Lexical density

- Lexical density is a measure of the density of information in any passage of text, according to how tightly the content words are packed into the grammatical structure.
Calculating lexical density

- **Lexical density** refers to the ratio between the number of clauses in a text and the number of content words in a clause.
- Lexical items or content words:
  - form open systems
  - include nouns, verbs, adjectives, adverbs
- Grammatical items or function words:
  - belong to closed systems
  - include articles, pronouns, prepositions, conjunctions, some classes of adverbs (e.g. *usually, often*), finite verbs *is, has, was* etc

Calculating lexical density

- To calculate lexical density, divide the number of content words by the number of clauses.

Increasing lexical density: Examples

- But we never did very much science at school.
- My father used to tell me about a singer in his village.
- A parallelogram is a four-sided figure with its opposite sides parallel.
- The atomic nucleus absorbs and emits energy in quanta, or discrete units.
- Griffith’s energy balance approach to strength and fracture also suggested the importance of surface chemistry in the mechanical behaviour of brittle materials.

Nominalisation

Nominalisation is the process by which events, qualities and relationships come to be represented not as verbs, adverbs or conjunctions, but as things, nouns.

Nominalisation: Example

- Competency based training (CBT) focuses on working out what abilities someone needs to do their job and developing and delivering training based on those abilities and recognising this training with a certificate.
- Competency based training (CBT) focuses on the identification of abilities needed to complete a task and the development and delivery of appropriate certified training.

Why use nominalisation?

- Allows more information to be packed into a short space: i.e., allows concise expression.
- Allows for increased flexibility; e.g.
  - the rate at which inflation grows
  - the rate of inflation growth
  - the inflation growth rate
- ‘The inflation growth rate’ can be used as subject, object or indirect object in another sentence.
Why use nominalisation?

• Theme and New: Contributes to the organisation of a text, as it allows concepts to be introduced in Thematic position and facilitates the flow of information from New position to Given position (See worksheet)
• Contributes to ‘objectivity’ as it presents processes, concepts etc as taken-for-granted, this-is-how-things-are
• Allows process to be placed in Thematic position

The results of increased nominalisation:

• Reduced sentence complexity
  Meaning is coded in the nominal group, not the verbal group
  The use of the copula (is/was) is greatly increased.

  Oscillations are frequency-dependent. (~ Oscillations depend on frequency)
  The type is non-disk (~ The type does not disk)
  Design is practically non-evidences (~ Design does not practically evidence)

The results of increased nominalisation

• Reduced sentence complexity and use of non-finite in place of finite or independent clauses

  The starter motor is switched off, the engine accelerating under its own power
  (~ The starter motor is switched off, and the engine accelerates under its own power)

  The rivets contracts as it cool, thereby drawing the plates together
  (~ The rivets contracts as it cool, and draws the plates together)

The results of increased nominalisation

• Increased sentence length, as a result of long nominal groups: eg

The eukaryotic nucleoplasm contains many small nuclear ribonucleoproteins (snRNPs), stable complexes of small nuclear RNA (snRNA) bound to several specific proteins.

Metadiscourse

What is metadiscourse?

“... the self-reflective linguistic material referring to the evolving text and to the writer and imagined reader of that text. It is based on a view of writing as social engagement and in academic contexts reveals the ways that writers project themselves into their discourse to signal their attitude towards both the propositional content and the audience of the text.”

Hyland and Tse (2004)

Grammatical metaphor

• Nominalisation involves the transfer of a congruent form of expression to a metaphoric one: ‘grammatical metaphor’

<table>
<thead>
<tr>
<th>Congruent representation</th>
<th>Metaphoric representation</th>
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<td>Grammar</td>
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<tr>
<td>participant</td>
<td>noun</td>
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<tr>
<td>process</td>
<td>verb</td>
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<tr>
<td>logical relation</td>
<td>conjunction</td>
</tr>
<tr>
<td>assessment</td>
<td>modal verb</td>
</tr>
<tr>
<td>all represented as quality nouns in nominal groups</td>
<td></td>
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</tbody>
</table>
Abstraction

- Academic and professional language involves a greater degree of abstraction than everyday casual communication:
  - more and more emphasis is placed on entities that are not concrete - concepts, notions, properties, facts, ideas
- Unlike nominalisations, abstractions can’t be unpacked and expressed in congruent forms

Recognising metadiscourse

- Hyland distinguishes two aspects of metadiscourse:
  - Textual resources
  - Interpersonal resources
- Textual resources refer to features which organise the discourse, (ie SFG textual metafunction)
- Interpersonal resources are distinct from propositional aspects of discourse. They involve aspects of the text that embody writer-reader interactions

Metadiscourse and authority

- Metadiscourse in textbooks:
  - Relationship between reader and writer one of authority, and the information presented tends to be widely accepted so information often presented as categorical fact
  - Humanities and social sciences tend to rely on argument and interpretation of data, and therefore need to involve reader in argument, resulting in greater use of interpersonal metadiscourse
  - Natural sciences explanations derive from models, measurements etc, therefore less need of personal standing and reader involvement

Metadiscourse and authority

- Metadiscourse in research papers
  - Research papers seek to persuade the reader of the correctness of their claims, therefore interactional metadiscourse is an major feature

Interpersonal metadiscourse

<table>
<thead>
<tr>
<th>Category</th>
<th>Function</th>
<th>Examples</th>
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<td>Hedges</td>
<td>with, without, not</td>
<td>perhaps, possible, about</td>
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<tr>
<td>Boosters</td>
<td>must, must not, need</td>
<td>definitely, if, in fact</td>
</tr>
<tr>
<td>Attitude markers</td>
<td>agree, disagree, think</td>
<td>unfortunately, I, x, claims</td>
</tr>
<tr>
<td>Relational markers</td>
<td>you, you can see,</td>
<td>explicitly, note that, however</td>
</tr>
<tr>
<td>Person markers</td>
<td>we, yes, my, our</td>
<td>we, our, my, our, mine</td>
</tr>
</tbody>
</table>

Hedges

- Hedges are used to express an absence of certainty:
  - a lack of commitment to the truth value of a proposition
  - a desire not to express a categorical commitment
- They aim to gain reader acceptance of the claims being made

Functions of hedging

- Allows writers to express propositions with greater precision.
- Allows scientific claims to be made with an appropriate degree of caution

Examples:
- A reduced speed limit will result in fewer accidents
- It may result in an increase in accidents
- It might/could result in an increase in accidents
- It is likely to result in an increase in accidents

Functions of hedging

- Allows author to anticipate possible negative consequences of being proved wrong
- In research articles, this involves professional deference (cf authority in textbooks)

Examples:
- It was assumed that phosphorylation of EF-2 may play a role in the activation of the enzyme.
- The model implies that the function of grana is to increase the efficiency of photosynthesis.
- On the limited data available, it is plausible that the increase in productivity is due to the addition of nutrients.
- In the view of some researchers, it is possible that the increase in productivity is due to the addition of nutrients.

Attitude markers

- Attitude markers present the author's personal evaluation of material
- They guide the readers response to the material
- They increase the authority of the writer

Examples:
- Care must be taken to note that...
- It must be remembered that...
- It is important that you...
- Smith claims/states/suggests/assumes...

Relational markers

- Contribute to the development of the writer-reader relationship

Examples:
- If you keep adding sugar to a cup of tea, you will reach a point...
- What is the source of energy for ecosystems?
- We are surrounded by molecules...
- Thus, we propose that...

Person markers

The author or authors refer to themselves

Examples:
- We propose that...
- I believe that

Science & Humanities: Conjunctive relationships

- Explicit and implicit conjunction
  - Explicit conjunction is realised lexically
  - Implicit conjunction is realised in the relationship between clauses

- Internal and external conjunction
  - Internal conjunction refers to relationships internal to the text: they organise the meanings in the text (eg: first, second, third)
  - External conjunction organises events constituting the field
Science & Humanities: Conjunctive relationships

- Texts in the sciences tend to use external and explicit conjunction
  ie conjunctions describe logical relations in the real world
- Texts in the humanities tend to use implicit and internal conjunction
  ie conjunctions describe logical relations within the text:
  they organise the argument and relationship between events in the real world are often implicit.

The End and Thank you