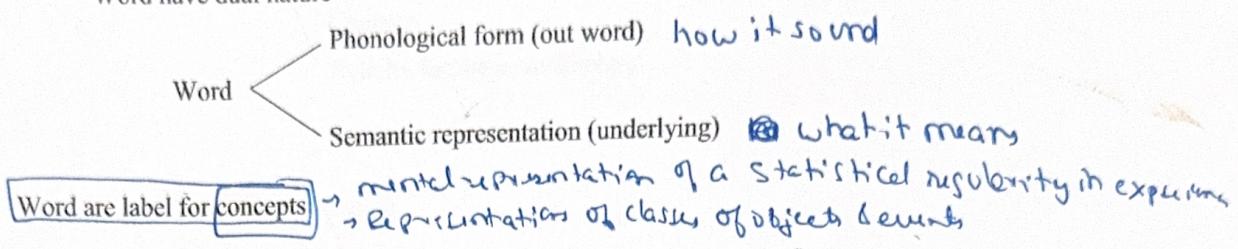


Words

Anatomy of words

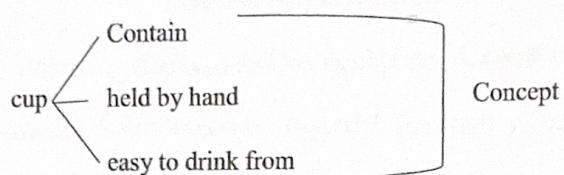
- Words are minimal units of meaningful speech that can be produced in isolation; however, words generally occur within larger utterances, and their form is influenced by the context in which they occur.
- Word have dual nature



Word – minimal unit of meaningful speech that can stand alone (apple, red).

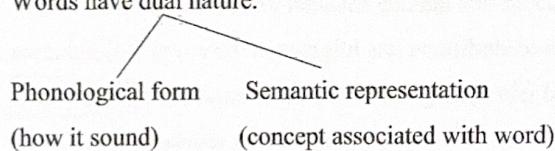
At more abstract level words are labels for concepts

Concept (mental representations of some sort of statistical regularity in our experience)



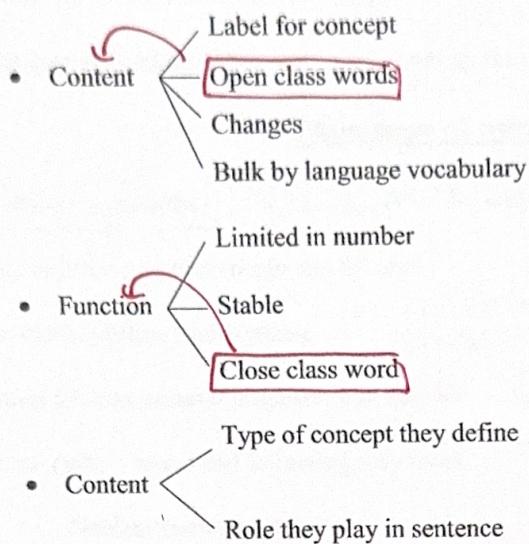
thus, concepts are representation of classes of objects (cheese) or events (roll) and they provide us with expectations that guide our response to new instance of those objects/events.

- Some concepts don't have label.
- Words have dual nature.



Type of words

- Concept words (meaning) → *label for concepts*
- Function words (grammatical purpose)



Noun - Objects (*Representation of objects (people, animals, things, places)*)

Verb - Events (*Represent events (actions, state)*)

Adjectives

- Properties of objects
- Called open class because new words are constantly added, old words fade from use.
- Perceptive experience to them

Prepositions are closest class word *(Prepositions of, at, in, to, from)*

- Which lie on the boundary between content and function words. They either have little meaning (of) or (over) meaningful and contribute to semantic.

the, a, some ∈ Determiners (link noun to people or thing they refer to)

A (introduces new noun).

The (following noun has already been mentioned).

- Conjunction (and, but, because) combine phrases or sentences into large units.

Lemma → Most basic form of a word.

Lexeme → Set of all ~~lexemes~~ forms a word can take.

Shapes shifters

Open class (noun, verb, adjective) change shape depending on context (one duck, two ducks)
(I walk every day, I walked yesterday).

The most basic form of a word is lemma (run).

Lexeme (all form a word can take) (run, runs, running, ran).

Phonology of word

Words - string by phonemes

(Words in isolation composed of one or more syllables)

One or more syllables (begin and be'-gin')

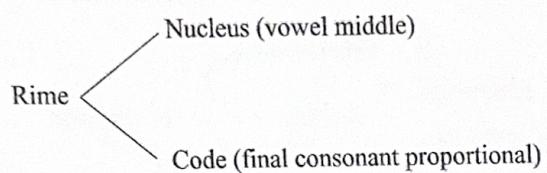
Words are monosyllabic/ multisyllabic → *within utterance, phonemes regroup to form syllables across word boundaries.*

Cash – Onset (c) -consonantal proposition of syllable

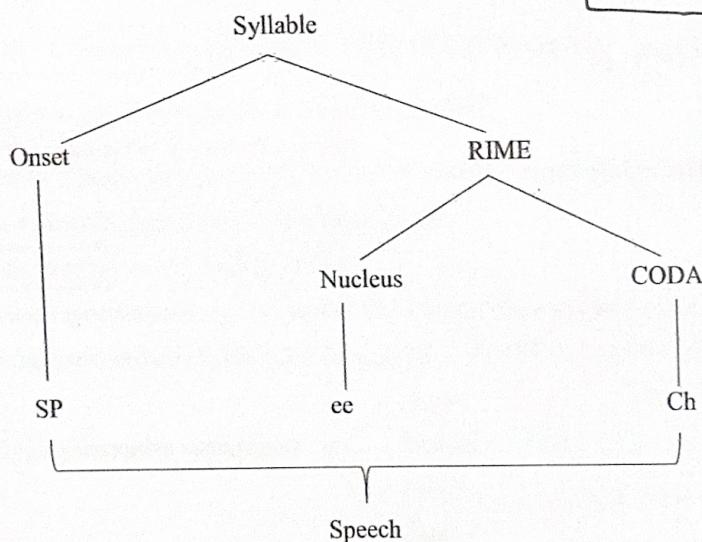
Isolation: it's an elephant

Rime (ash) – vowel and following consonant

In utterance: It-sa-NEL-ephant



Structure of the one-syllable word [Speech]



* Onset → Initial consonantal portion of a syllable.

- Match onset to alliteration: the bold and the beautiful, then and there.

* RIMES - Vowels (nucleus) and final consonantal portion (code) of a syllable.

- Match rimes to rhyme: cash, dash, stash; chair, place, race.

[not all syllable, and the code, whatever it is, but they all have atleast a NUCLEUS]

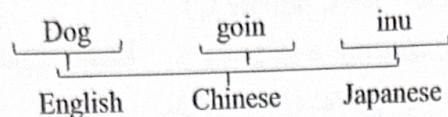
Phonotactic Rules

- Phonons are building blocks of phonological word forms, but all combination of phonemes does not result in word.

- phonotactic rules, help in combining phonemes into sequences to form word.

Word as symbols

- Word - sound symbol and for concepts

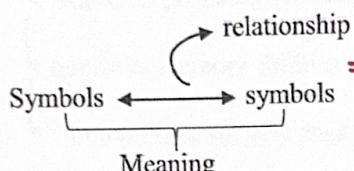


- Meaning of a word = concept it symbolizes
- Concept (symbols) = mental representations (classes of objects and events)

Where does meaning of a symbol come from?

symbol grounding problem

Cognitive approach



⇒ Symbols acquire meaning through relationships with other symbols.

E.g. Dictionary word defined as words. with other words

John Searle (1980) Chinese room argument → Symbol grounding problem (I)

Why meaning cannot arise from relationship among symbols?

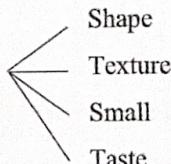
Symbol grounding problem (II)

- (1) Solution to symbols grounding problem set of innately meaningful concepts that are used to define all other concepts (Godderd, 2002).

Semantic primes ← building block

- (2) Embodied representation – it's a symbol that is understood in terms of the perception and motor experience it evokes (Glenberg, 2003). Supports from neuroimaging studies

E.g. Apple (perceptive experience)



Eat (muscle movement in eating)

- (iii) The temp is rising
→ RISE = MOTION + UP
→ MOTION suggests CHANGE
→ UP suggests HOT

• Philosophical demonstration that meaning cannot arise solely from relationships among symbols.

• At least some of the words we use must be grounded in real world experience

Phonotactic rules distinguish

~~possible examples~~

• Possible monwords = tree, fleet, goop

• Impossible monwords = tbar, frenl, gpon

tski (moon)

tski legal in Japanese but not in eng

strict not legal in Japanese but it is in english

Sound symbolism

Sound of a word gives virtually no information about its meaning.

(arbitrariness of sign) **Hockett, 1960**

Never the less word forms in language are more systematic than would be expected if they were firmly arbitrary.

How words are learned

On a curve

Vocabulary acquisition follows an S-shaped learning curve.

0-18 months] word learning slow

18-6 years] vocabulary speaks 6 words each day (14000 words)

Children acquire a naming insight

Mastered phonology of language

Improves memory abilities

Child becomes socially engaged

6- ahead] drop off word learning

How word learning is tested?

Reasons for the vocabulary spurt

(1) Naming insight

(2) Mastering phonology

(3) Improved memory

(4) Increased social engagement

Word learning involves

(1) Constructing a concept

(2) Learning a phonological word form

(3) Associating concept with word form

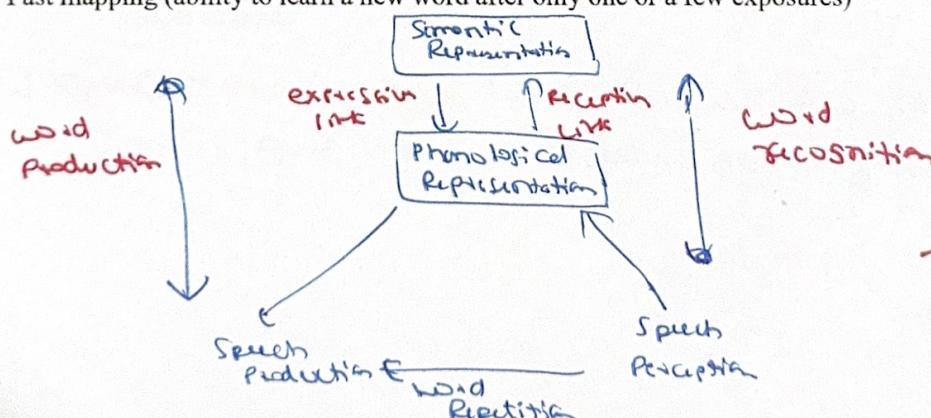
- 1) Receptive vocabulary – (set of words a person is able to recognize and understand the meaning of).
- 2) Productive vocabulary – (set of words a person is able to produce in appropriate context).

Word learning

- Construct a concept
- Phonology word form
- Link between concept meaning and phonological form

In the fast lane

Fast mapping (ability to learn a new word after only one or a few exposures)



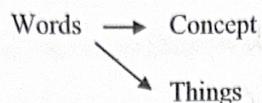
^o No direct link b/w the word & the object or event it refers to

- Referential uncertainty (observation that there is no direct link between the word and the object/event it refers to how to solve referential uncertainties).
- Cognitive constraints that guide child in narrowing the possible range of referents for new word.

(i) Constraint - whole object assumption

a new word refers to the entire new objective not just part of it.

(ii) Taxonomic assumption (newly learned word extends to other similar referents).



Slow mapping → learning with gradually over multiple exposures

(iii) Mutual exclusivity assumption

No two words mean exactly the same thing.

- Resolving referential ambiguity is not the same as establishing a permanent link in memory between word form and a concept.
produce
- If word learning → word in appropriate contexts then fast mapping is step (1)
^{Slow mapping} in associative learning.

- ↳ (iv) - Cross-situational word learning is the ability to learn to associate novel words with novel objects even in case of referential ambiguity by tracking co-occurrences statistics
- Purpose - but - verify strategy - when encountering a new word in an ambiguous context; both children and adults make a guess about what the word refers to. The repeated co-occurrences of word and referent in different contexts solidifies the connection between word forms and concept in long term memory.

- ↳ (v) - Joint attention - a situation in which all participants in an interaction have focussed their attention on the same object or event. ^{Reduces Referential Ambiguity}
- Nouns are easier to learn than verbs because their referents are concrete objects that the child can look at and interact with.
 - Gleitman (1990) found that young children make use of syntactic information to infer the meaning of verbs.

Syntactic → Contextual → Info on meaning of verb
Boot strappers Cues

(vi) Syntactic Bootstrapping - Use of syntactic info. to infer meaning of verbs

- John is jumping versus John is jumping the cat

Mental lexicon

→ Storage of info about words in **long term m/f**

Word forms stored as sets of phonemes:-

- Evidence from speech errors
- keep your feet moving → foot running
- Take my bike → take my bite

How words are stored:

Phonological forms (I)

Only most basic word form (lemma) is stored:-

(1) Can generate plurals and past tenses for new words

(2) dax → daxes or blict → blicked

(3) Irregular forms: ~~separate entries~~ or by analogy

(4) foot → feet but factiously moon → men.

Phonological forms (II)

① Inflectional suffixes

- Added for purposes of grammar

- toy, toys or play, plays, played, playing

② Derivational suffixes

→ changes meaning & grammatical category

→ Agree (V) → Agreement (N) or agreeable (A)

③ Base frequency effect → Frequency effect of base form extends to inflected forms

• Also to derived forms if no change in pronunciation (Agree, Agreement)

• No base frequency effect with change in pronunciation (serum, serenity)

Exploring the Mental Lexicon (I)

Thematic relation

• Relationship based on frequency of co-occurrence

- dog - bone (young children)

Taxonomic Relation

• Relationship based on category membership

- dog cat (older children, adults)

In the neighbourhood

1. Characteristics of the words themselves affect how easily they're learned.

[Word frequency → how often a word in all form occur in language]

fxn words (the, of) — frequent

content word — less common

- Children learn rear words more often than lean noun first. Followed by verbs, adjectives and don't use function words regularly.

2. Neighbourhood density: how many other words differ from a particular word by substitution of a single phoneme.

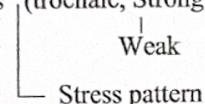
Hat → cat, rat [first phoneme]

↳ hot, hit [second phoneme]

↳ hair, have [third phoneme]

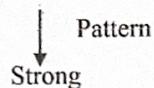
- Phonotactic probability – the likelihoods that a particular sequence of phonemes will occur in a language.
- Stress pattern can also influence word learning in youngster.

2 syllable nouns (trochaic, Strong)



e.g. basket and pillow

Iambic - Weak



e.g. guitar, amount

- Infant use metrical segmentation strategy to infer word boundaries before stressed syllables.
- Ester (2013) found that infants need support both from stress pattern and phonotactic regularities to learn words.