Words

PSY 200
Greg Francis
Lecture 27

What is the plural of walkman?

Grammar

- The rules of phrases
  - rules for combining phrases
  - universals for all languages
- So why do we have so difficult a time communicating with people that speak other languages?

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Words

- Even if all languages have similar rules for combining phrases, they use different words
- Words are symbols that are arbitrary in many respects
  - “dog” is nothing like a dog
  - is it rote memorization?
    - partly, but it is also more than that

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Words are special

- Words are not just a collection of letters
  - Word superiority effect
  - Judge a pair as being the same or different

HRNO  CRNO
LITL   LITL
TRIP   TRAP
DEAL   DEAL

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Words are special

- The judgment does not require you to read the words
  - Visual inspection is sufficient
- Knowing an item is a word should not even help you do the task

HRNO  CRNO
LITL   LITL
TRIP   TRAP
DEAL   DEAL

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Words are special

- But words are judged faster (around 147 ms) and more accurately than nonwords
- CogLab data (163 participants)
**Word rules**

- Part of linguistics identifies the rules for working with words (morphology)
  - **Show this page to a preschooler**
  - The child will say *wugs* even though he has never seen a *wug* before
  - This implies that there must be a rule for pluralizing nouns

**Morphology**

- The rules of word formation
  - In many respects English has a very limited morphology
    - nouns have two forms
    - verbs have four forms
      - **duck**
      - **ducks**
      - **quack**
      - **quacks**
      - **quacked**
      - **quacking**

**Morphology**

- Other languages have many more variations
  - Italian and Spanish have 50 forms of each verb
  - classical Greek has 350 forms of each verb
  - Turkish has 2 million forms of each verb
  - Some languages build entire sentences around one complex verb
  - There are rules for these forms

**Morphology**

- English can convey this information in as many ways as other languages, but we use grammatical phrases to do so
  - **Simple present tense**
    - General truths: Ducks quack.
    - Habitual action: I quack like a duck when I wake up.
  - **Present Perfect Progressive**
    - To express duration of an action that began in the past, has continued into the present, and may continue into the future: *The duck has been quacking for two hours, and he hasn’t finished yet.*
  - Other languages have different verb forms to indicate these conditions

**Morphology**

- On the other hand, English morphology allows one to easily create new words from old words
  - add suffixes and prefixes

**Suffixes**

- English has lots of these derivational suffixes
  - Examples of morphemes
    - **-able**
    - **-ify**
    - **-ance**
    - **-ism**
    - **-ous**
    - **-age**
    - **-ion**
    - **-ary**
    - **-er**
    - **-ful**
    - **-ity**
    - **-ive**
    - **-ness**
    - **-ory**
  - **You probably do not consciously know what some of these mean, but your language system does.**
**Compounding**
- English also allows new words to be created out of other words
  - and combinations can be combined
  - toothbrush
  - unmicrowaveability
  - toothbrush

**Rules**
- So what are the rules?
  - One looks to be easy
    - to pluralize a noun, add -s

**More detail on rules**
- Consider a rule that creates an adjective out of a verb
- Or a noun out of a verb

**Lexicon**
- To keep track of what can attach to what, there must be a mental dictionary of morphemes
  - -able
    - adjective stem affix; means "capable of being X", attach me to a verb stem
  - -er
    - noun stem affix; means "one who X’s"; attach me to a verb stem
  - ...

**Root**
- Some morphemes can only be attached to certain types of words
  - a root is a word that cannot be split into smaller parts
  - some morphemes attach only to roots
  - thus, *Darwinianisms* is a word, but *Darwinisms* is not
  - -ian must attach to a root

[Diagram showing the rules and examples of compounding and rules]

[Diagram showing the creation of compound nouns]

[Diagram showing the creation of adjectives and nouns]

[Diagram showing the mental dictionary of morphemes and roots]

Purdue University
Exceptions

- You can probably think of lots of exceptions to these types of rules
  - many words seem to follow arbitrary rules
- Pluralization, past tense
  - mouse, mice
  - teach, taught
  - leaf, leaves
  - buy, bought
  - man, men
  - fly, flew
- The exceptions are related to relationships between different languages

Exceptions

- The exceptions generally come from other languages (with appropriate rules)
  - English adopts the words but not the rules
- These exceptions tend to be very common words
  - drink-drank
  - sink-sank
  - throw-throw
  - ring-rang
  - sit-sat
  - blow-blew
- All derive from a proto-Indo-European language that formed past tense by replacing one vowel with another

Language families

- Many languages are related to each other and have broad families
  - Which is why you see so many similar words across languages

Very special cases

- What is the plural of walkman?
  - walkmans?
  - walkmen?
  - Neither feels quite right
- To answer this question we have to understand how the word walkman is formed and what it is about
  - this tells us how to pluralize the word

Heads

- Most words have a head that indicates what the word is "about"
- In English it is always the rightmost morpheme
  - crunchable: a thing that can be "x"-ed
  - cruncher: a thing that does "x"
  - workman: a type of person
  - sawtooth: a type of tooth

Heads and compounds

- The plural form of a compound word is based on the plural form of the head of the compound word
  - toothbrush → toothbrushes
  - sawtooth → sawteeth
  - snowman → snowmen
- Is walkman a compound noun?
  - yes, but it is not normal
Headless compounds

- Some compound words are headless
- How can you tell?
  - a walkman is not about a type of man
  - thus, the “head” is not what the word is about
  - this tell us that walkman is more like a new word than a compound word (e.g., electricity)
- For headless compounds the irregular plural form is not appropriate
  - no plural form “feels” correct because the word has no head

Headless compounds

- Sony corporation suggests that the plural of walkman is
  - Walkman Personal Stereos
- A similar analysis explains the plural form of names
  - Toronto Maple Leafs (not Leaves)
  - Florida Marlins (not Marlin)
  - I am sick of all the Mickey Mouses in this administration. (not Mickey Mice)

Conclusions

- Words follow rules
- Morphology / morphemes
- Lexicon
- Explains characteristics of language

Next time

- Interpreting language
- Parsers
- More ambiguity
- Computers vs humans
- CogLab on Lexical decision due!

This is a valid sentence: “Buffalo buffalo buffalo buffalo buffalo buffalo buffalo buffalo.”