

October 10, 2005

Word Learning

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To appear in G. Gaskell (ed.) *Oxford Handbook of Psycholinguistics*. Oxford: Oxford
University Press

What is a word? Is it a particular sequence of sounds, something that we can produce in a single breath? Is it a piece of sound or writing that picks out some particular object, person or event, or perhaps a concept? Some words fit this description, but others such as function words (e.g., *the*, *a*, *of*) do not. Is it a concept that acquires meaning due to its role in the grammatical structure of a sentence? Words certainly may play such roles, but it may not be necessary. Single words have meaning for young children well before they can string them together into phrases. Is it a sound sequence that is produced by a speaker with clear referential intentions? Children pay special attention to people's intentional cues when learning new words, however, it is possible to learn and recognize words in the absence of such cues (Werker, Cohen, Lloyd, Casasola & Stager, 1998).

In this chapter, we will argue that theories of word learning must account for all such aspects of a word. Word learning constitutes a 'special' problem precisely because words constitute complex collections of properties. A word is a symbol. It is a linguistic unit with syntactic, morphological and phonological properties. A word is a social convention. It is a type of intentional action that refers to a meaningful concept. Thus, children's learning of words, even simple names such as "dog", "water" and "Mommy", requires a set of mental capacities that interact in powerful ways.

The multi-faceted nature of words creates a challenge in development, but it is also a guide to further development. Once children have begun to piece out the critical

components of words, this knowledge then constrains and facilitates future learning. As Hirsh-Pasek, Golinkoff, Hollich and their colleagues have noted, word learning requires a “coalition” of systems that become integrated during development (Hirsh-Pasek et al., 2000; Hollich et al., 2000). By 3 to 5 years of age, children have a multi-faceted arsenal of word knowledge at their disposal. This arsenal includes knowledge that is specific to the language system, as well as more general knowledge, for example, understanding others’ intentions (Bloom, 2000; Woodward & Markman, 1998). Even the incomplete knowledge that infants bring to the task of word learning provides important guidance. For example, if the infant knows nothing else, knowing that a word reflects a speaker’s intentions will help them to avoid learning spurious word-object links in virtue of temporal contiguity alone, and increase the likelihood of recovering the intended meaning (Baldwin & Moses, 2001).

Below, we survey children’s acquisition of the essential properties of words, focusing both on the challenge of acquisition and the generative effects of acquisition for further learning. Recent work has begun to explore the earliest roots of word knowledge, and revealed that even at the dawn of word learning, young children bring to bear their knowledge not only of speaker’s intentions but also their knowledge of the conventional and contrastive nature of linguistic symbols, the link between names and conceptual categories, and the probabilistic correspondences between syntax and semantics.

1. Word as symbol

One essential characteristic of words is their symbolic function. Language, or the linguistic symbol, is the form of mediation that has preoccupied psychologists of both

past (Piaget & Inhelder, 1969; Vygotsky, 1962) and present (Bates, 1979; Tomasello, 1999). However, no artifact or action is intrinsically or necessarily a symbol – in fact, there is no limit to the list of things that can represent other things. So how do children figure out what entities function as symbols? Interestingly, recent research demonstrates that young children begin the word learning process with a general openness to the kinds of signs that they are willing to adopt as object labels. For example, Namy (2001) introduced 18-month-old infants to a range of different symbolic media, including words, gestures, non-verbal sounds and pictograms, all of which were arbitrarily linked to their referents. Infants mapped each of these forms to the appropriate object categories, interpreting all four symbol types as object names. In fact, infants between 13 and 18 months of age appear to learn nonverbal ‘names’ for objects just as readily as verbal labels (Campbell & Namy, 2003; Namy & Waxman, 1998; Woodward & Hoyne, 1999). This early flexibility or openness changes in development as slightly older children demonstrate more conservative judgment in the types of symbolic forms that they will accept. Starting at around 20 months, a preference for the verbal modality emerges, grows increasingly stronger (Namy & Waxman, 1998; Woodward & Hoyne, 1999) and by 26 months, interferes with children’s ability to learn arbitrary gestures (Namy, Campbell & Tomasello, 2004). It may be that as children develop a more sophisticated understanding of the conventions that govern their language, their initial amodal orientation gradually becomes focused on the dominant symbolic medium.

Symbols refer to things in the world; they allow us to represent things. Most importantly, symbols are not mere associates of their referents. Instead, understanding the symbolic nature of a sign requires understanding that the word is qualitatively distinct

from its referent. An interesting and important question in the study of early symbolic development is when young word learners appreciate this fact. Preissler and Carey (2004) investigated this issue by repeatedly presenting 18- and 24-month-old children with an unfamiliar word (e.g., “whisk”) paired with a drawing of a whisk. Children were then asked for the “whisk” when given a choice between the original picture that had been paired with the whisk and a real whisk. In response, children almost always chose the real object or both the picture and the object indicating that they assumed that the word referred to the object, not just to the picture that it had been previously associated with. In fact, children never selected the pictured whisk alone. Children’s selection of the real object, either alone or with its picture, indicates that they interpreted the picture and the word symbolically – as representations of real-world objects.

It is important to note that the demonstration of early symbolic competence as discussed above involves presenting symbols in a social-referential naming routine. This signals another essential characteristic of early symbolic understanding. As stated by DeLoache, “a person’s intention that one entity represent another is both necessary and sufficient to establish a symbolic relation” (2004). No particular entities are intrinsic symbols. Instead, symbols are interpreted as such because we understand that they were designed to be interpreted in that way, or are very likely to be interpreted that way (Deacon, 1997). Indeed, work by Baldwin and colleagues (1991, 1993, 1996) and Tomasello and colleagues (Akhtar & Tomasello, 2002; Tomasello, 1999), summarized below, provides a wealth of convergent evidence for the conclusion that, for children, the mapping between words and objects is an intentional, symbolic relation.

I. Word as type of intentional action

The problem of induction serves to clarify the challenge that faces any word learner (Quine, 1960). In a discussion of this classic problem in philosophy of mind and language, Quine asked that we imagine a linguist who travels to a foreign land to learn the language of a newly discovered human population. A native shouts “gavagai” as a rabbit runs by. The linguist’s first reasonable intuition is that gavagai means rabbit and although this is a reasonable first guess, there are indefinitely many ways in which the word could be interpreted. Thus, the challenge for the word learner is not to consider an infinite list of possible interpretations for a new word but to restrict the range of possible hypotheses. Despite the many possible meanings a word might have, 1-year-olds often can identify a new word’s meaning from fewer than 10 exposures to it (Woodward, Markman & Fitzsimmons, 1994). Furthermore, 2- and 3-year-old children can often approximate the correct meaning after a single exposure (Carey, 1978; Heibeck & Markman, 1987).

One critical source of information for children that helps them to restrict this list of possibilities is their knowledge of how speakers communicate. To build upon our discussion of symbolic understanding above, imagine that the young child understands both that words are likely to bear some relation to external objects and that speakers typically offer cues signaling the target of their referential intent – cues that help to clarify the relevant external object. When a new word is heard, children could then initiate a search for a candidate external object to link to that word, and they could consult cues from the speaker to help guide that search. Given that speakers typically supply a rich and redundant set of intentional cues in speech to young children, just one

exposure to a new word might be sufficient for infants to register considerable information about the reference and meaning of the new term.

The pioneering research of Baldwin, Tomasello and colleagues (e.g., Akhtar & Tomasello, 2002; Akhtar, Carpenter & Tomasello, 1996; Baldwin, 1991; Baldwin, Markman, Bill, Desjardins, Irwin & Tidball, 1996; Baldwin & Moses, 2001; Tomasello & Barton, 1994) has documented that cues to referential intent influence infants' interpretations of new words by 18-months of age. For example, 18-month-olds will learn the link between a new word and a novel object when the person who utters the word looks toward the toy and points to it but will not do so when such cues are absent or indicate a contrasting object (e.g., Baldwin, 1991; Baldwin et al., 1996). Similarly, Tomasello & Barton (1994) found that 24-month-olds use intentional cues when learning verbs. An experimenter introduced a novel verb (e.g., Let's dax Mickey Mouse) before producing either an accidental or purposeful action. Regardless of what particular action was demonstrated, infants interpreted the verb as the name for the purposeful, not the accidental, action. Children used multiple cues to infer the intentions of the speaker, took them to apply to the act done on purpose and extended verb meaning accordingly.

Does knowledge about speaker intent play a role at the start of word learning, for example, at 12 months of age? After all, infants at this age begin to show a number of social behaviors such as gaze following, pointing, imitation of actions on objects, social referencing and so forth (Tomasello, 1995). One issue that has arisen is whether such behaviors reflect a genuine understanding of the experiential lives of other people or whether they simply reflect sensitivity to external social contingencies as argued, for example, by Moore (1998). Recent evidence indicates that registering external

contingencies alone is unlikely to explain infants' use of communicative cues in word learning. To start, by 12 months of age infants do more than simply respond to others' shifts in gaze, they also represent the relation between a person and the object of her attention (Phillips, Wellman & Spelke, 2002; Sodian & Thoermer, 2004; Woodward, 2004; Woodward & Guajardo, 2002). Although this relation is invisible, for infants, as for adults, it is a salient feature of others' actions.

This understanding of attention informs infants' interpretation of others' communicative behavior. For example, Tomasello and Haberl (2003) found that 12-month-old infants are able to keep track of what a person has and hasn't seen, and use this information to interpret her subsequent utterances. Specifically, infants assumed that an adult's expressions of surprise and excitement must refer to an object that the adult had not previously seen. Furthermore, several studies have shown that infants as young as 12-14 months interpret new words (and emotional expressions) based on information about the speaker's attention and apparent intention (Baldwin & Moses, 2001; Campbell & Namy, 2003; Moses, Baldwin, Rosicky & Tidball, 2001; Woodward, 2004). To illustrate, in one study, Woodward (2004) reported that 13-month-old infants readily accepted a novel word as the name for an object when the speaker indicated the object with gaze and pointing. However, when the speaker's attention was directed elsewhere they did not accept the new label, even though they experienced strong contiguity between hearing the label and seeing the object.

This is not to say that infants possess adult-like pragmatic knowledge or that important developments in social understanding do not occur in the first and second years of life. There is probably prolonged development in the flexibility of infants' use of

attentional actions to infer referential intent. For example, in a study by Moore, Angelopoulos & Bennet (1999), 18-month-olds used a speaker's line of regard to determine to which of two objects she was referring. However, when one of the objects was made extremely salient (i.e., by moving and making noise), it was not until 24 months of age that infants assumed that the speaker was referring to the salient object. Eighteen-month-olds, in contrast, seemed to require some kind of explicit cue from the speaker that clarified what they were referring to.

II. Word as social convention

Among students of language, there is nearly universal agreement that conventional understanding is a central element of linguistic competence. A fully competent user of language appreciates, on some level, that words convey information by virtue of shared knowledge about their relations to things external. Understanding this fact about the conventionality of language provides a foundation for putting words to use in communication. Thus, one key component of conventional knowledge is the understanding that all speakers (in a community) use the same word to convey a given meaning. Clark (1993) proposed that word learning is guided by a number of pragmatic principles, including a principle of conventionality, which states that "For certain meanings, there is a form that speakers expect to be used in the language community." (p. 67) Thus, having learned that a person uses the word *cat* to refer to cats, learners should readily generalize this knowledge to other speakers of English.

Another key component of conventional knowledge is the understanding that linguistic forms comprise a system in which different forms convey different meanings.

Therefore, if a person uses a word other than the conventionally appropriate one in a given situation, he or she must mean to convey something other than the meaning conveyed by the conventional form. This principle, termed the principle of contrast (Clark, 1993; for related formulations see Golinkoff et al., 1992; Markman, 1989), has been shown to contribute to children's learning of novel terms, and correcting of initially overgeneral word meanings. Across many experiments, young children have been shown to use the principle of contrast to interpret new words (see Bloom, 2000; Woodward & Markman, 1998 for reviews). For example, in a preferential looking procedure, 17-month-old infants made use of the contrastive nature of words to interpret new words (Halberda, 2003; see Markman, Wasow & Hansen, 2003 for a related finding).

Most of the experiments that have tested children's use of contrast ask children to interpret the word use of a single speaker. However, recent findings suggest that preschoolers also expect forms to contrast in meanings across speakers. For example, Diesendruck and Markson (2001) presented 3-year-old children with two novel objects, one of which the experimenter picked up and labeled, "This is a zev". Afterward, a sleepy, secluded puppet emerged from his house and asked the child, "Can you give me the jop?" Children typically responded by giving the puppet the object that had not been labeled "zev" by the experimenter, suggestive evidence that children attributed knowledge of "zev" to the puppet even when the puppet was not present when the naming took place (see also Au & Glusman, 1990). These findings indicate that 3-year-olds assume that individuals would share knowledge of the novel label even if they had not been provided with explicit evidence that this was the case. Interestingly, in a control condition which replaced words with facts about objects such as "the one my uncle gave

me” or “the one that goes inside a fish tank”, children did not attribute shared knowledge to the secluded puppet. These results indicate that preschool-age children know about the first two properties of conventions mentioned above, and also that they differentiate between words and other kinds of socially given information in applying these properties.

Recent research by Henderson and Graham (2005) suggests that even 2-year-olds understand that word knowledge is shared. Children were taught a novel word while playing a finding game with the experimenter, were later asked to select the target item from an array of objects and to generalize the new word beyond the initial exemplar to another member of the category. One group of children were taught the initial word-object mapping by one person and tested by a different person. As a result, children successfully learned the original word-object link and extended the novel label to another member of the same category. It is important to note that, in a second study, when presented with cues that signaled the experimenter’s preference for a particular object, children did not assume that such information generalized to a second speaker. This ability to generalize novel labels, but not preferences, to a second speaker who was absent during the initial training suggests that infants may possess an understanding that word knowledge is uniquely conventional. Recent evidence suggests that this understanding is in place as early as 19 months of age (Graham, Stock & Henderson, in press).

Important questions regarding the development of conventional understanding remain. According to Bates et al. (1979), the period between 9 to 13 months of age reflects both the discovery that things have names as well as the onset of communicative intentions and conventional signals. According to Clark (1993), the fact that infants

happily use idiosyncratic names for objects demonstrates that the ‘principle of conventionality’ is not present at the start of word learning. For Hirsh-Pasek, Golinkoff and Hollich (2000), infants’ initial grasp of the principle of reference – that consistent phonological forms map to external entities – later evolves into the principle of conventionality in the second year of life. These views hold in common the idea that understanding ‘conventionality’ fundamentally reflects an appreciation of the fact that word forms are used consistently across contexts. While an appropriate first gloss, it is likely that conventionality involves more than this. In addition to understanding that all speakers (within a community) use the same form-meaning pairings, children need to appreciate that these pairings form a contrastive system, that not all knowledge is shared, and that conventional systems can, in principle, vary across speakers. While each of these components has been examined in naturalistic settings, systematic experimental evidence concerning the origins of this knowledge is limited.

III. Word as conceptual

Words derive their expressive power from their relation to rich conceptual knowledge. The range of possible word meanings is vast. Words can name individuals, objects of a kind, relations, movements, states, properties, and so on. Across this range, meanings are organized by conceptual structure. For example, common nouns extend to members of a kind (e.g., dogs or chairs or brothers), and these kinds reflect important shared structure, at an abstract as well as perceptual level (Markman, 1989; Waxman, 2002). Other classes of word meanings are similarly dependent on conceptual structure. As examples, understanding proper names depends on conceptions of individual identity

(Hall, 1998; Woodward & Markman 1998), and understanding verbs depends on conceptions of actions and events (Hirsh-Pasek & Golinkoff, in press; Huttenlocher, Smiley & Charney, 1983).

Early in the study of language acquisition, theorists proposed that the relation between words and concepts was a relatively late achievement in development. Words were assumed to function as unconstrained associates of whole situations for babies. For example, the word “shoe” might be extended equally to shoes, socks, feet, and the routine of getting dressed. In pioneering work, Huttenlocher and her colleagues tested this long held assumption and found it to be false (Huttenlocher & Smiley, 1987). Having analyzed the spontaneous speech of young one-year-olds, they found that in almost all cases, nouns were used to name members of the appropriate taxonomic category. In the minority of cases in which nouns were used in the presence of thematic associates there was evidence that children were not intending to label the associate, but rather were commenting on the thematic relation or describing a prior event. Thus, even children’s earliest words name members of well-organized categories.

Subsequent experiments have reinforced this conclusion, and shown the power of the connection between words and concepts from very early in life. For example, Waxman and her colleagues have found that hearing different items given the same name leads children and infants to seek out commonalities between them. That is, words function as “invitations” to form categories (Balaban & Waxman, 1997; Waxman & Markow, 1995) and as invitations to attend to regularities that are diagnostic of kind membership (Booth, Waxman & Huang, 2005). Furthermore, Graham, Kilbreath and Welder (2004) found that labels support inductive inferences in 13-month-old infants:

When babies observed disparate objects being given the same name, they were more likely to assume that they shared a nonvisible property (such as making a noise when shaken) than when no names were given or when the objects were given different names. Similarly, Waxman & Markow (1995) have shown that a novel label applied to members of the same superordinate category can facilitate the formation of a superordinate category in 12-month-olds. Thus, even very young infants who are just beginning to produce their first words there is a tight relation between names and conceptual categories and they can use language to categorize objects in nonobvious ways.

An issue of current debate concerns the developmental origin of this relation. On the one hand, bottom up associative learning must play a strong role. As children hear words paired with referents, they build a store of associations that tunes their attention in subsequent learning contexts, and thereby leads to learning that generalizes to the appropriate range of referents. Smith and her colleagues have posited that this kind of attentional shaping accounts for children's tendency to extend novel common nouns to items of like shape (Landau, Smith & Jones, 1988; Samuelson & Smith, 2000; Smith, 1999), as well as for infants' attention to referential behaviors in word learning (Samuelson & Smith, 1998; see also Hollich et al., 2000). Consistent with the first of these suggestions, Smith and colleagues have shown that artificially boosting shape learning experiences in 1-year-olds leads to the more rapid acquisition of count nouns outside of the laboratory (Smith et al., 2002). Thus, associative learning can yield well-tuned expectations about word-referent relations.

Others have argued that associative learning alone cannot account for the conceptual basis for word meanings. For one, many conceptual categories are organized

by abstract theory-like knowledge structures and beliefs about essential and nonvisible inner structure as a basis for kind membership. Our understanding of the word *cat*, for example, depends not just on our history of associations between the word and its referents. We also believe that there is complex inner structure that is essential to being a cat, even though we may know little of the specific nature of this structure and have never directly observed it. This kind of knowledge is robustly evident in young children's language use and learning (see Gelman, 2003, for a review), and may even be traceable into infancy (Mandler & McDonough, 1996; Booth, Waxman & Huang, 2005).

Another issue of current debate concerns the extent to which the development of concepts and word meanings varies across languages and cultures. In principle there is no limit on the range of meanings words can ultimately convey. But how constrained are the very first steps in building a vocabulary? Languages vary in terms of how information is “packaged” into word meanings, and children are adept at acquiring these varied meanings. For example, languages vary widely in the lexicalization of spatial relations (Bowerman & Choi, 2003). Consider two instances that would be described using the same term, *in*, in English: an apple placed inside a bowl and a video cassette placed inside its case. In Korean, these would be described using distinct verbs to mark the tightness versus looseness of the fit. Children acquire these two systems equally early—their production and comprehension of spatial terms reflects the language specific patterns as early as 14-18 months age (see Bowerman & Choi, 2003, for a review). Findings such as these indicate that infants are able to entertain a range of possible word meanings.

Nevertheless, it has been posited that some conceptual packages are more readily available than others to learners across languages. In particular, human perceptual and cognitive systems readily parse the world into discrete whole objects, and, because of this, it has been proposed that terms naming whole objects are privileged in development (Gentner, 1982; Gentner & Boroditsky, 2001; Markman, 1989). Consistent with this hypothesis, English-acquiring children have a bias to interpret novel words as naming whole objects rather than as names for parts or properties (Golinkoff, Mervis, & Hirsh-Pasek, 1994; Markman, 1989). There has been debate about whether this is true for children acquiring languages in which object names are less syntactically and pragmatically salient than they are in English (Tardif, Gelman & Xu, 1999; Choi & Gopnik, 1995; see Woodward & Markman, 1998 and Gentner & Boroditsky, 2001 for reviews). Words naming objects are less prevalent in both parent's and children's vocabularies in these languages than they are in English. However, it is not yet known whether this difference in prevalence reflects a fundamental difference in the conceptual salience of whole objects. Gentner and her colleagues (Imai & Gentner, 1997; Gentner & Boroditsky, 2001) have suggested that there is a conceptual continuum reflecting the extent to which an item is individuable. This continuum is anchored at one end by complex solid (and perhaps animate) objects. Children across language groups seem to find these highly individuable items to be compelling as possible referents. Children's interpretations vary for less individuable items (e.g., piles of a substance) based on the extent to which object labels are highlighted in their language.

IV. Word as grammatical unit

In addition to being intentionally produced, meaning-bearing units in a conventional system, words can also be defined with respect to their role in larger linguistic structures – that is, they are the components combined to yield sentences. As such, words have syntactic as well as semantic properties. Though theoretically independent, there is a rough correlation between some aspects of syntax and some aspects of meaning in everyday language use. Studies of parental speech across different languages have found that syntactic cues to verb meaning exist in the sentences that children hear (Fisher, Gleitman & Gleitman, 1991; Lee & Naigles, 2005; Naigles & Hoff-Ginsberg, 1995). Children exploit these correlations in word learning from very early on.

One of the first examples of this was identified by Brown (1958), who found that children's interpretation of a novel word, *sib*, varied as function of the syntactic form class in which it appeared. Children identified "a sib" as a discrete object, "some sib" as a quantity of nonsolid substance and "sibbing" as the name for an action being carried out on these items. Researchers have since documented children's use of form class as a cue to word meaning as early as 18 months of age and across form class categories including proper versus common nouns (Hall, 1994; Hall & Belanger, 2005; Katz, Baker & Macnamara, 1974; Macnamara, 1982), nouns versus adjectives (Taylor & Gelman, 1988; Waxman & Booth, 2001), and nouns versus prepositions (Landau & Stecker, 1990).

While Brown argued that syntax can facilitate the acquisition of nominal meanings, others have made the stronger claim that syntax is essential for the acquisition of at least some word meanings, especially verbs. Fisher, Hall, Rakowitz & Gleitman

(1994) presented preschool-age children with videos that depicted familiar events such as feeding and eating and described them using sentences that contained novel verbs (e.g., “The bunny is nading the elephant” vs. “The elephant is daking”). When children were asked what these verbs meant, they tended to give the appropriate paraphrases. In fact, regardless of whether children responded with innovative phrasal descriptions or simple English equivalents, their responses were sensitive to the syntax of the original sentence. Thus, children’s interpretation of verb meaning appeared to be guided by syntactic cues. Similar conclusions are supported by more recent research by Fisher (1996, 2005) which presented children with novel events paired with sentences differing in the number of arguments (e.g., “She’s gepping” vs. “She’s gepping her”). Children by 2.5 years of age, responded to these syntactic manipulations and identified the agent of a novel verb (Fisher, 2005).

Naigles (1990) used a different methodology in her work with 2-year-olds. She showed 25-month-olds scenes that simultaneously depicted two events – a causal event involving two individuals (e.g., a duck putting a bunny in a bent position) and a noncausal event involving a single participant (e.g., same duck and bunny with free arms waving). Children either heard a novel verb in a transitive context (“The duck is gorpig the bunny”) or an intransitive context (“The duck and bunny are gorpig”). When children were presented with these two events on separate video screens,, one that showed only the causal event and one that showed only the noncausal event and heard, “Find gorpig”, 2-year-olds that heard the transitive frame looked longer at the causal event and those that heard the intransitive frame looked longer at the noncausal event. More recently, it has been demonstrated that children between 24 and 30 months are

sensitive to stable aspects of verb meaning across different syntactic contexts: after being taught a novel verb meaning in a transitive frame, children later recognized that verb when presented in an intransitive frame (Naigles, Bavin & Smith, 2005). Thus, very young children use syntax, and do so flexibly, to learn a new verb.

Early in language development, learners seem to appreciate the relationship between syntactic and semantic categories and are able to use this relationship both to infer certain aspects of word meanings and to bootstrap their way into the syntax of their native language (Grimshaw (1981); Pinker, 1984). Is syntax necessary for word learning? It depends. Although children and adults can learn the meanings of certain kinds of words such as object names, proper nouns and substance names without the help of syntax, verbs may be different. Gleitman & Gleitman (1997) suggest that verbs may be harder to learn ostensibly because of the poor temporal correspondence between verbs and what they refer to. A second reason that verbs may be harder to learn is that great flexibility exists both within and across languages as to how verbs ‘package’ events. Events are ambiguous in a way that objects are not, making it difficult for learners to extract verb meanings simply by observing events (Fisher et al., 1994).

The evidence considered above in combination with the strong correlation between vocabulary growth and the early development of syntactic knowledge (Fenson et al., 1994) offers strong support for the idea that syntax plays an important role in early word learning. However, it would be a mistake to overestimate the role of syntax over and above the other sources of information that are available in any given sentence. For example, part of what distinguishes the meaning of ‘giving’ from ‘receiving’ is the perspective (i.e., the intentions and beliefs) of the speaker on the event (Gleitman, 1990).

Thus, in thinking about the role of syntax in any full account of word learning, it is important to treat syntax as one important source of information, one that works in concert with information obtained from other sources of the kind discussed previously in this chapter. The child's task is to integrate these different sources of information and use them to infer the best candidate for a word's meaning.

Conclusions

Recently, there has been debate about whether word learning is "special" (Bloom, 2000; Markson & Bloom, 1997; Waxman & Booth, 2000). On the one hand, many of the constituent abilities that give rise to word learning are not specifically linguistic in scope. Children draw on knowledge about symbols, intentions, conventions, and categories to make sense of words. On the other hand, however, the product of this learning is quintessentially linguistic. It yields a system of symbols, grounded in conceptual structure, and bound to syntactic categories.

The research reviewed above provides compelling evidence that children's words have this multi-faceted nature from very early in life. As soon as word learning can be measured in the laboratory, experiments show that it is informed by knowledge of the symbolic, intentional and conceptual properties of words. Within a year or less of the first words, their contrastive, conventional, and syntactic properties emerge. Current inquiry focuses on the kinds of innate abilities and learning mechanisms that permit the rapid emergence of words in development.

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