One-Word Utterances

Once the combination of morphemes was no longer considered the criterion for the starting point of language, the origin began to be pushed back earlier and earlier. Single-word utterances became a new focus. Today there remains a strong interest in the study of the child's acquisition of "word-meaning" at this stage.

Let's start with some definitions and descriptions:

When is a Word a Word?

When should we say that a child is using a "real word"? Researchers have applied criteria like the following:

1. The same utterance is used consistently to signal the same meaning (i.e., to name the same things)

2. It approximates the sound of the conventional word used by adults

3. It is spoken with the intention to communicate (not just in imitation of what an adult has just said)

4. It is used in a variety of settings, and to name items the child has not heard others naming.

And distinctions have been drawn among:

"protowords": invented rather than words from the adult language, but seem to have consistent meaning
->
"context-bound words": used only in a single context
->
"real words": context-free; used to label categories rather than particular objects in a single context.

~~Bloom videotaped kids and found that their "expression of emotion" changed when they uttered a word: they showed an "inability to express emotion and talk at the same time" (G & H-P, 105). Uttering a word takes effort.~~

The MacArthur Communication Development Inventory

This huge survey documented the "types" of words used by young children. Half the words used by toddlers are words for objects: top are foods and drinks, animals, body parts, clothing, toys and vehicles.

Within the food category:
80 % of 16-24 m olds know *apple & cheese*.

Only 50 % of 24m know *yogurt* or *raisin*.

People's names are frequent; so are action words (*up, sit, see, eat, down, go*) modifiers (*hot, allgone, more*), social words (*thank you, no*).

The Vocabulary Spurt

An adult knows around 50,000 words. By first grade a child knows 10,000; by fifth grade 50,000. That's 5.5 new words a day from 18 months to 6 years of age.

At about 18 months, once the child speaks around 40 words, vocabulary learning explodes, increasing from around 10 new words a month to around 30.

Overextension

The vocabulary spurt coincides with an increase in overextension or overgeneralization. This happens with about one third of a child's words, more often with familiar words than new ones.

Most overextensions are **categorical**: *dada* for *moma*; *truck* for *bus*.

Some overextensions are **analogical**: used for a perceptually similar object, not in the same category. *Egg* for *apple*.

Others are **relational**: *doll* for *crib*.

There is less overextension in comprehension ("Where is the dog?") than in production.

The Phonology of One-Word Utterances

Nearly all initial words are monosyllabic CV or VC units, or CVCV constructions. Labial consonants (/p, b, m, w/) and alveolar consonants (/t, d/) are common, most often the plosives (/p, b, t, d, g, k/), along with some fricatives (/s, f/) and nasals (/m, n/). This illustrates that place of articulation tends to be acquired starting from the front of the mouth and moving to the back. It also illustrates that manner of articulation tends to be acquired from the most consonant-like to the least consonant-like. (Stops and nasals, which both require complete closure of the oral cavity, come before liquids and fricatives.) Children often substitute a glide (typically [w]) for a liquid. E.g. *room* will be pronounced as [wum]. And stops are often substituted for fricatives: [dÀt] for *that*.

Vowel production varies a great deal, but the basic /a, i, u/ triangle is usually acquired early. This illustrates that extreme values in the vowel system—those maximally distinct from one another—tend to be acquired first. It also illustrates that children acquire common sounds earlier: /a/ occurs in all languages, /i,u/ in most languages.

Children avoid producing some words they clearly comprehend. They may produce only words containing specific sounds. But there is much individual variation in this.

Simplifying Phonological Strategies

When it comes to combining phonemes, children create strategies to simplify the job of articulating tricky phoneme combinations. These strategies tend to appear after 18 months. Before this, children tend simply to avoid words they find difficult.

Common Phonological Strategies

Strategy	Examples
Repeating the initial consonant-vowel in a multisyllable word	"TV" becomes "didi," "cookie" becomes "gege."
Deleting of unstressed syllables in a multisyllable word	"banana" becomes "nana," "granola" becomes "nola," "giraffe" becomes "raffe."
Replacing fricatives with stop consonants	"sea" becomes "tea," "say" becomes "tay," "sing" becomes "ting."
Replacing consonant sounds produced in the rear and palate area of the vocal tract with ones produced in the frontal area	"shoe" becomes "zue," "shop" becomes "zop," "goose" becomes "doose."
Replacing liquid sounds ("l" or "r") with glides ("j" or "w")	"lap" becomes "jap," "ready" becomes "weddy."
Reducing consonant-vowel-consonant words to consonant-vowel form by deleting the final consonant	"bib" becomes "bi," "bike" becomes "bai," "more" becomes "muh."
Replacing an ending consonant syllable with a vowel	"apple" becomes "appo," "bottom" becomes "bada."
Reducing a consonant cluster to a single consonant	"clown" becomes "cown," "play" becomes "pay," "train" becomes "tain."

Phonological Regression

Children may actually seem to *lose* their ability to pronounce particular sounds. For example, one child established the words *down* and *stone* as [dÀwn] and [don] ("doan"). Then, however, when he tried to say other words beginning with oral stops and ending with nasals, he produced them with nasals in both positions. For example, he produced *beans* as [minz] ("means") and *dance* as [nÀns] ("nance"). After a few weeks this nasal assimilation began to take over the established forms for *down* and *stone*; soon he was saying [nÀwn] ("noun") and [non] ("noan").

Another type of regression involves the apparent loss of the ability to say a sound in new words, while the sound is retained in the correct pronunciation of older words.

One-Word Utterances: Holophrastic or Not?

An issue that researchers have debated is whether a one-word utterance is properly understood as a "holophrase" or not. Those who view a single-word utterance as a holophrase generally understood this to mean that the utterance 'represents a sentence,'

or 'implies a proposition,' or 'stands for a complete thought.' While the child may be capable only of uttering a single word, they are conceiving of something more complex.

Among those who have argued in favor of the holophrase conception, some have argued that the correct approach is syntactic, others that it should be semantic.

A. A Syntax Approach to One-Word Utterances

A simple approach to the syntax of one-word utterances is to classify them as verbs, nouns, and so on, even though strictly speaking these terms have no significance outside the context of sentence structure.

A more sophisticated approach sees not just syntactic *categories* but syntactic *structure* in children's one-word utterances.

David McNeill (1970) argued that "children never utter mere labels"; that's to say, children are not using one-word utterances simply to name, to refer to, things (or events) in their environment. "The facts of language acquisition could not be as they are unless the concept of a sentence is available to children at the start of their learning. The concept of a sentence is the main guiding principle in a child's attempt to organize and interpret the linguistic evidence that fluent speakers make available to him.... Children everywhere begin with exactly the same initial hypothesis: sentences consist of single words. The entire structure of a sentence must be squeezed through this tiny space" (p. 2).

McNeill argued that grammatical relations gradually emerge during the one-word stage. Nouns are far more common than verbs, and they appear to be used as the objects of implied verbs (*door*, meaning "close the door"), as the objects of prepositions (*eye*, meaning "water is in my eye"), and as the subjects of sentences (*baby*, meaning "the baby fell down"). "We would... expect two-word sentences when children decide to mention the verbs that go with objects or the nouns that go with modifiers. Children begin to produce two-word sentences when they adopt the requirement that grammatical relations be expressed overtly in speech" (p. 60).
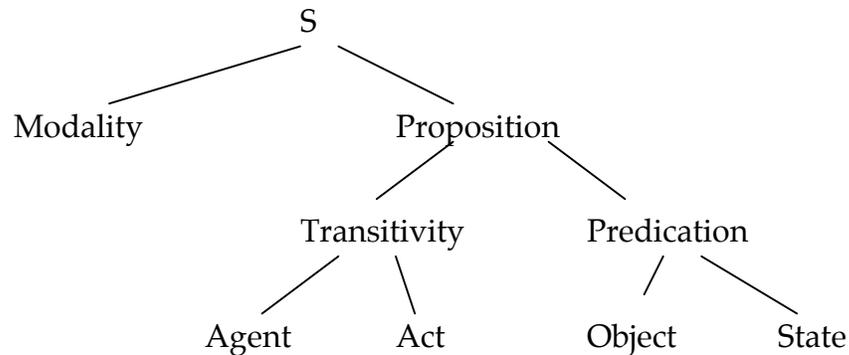
This may seem odd, but McNeill was assuming that "grammatical relations are logical relations. They are not relations of order. The lexical items derived from grammatical relations describe the logical connections between words, therefore, and not the order of words. The order of words in a sentence comes from a different source" (p. 67). So McNeill considered holophrastic utterances to have a complete syntactic structure, even though only one constituent is expressed.

B. A Semantic Approach to One-Word Utterances

Another way to approach one-word utterances is in terms of what they seem to *mean*: that's to say, their semantic character. Again, two approaches are possible, looking at the semantics of the individual words, the other looking at the semantics of something more holistic. We've seen this is tricky with two-word utterances; it's an even more delicate matter with one-word utterances. For one thing, the semantics of early

utterances is very labile (Piaget writes of their "disconcerting mobility"). And because a one-word utterance relies so heavily on context (as well as paralinguistics such as gesture and intonation) sense and reference are highly inferential.

Ingram (1971) proposed that the structure representing what a child is saying with a one-word utterance must be a semantic one, rather than syntactic. Using Fillmore's semantic case grammar, Ingram characterized holophrastic utterances with diagrams like the following:

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                              S
                   /                    \
            Modality                Proposition
                              /                 \
                      Transitivity            Predication
                       /       \                /        \
                   Agent      Act          Object       State
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Only one constituent of this structure is expressed as a word, Ingram proposed. The other constituents may be expressed by gesture, crying, and so on.

Patricia Greenfield also viewed one-word utterances as holophrastic. But she emphasized the role of context, rather than accompanying action. "Words are being inserted into... a cognitive-perceptual-action framework from the outset," so that the researcher's semantic characterization of an utterance must include a description of this (perceived) context.

We've seen that **Lois Bloom**, in her 1970 research on two-word utterances, considered a semantic characterization a necessary first step towards the goal of writing a Chomskian grammar of a child's speech. The idea was that the child omits material that is, nonetheless, implied in what they say, and that this material needs to be inferred by the researcher, through "rich interpretation," so it can be properly included in the linguistic description of the utterance and the grammar of the child's speech.

But in her 1973 *One Word at a Time*, where she studied single word utterances rather than word combinations, Bloom argued *against* the notion that single word speech is "holophrastic." She insisted that there is evidence against the idea that structure is 'hidden' behind the actual word spoken, and proposed instead that at this stage of language acquisition "children develop certain conceptual representations of regularly recurring experiences, and then learn whatever words conveniently code such conceptual notions" (p. 113).

Bloom identified the following semantic notions in one-word utterances:

General Relationship	Word	Function/Meaning

Existence	*there*	To point out objects
	uh-oh	To point out objects, particularly those that startled
Recurrence	*more*	First to request and later to comment on the recurrence of an activity or object
Disappearance	*away*	To comment on the disappearance of object which had existed in context.
	A' gone	Same as above.
Nonexistence	*no*	To comment on nonexistence where existence had been expected
Cessation	*stop*	To comment on the cessation of an activity
Rejection	*no*	To protest undesired action or comment on forbidden object (e.g. stove)
Action	*up*	To request the action of being picked up
Location	*up*	To comment on spatial location.

C. A Pragmatic Approach to One-Word Utterances

A third approach is to focus on the pragmatics of the one-word stage, and see child's utterances in terms of speech acts.

The article by Michael Halliday describes an analysis that Halliday himself calls "socio-semantic," but seems more accurately described as pragmatic.

And John Dore (1975) categorized the "primitive speech acts" of the one-word stage:

TABLE 1. *Examples of each productive PSA type performed by M and J*

Primitive speech act	Description of example
Labelling	M touches a doll's eyes, utters /aɪz/, then touches its nose, utters /nouz/; she does not address her mother and her mother does not respond.
Repeating	M, while playing with a puzzle, overhears her mother's utterance of *doctor* (in a conversation with the teacher) and M utters /datə/; mother responds *Yes, that's right honey, doctor*, then continues her conversation; M resumes her play with the puzzle.
Answering	Mother points to picture of a dog and asks J *What's this?*; J responds /bauwau/.
Requesting (action)	J tries to push a peg through a hole and when he cannot succeed he looks up at his mother, keeping his finger on the peg, and utters /ʌʔʌʔʌʔ/ (with constant contours and minimal pause between syllables); his mother then helps him push the peg, saying *Okay*.
Requesting (answer)	M picks up a book, looks at her mother and utters /buk↑/ (where arrow indicates a rising terminal contour); mother responds *Right, it's a book*.
Calling	J, whose mother is across the room, shouts /mâma/ loudly (where ˆ indicates an abrupt rising–falling contour); his mother turns to him and says *I'm getting a cup of coffee. I'll be right there*.
Greeting	J utters /haɪ/ when teacher enters room; teacher responds *Hello*.
Protesting	J, when his mother attempts to put on his shoe, utters an extended scream of varying contours, while resisting her; M, in the same circumstance, utters *No*.
Practising	M utters *daddy* when he is not present; mother often does not respond.

But often the assumption has been that children use single-word utterances to *name* things in the world around them: i.e., to *refer*.

How Do Children Learn Words?

How does a child learn the words she uses at this stage? A variety of mechanisms of learning words have been proposed. However, the common assumption has been that when a child learns a new word she is learning its *referent*.

A. "Fast Mapping".

One set of explanations for children's ability to learn words suggests that there are innate principles or assumptions which make the task feasible. These principles enable very quick, one-trial, learning, in which novel names are attributed to unfamiliar objects. This is called "fast mapping," the "mapping" being the forging of a link between word and world.

Specifically, it is suggested that young children assume that:

- new words label whole objects, not their parts or properties, or spatial relations or actions (**the whole object assumption**);

- new labels should be extended to items taxonomically related to the original item, rather than those thematically related (e.g. bones & people; babies & bottles) (**the taxonomic assumption**);

- objects have only one name (**the mutual exclusivity assumption**).

Sometimes these assumptions may contradict one another, but that is useful, since any one of them alone would produce inaccurate word-learning.

This list of assumptions has grown so large that recently Golinkoff et al (1994) have proposed a two-tier model with six principles, to bring some organization to this kind of theory:

First Tier (child's assumptions around 12 months):
        1. Reference: words map objects, actions, and attributes
        2. Extendibility: words label more than original referent
        3. Object Scope: words map to whole objects

Second Tier (child's assumptions at time of vocabulary spurt):
        4. Conventionality: speakers in the community prefer specific 'agreed upon' terms
        5. Categorical Scope: words are extended based on category, not perceptual similarity
        6. Novel Name-Nameless Category: novel names map to unnamed categories

B. Syntactic cues

It's been suggested that around age 2y children start to become able to use cues in the syntax of a sentence to identify new words and learn them.

C. Social-Pragmatic Explanations

Another kind of explanation emphasizes that child learn language in a social nexus, guided by adults who are linguistic expert. The child is offered pragmatic cues that render the cognitive assumptions listed above unnecessary.

Katherine Nelson has argued that Quine's problem of reference (remember "Gavagai") is not an issue for children; they don't have to guess the reference of a word, because the adults around them are constantly guessing what the child is referring to!

Lois Bloom talks of the "Principle of relevance": "In a typical word-learning situation, infant and adult exploit their mutual signals of ostensive-inferential communication to share a focus of attention and the most likely candidate for what a word means" (1993, p. 86)

A number of researchers have proposed that around the time of the vocabulary spurt, children have now learned to follow the social cues of adults—monitoring referential

cues, and success of their communicative efforts (cf. Baldwin's research). In addition children around this age have begun reasoning about people's intentions.

D. All of the Above

A recent suggestion is that an "emergentist coalition model" is necessary, that allows that all these factors probably play a role (Hollich et al, 2000).

Explanations of Over-Extension

Several explanations have been offered for the phenomenon of overextension: (1) the child's definitions for these early words are incomplete, (2) there are gaps in the child's lexicon and she uses words she knows to fill these gaps, (3) the child has problems retrieving the appropriate word.

Eve Clark has employed the linguistic notion that all word meaning can be analyzed in terms of a universal set of semantic features, such as animate/inanimate, human/nonhuman. These features correspond to perceivable attributes in the environment: attributes such as size, shape, color.

Clark suggested that the child's definition of *doggie* might include semantic features such as four legs, fur, tail, barks. When the child encounters a new animal in the environment, he must check its features to see whether or not they are appropriate for him to apply the label *doggie*.

At first the child's definitions will use only a few features. As the child develops he will add more features and delete inappropriate ones. Overextensions occur when a child infers category membership from a partial match of features. For example, a moose has four legs, fur and a tail; a child has to learn that antlers are a disqualifying attribute for application of the label *doggie*.

From One-Word Utterances to Non-Verbal Communication

Once one-word utterances have been examined not just in semantic terms but now in pragmatic terms, the origin of language gets pushed back again. For gestures and non-verbal vocalizations (i.e. sounds but no words) can have pragmatic force too, though arguably no semantics (no referential capacity).

We've find Halliday locating the origin of "learning how to mean" at around 9 months of age. And we'll see next week that Elizabeth Bates too finds 9 months the time when "performatives prior to speech" appear.

And that leads to the question of what the cognitive and social precursors of language are.

Communication in Deaf Children

A study of deaf infants of hearing, but non-signing, parents found they invented spontaneous "home signs" of two kinds:

"Indicators" (such as pointing) referred to people, objects and places. "Characterizing" signs referred to actions and object properties: e.g., holding the fist to the mouth and making chewing motion = eat. Holding index finger and thumb in the shape of a circle = round.

Acredolo & Goodwyn have found hearing children inventing signs too, and recommend communicating with preverbal infants this way. They have found verbal language accelerated by this.

Note that these "baby signs" are unlike sign language: the latter is conventionalized and includes grammatical rules.

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