Frequency List

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Outline

1. What is a frequency list?
2. Two basic types of frequency
3. Frequency of different linguistic units
4. Examples of uses of frequency list
5. Demo & Practice

What is a frequency list?

- "The most basic corpus-linguistic tool" (Gries 2017: 12)
- How often a given linguistic unit occurs in a corpus
  - Often, this unit is a *word*

What is a frequency list?

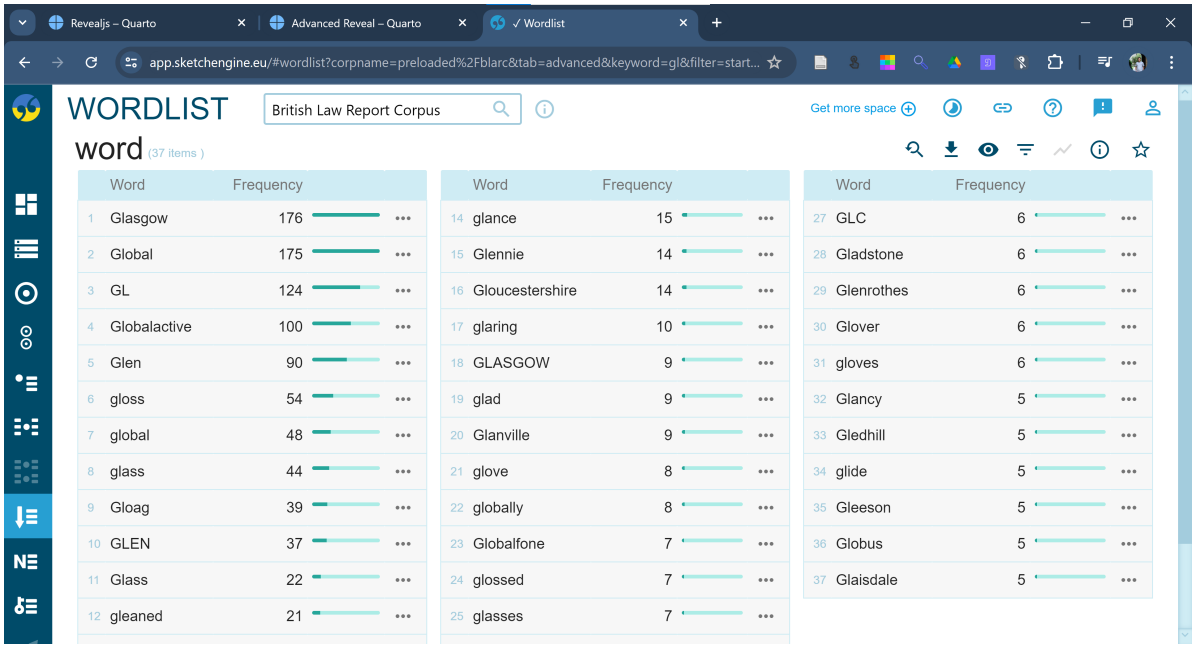

Figure 1: *Words* (starting with `gl`) and their frequency of occurrences

But, what's a word?

What is a word?

- "entities in text that are separated by either white-space or punctuation." (Weisser 2016: 147)
  - how about: *can't*, *widely-held*, *co-operate*, or *white-space*?

What is a word?

English compound

- **written together**: *icecream* (14,590 matches)
- **hyphenated**: *ice-cream* (55,506 matches)
- **separated by white-space**: *ice cream* (676,402 matches)

Searches done in *English Web 2021* in Sketch Engine (SE)

What is a word?

- Practical consideration: *tool-specific*
- In SE:
  - "begin with a letter of the alphabet" (https://www.sketchengine.eu/my_keywords/word/)
  - Examples: *book*, *working*, *Mary*, *T-shirt*, *post-1945*, *mp3* or *CO2*
- Methodological consideration:
  - be explicit about word criteria (e.g., in the tool used)

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Two basic types of frequency

Types vs. Tokens (cf. Cheng 2012: 62; Gries 2017: 12)

- Types: the number of unique/distinct words in a corpus
- Tokens:
  - the total occurrences of all (unique) words in a corpus
  - the total occurrences of **a** (unique) word in a corpus

Two basic types of frequency

Types vs. Tokens (cf. Cheng 2012: 62; Gries 2017: 12)

The sky is sky blue while the estuary is turquoise.

- Tokens: 10 (2 tokens of *sky*, 2 tokens of *the*, 2 tokens of *is*, …)
- Types: 7 (*the*, *sky*, *is*, *blue*, …)

The estuary of the Bak Blau lake, on the Enggano island, Indonesia.

Two basic types of frequency

absolute vs. relative

- absolute frequency:
  - real, observed freq. of an item in the (sub)corpus
- relative frequency:
  - normalised frequency of an item on the basis of a base frequency (usually 1 million word-tokens) (cf. SE's page here for the formula)
  - often used in comparing frequency of the same word in two different corpus that are not equal in size
- SE allows both options.

Two basic types of frequency

absolute vs. relative

How to compute the relative frequency of a linguistic item

$$Rel.Freq = \frac{absolute frequency \times 1,000,000}{corpus size}$$

Two basic types of frequency

absolute vs. relative

Relative frequency: Examples

Say, in the ICE-GB corpus, you found the following (see Gries 2010: 271) :

- 297 tokens of *give* (in the **spoken** sub-corpus)
- 144 tokens of *give* (in the **written** sub-corpus)
- 128 tokens of *bring* (in the **spoken** sub-corpus)
- 69 tokens of *bring* (in the **written** sub-corpus)

The size of ICE-GB$_{\text{spoken}}$ is 637,682 (word-tokens) while the size of ICE-GB$_{\text{written}}$ is 423,581 (word-tokens). The relative frequencies of *give* and *bring* in the two sub-corpora become:

$$give_s : \frac{297 \times 1,000,000}{637,682} \approx 465.75$$

$$give_w : \frac{144 \times 1,000,000}{423,581} \approx 339.96$$

$$bring_s : \frac{128 \times 1,000,000}{637,682} \approx 200.73$$

$$bring_w : \frac{69 \times 1,000,000}{423,581} \approx 162.9$$

Two basic types of frequency

Take away

Important to know how to compute relative frequency!

Sometimes (most of the time?), the corpus-software tool we use **cannot** do what we want.

Examples

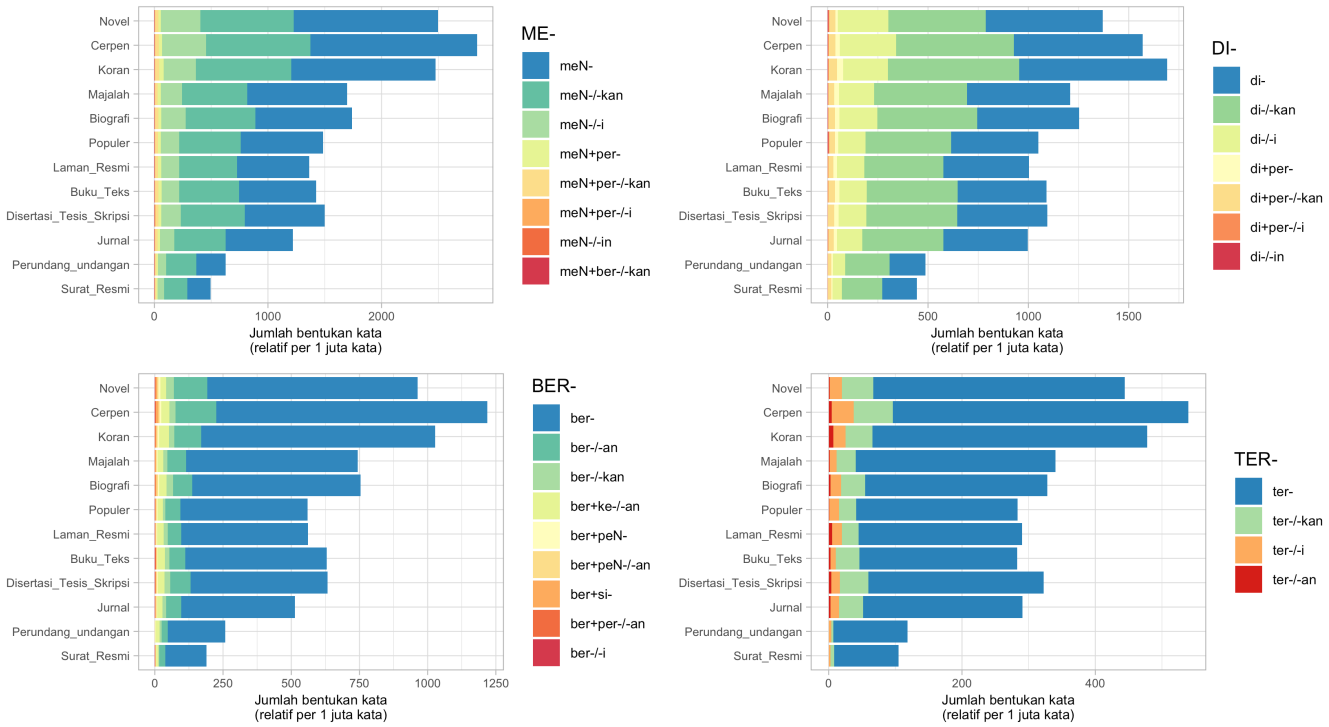

Figure 2: Productivity analysis (based on **relative type frequency**) of four Indonesian verbal prefixes across genres (Rajeg & Denistia 2023).

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Frequency of different linguistic units

- words
  - words and their word class (i.e., part-of-speech)
  - words containing particular strings/characters (e.g., prefixes/suffixes)
  - …
- lemmas
  - the base/uninflected form of words from a given part-of-speech
    - the verbs *go*, *went*, *going*, *gone*, *goes* are word-forms for the same lemma GO
- n-grams (multi-word units with n-number of components)
  - *part of the*, *for the purposes*, *on behalf of the*, …
- word sequence, phrases
  - phrases containing a fixed word
  - …

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Uses of (word-)frequency list

- List of frequently occurring lexical items (e.g., General Service List [West 1953], Academic Word List [Coxhead 2000])
- Usage-based Cognitive Linguistics
  - degree of productivity (based on type frequency) and cognitive entrenchment (based on token frequency) of certain linguistic units
- Choosing experimental stimuli
- Spelling error correction
- Determining vocabulary sizes of learners
- Selection and ordering of language features in course textbooks
- In other corpus linguistic tools: keyword and collocation statistics
- …

See Gries (2017: 13–14) and Miller (2020: 77–78) for details

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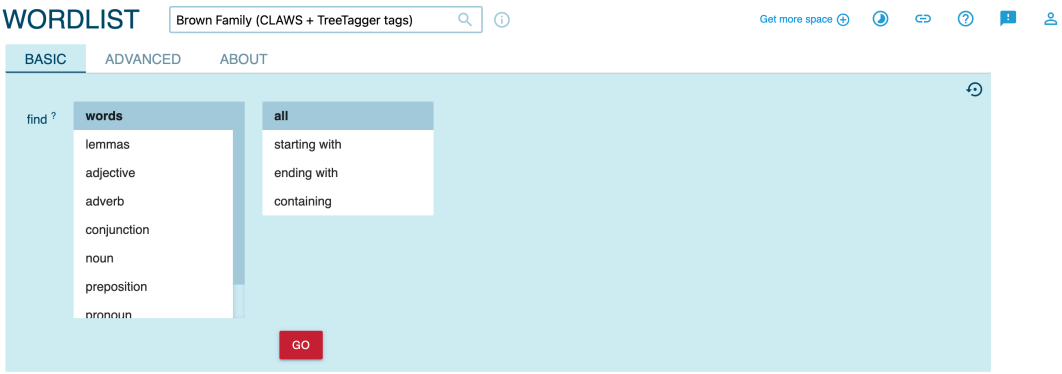
Demo & Practice

- Demo:
  - Queries: Basic & Advanced features of SE's *Wordlist*
  - Outputs: Options for exploring outputs
- Corpus: `Brown Family (CLAWS + TreeTagger tags)`
- Practices
  - also need a spreadsheet software (e.g., Excel, LibreOffice Calc, Google Spreadsheet)

Demo & Practice

- Demo:
  - Queries: Basic ~~& Advanced~~ features of SE's *Wordlist*



Layer 1:

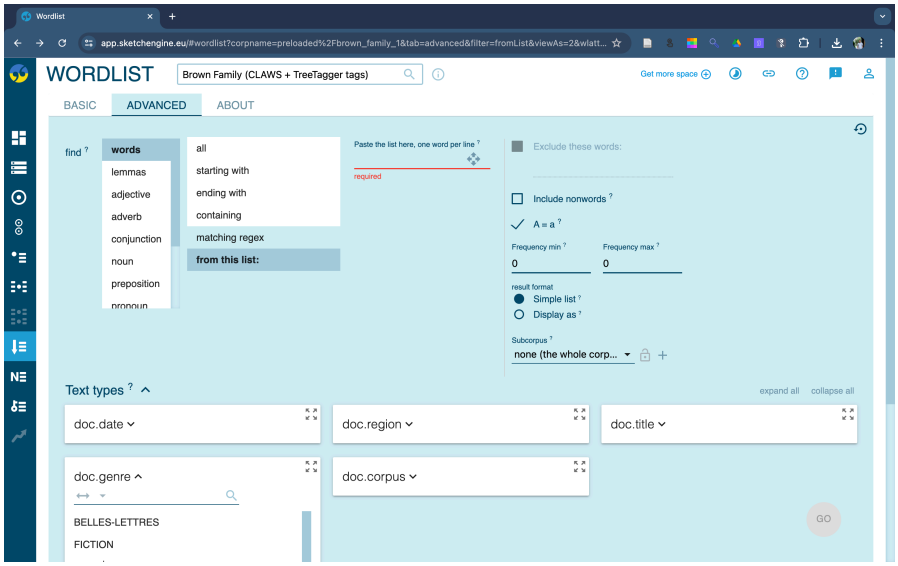
Various restricted searches (words, lemmas, POS)

Layer 2:

Capturing all or parts of the units restricted in Layer 1

Demo & Practice

- Demo:
  - Queries: ~~Basic &~~ Advanced features of SE's *Wordlist*



Demo & Practice

- Demo: Advanced feature
- Question:
  - contrasting the list of nouns in the Mystery sub-genre of the Fiction genre of the American vs. British variety of the Brown Family
- Requirement(s):
  - the preloaded Brown Family has provided the (combined) subcorpora category for "American" and "British"
  - two searches: one for each variety
  - save each output into .csv
  - Explore the first 30 items: are there non-overlapping nouns? How many of them?
- Operationalisation (demo):
  - Find[?]: **noun** (layer 1) ; **all** (layer 2)
  - Display as:
    - check `tag`
    - check `lemma` (check the `A = a` of `lemma`)
  - Text types:

    * doc.genre: Mystery sub-genre of Fiction
    * doc.region: American

- Results (demo)
  - save into .csv and call it `noun-in-mystery-brownfam-AmE.csv`
  - run the search for British by changing only one criteria: doc.region (DEMO)

End of `Frequency List`

- source files for all materials:
  - https://github.com/complexico/dipscorling2024
- pdf version as a handout here
- How to cite these materials:

> Rajeg, Gede Primahadi Wijaya. 2024. Materials for the *Diponegoro Summer Course in Corpus Linguistics* (*DipSCORLING 2024*) (22 - 27 July 2024). R Quarto. Zenodo. https://doi.org/10.5281/zenodo.12793922. (22 July, 2024).

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