington and Baird (2005) asked, "How does language matter to a theory of mind?" My answer: Language permits ascription of mental states to oneself and others.

Somewhat to my surprise, I found that attribution of mental states to children was itself not innocent. The very act of attribution or, as I came to say, following the lead of my philosophical colleague, Jennifer Nagel, the act of ascription is itself important. To ascribe a trait or a property requires that one know that the criteria for correct ascription have been met. Consequently, the fundamental achievement I have been attempting to explain can be reduced to whether a state is merely ascribed to one, as in the case of young children, brains, or computers, or whether one has the ability to make the ascription, a capability I traced to knowledge of the identity conditions for the concept. Understanding is essentially knowing how to use the word "understand." I must say, I had no idea that this would be the outcome of my belabored inquiry, nor that the yield would be so modest.

Although the outcome is modest, getting there called for revolutionary changes in our (my) ideas about the mind, including a revised theory of concepts as word meanings, a new emphasis on the role of emotion in cognition, and a partial rejection of the major paradigm of the cognitive sciences, namely Representational Theory of Mind (RTM) long used to explain the cognitions of both humans and other animals.

The title of this book, *Making Sense: What It Means to Understand*, is borrowed indirectly from Marianne Janack's (2012)

book *What We Mean By Experience*. The title foreshadows the conclusion I have finally reached, namely that the question as to what understanding is can be rephrased without loss as the question of what we mean by the word "understand." When I chose the title, I had no idea that my analysis would lead me there.

I hope to make clear that understanding poses not only philosophical, psychological, and developmental questions but also, equally importantly, educational ones. Understanding is both a presupposition of learning and a goal of schooling. Learners presumably rely on a feeling of understanding, that is, the feeling that what they read and hear makes sense. Yet, by emphasizing the importance of "making sense," educators may overlook the fact that understanding must also meet a standard of correctness set by the concept of understanding and monitored by the school and the larger society. Many educational debates center on a confusion as to what is meant by understanding. Educators can contribute by teaching students the differences among mental concepts such as "understanding," "knowing," and "remembering" and showing them how to judge when the ascription of understanding is warranted. This requires more than a nodding acquaintance with the word "understand" and also requires knowledge of the beliefs and expectancies of the understander and a detailed knowledge of the linguistic properties of widely diverse texts, any of which may provide evidence and reasons for the correctness of one's ascription.

The reader will recognize that my account of understanding is more a record of an inquiry, an attempt to understand a problem, than a systematic review of the relevant psychological, philosophical, or educational literatures. I review these specialist literatures primarily after I have worked out my own view. The first nine chapters in this book develop my account of understanding; the next four chapters relate my account to other accounts available in the existing literature on language, mind, and education. The final chapter, Chapter 14, reviews the uses and limitations of ascriptivism as an account of understanding and of human cognition in general.