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?

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

Words are special

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

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

Words are special

- But words are faster and more accurate than nonwords
- CogLab data
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
    
    ```
    teach
    teachable
    teacher
    unteachable
    teachableness
    ```

Suffixes

- English has lots of these derivational suffixes
  - Examples of morphemes
    - -able
    - -ify
    - -ance
    - -ism
    - -ous
    - -age
    - -ion
    - -ary
    - -ate
    - -ize
    - -en
    - -ant
    - -ic
    - -ory
    - -ful
    - -ive
    - -hood
    - -ness
    - -y

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

  ![Image](toothbrush)

**Rules**

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

  ![Diagram](dog-s, wug-s)

**More detail on rules**

- The creation of compound nouns also follows a simple rule
- Or a noun out of a verb

  ![Diagram](tooth, brush, toothbrush)

**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's"
  - -er
    - noun stem affix; means "one who X's"
  - ...

**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](Darwin, -ian, Darwinianisms)
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

Language families
- Many languages are related to each other and have broad families
  - Which is why you see so many similar words across 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-drunk  sink-sank
  - throw-threw  ring-rang
  - sit-sat  blow-blew
- All derive from a proto-Indo-European language that formed past tense by replacing one vowel with another

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 tells 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."*