Writing - Weeks 4&5

More on characters and nouns

Homework exercises -- let's go through them.

Discussion Questions

- What was hard about the exercises?
  - sometimes it's hard to find a character
- Did your changes always improve the abstract?
  - coherence, continuity
  - nominalizations → sometimes you need them!

Things we'll discuss today:
- When nominalizations are good
- More on characters:
  - Where to look for characters
  - What to do if you don't find them
  - Abstractions as characters
- Another issue with nouns (long compound noun phrases)

When nominalizations are good

1) A nominalization is a short subject that refers to a previous sentence.
   ○ **These arguments** all depend on a single unproven claim.
   ○ **This decision** can lead to positive outcomes.
   ○ (Student writing) The equations governing fluid flow depend on various physical properties such as the relative speed, density, and viscosity. By rescaling variables one can reduce this dependence to a single dimensionless parameter known as the Reynolds number. **This reduction** is at the heart of the principle of dynamic similarity, which states that [...]
2) A short nominalization replaces an awkward *the fact that*.
   ○ The fact that she *admitted* guilt impressed me. (X)
   ○ Her **admission** of guilt impressed me.
   ○ She *impressed* me when she *admitted* her guilt. (Even better?)

3) A nominalization names what would be the object of the verb.
    ○ I accepted what she *requested*. [that is, She requested **something**.](X)
    ○ I accepted **her request**.
    ○ (student writing) The equations governing fluid flow depend on various physical properties such as the relative speed, density, and viscosity. By rescaling variables one can reduce **this dependence** to [...]

4) A nominalization refers to a concept so familiar to your readers that to them, it is like a character.
    ○ Few problems have so divided us as **abortion** on **demand**.
    ○ The Equal Rights **Amendment** was an issue in past **elections**.
    ○ **Taxation** without **representation** did not spark the American **Revolution**.

But if you can revise into a verb gracefully, you still should:
    ○ There is a **demand** for a **repeal** of the **inheritance** tax.
    ○ We **demand** that Congress **repeal** the **inheritance** tax.

Where to look for characters

Government intervention in fast-changing technologies has led to the distortion of market evolution and interference in new product development.

1) Underline the first 7-8 words.
   Ask: Are there any characters as simple subjects? Are there verbs?

   Government intervention in fast-changing technologies has led to the distortion of market evolution and interference in new product development.

2) Find the main characters.
   They could be in adjectives, in nominalizations, in pronouns, in objects of prepositions (after _by_ or _of_), or only implied, not explicitly mentioned.
   ○ governmental → government
   ○ of market evolution → market

Government intervention in fast-changing technologies has led to the distortion of market evolution and interference in new product development.

3) Look for actions involving those characters.
   ○ Ask *Who is doing what?*
   ○ Look for actions buried in nominalizations.

governmental evolution	→ government intervenes
distortion	→ [government] distorts
market evolution	→ markets evolve
interference	→ [government] interferes
development	→ [markets] develop

Reassemble new subjects and verbs into a sentence.
Add conjunctions like *if, although, because, when, how, why.*

When a government intervenes in fast-changing technologies, it distorts how markets evolve and interferes with their ability to develop new products.

What to do when there are no characters

- A decision was made in favour of doing a study of the disagreements.

Does this mean:
  - We decided that I should study why they disagreed.
  - I decided that you should study why he disagreed.
  - etc

- Research strategies that look for more than one variable are of more use in understanding factors in psychiatric disorder than strategies based on the assumption that the presence of psychopathology is dependent on a single gene or on strategies in which only one biological variable is studied.

Revise to be more clear:
- If *one/we/you/researchers* are to understand what causes psychiatric disorder, *one/we/you/they* should use research strategies that look for more than one variable rather than assume that a single gene is responsible for a psychopathology or adopt a strategy in which *one/we/you/they* study only one biological variable.

- Which character should we choose?
  - *one* → feels stiff
  - *we* → could be ambiguous (writer, or writer+others but not reader, or writer+reader but not others, etc)
  - *you* → often inappropriate

Tips to invent a character

- To explain a complicated issue to someone involved in it, imagine sitting across the table from that person, saying *you* as often as you can:

  - Taxable intangible property includes financial notes and municipal bonds. A one-time tax of 2% on its value applied to this property.

  - → **You** have to pay tax on **your** intangible property, including **your** financial notes and municipal bonds. On this property, **you** pay a one-time tax of 2%.

- If *you* is not appropriate, change it to a character that is:

  - **Taxpayers** have to pay tax on their intangible property, including **their** financial notes and municipal bond. **They** pay…

Warning sticker on a portable generator:

Mild Exposure to CO can result in accumulated damage over time.
Extreme Exposure to CO may rapidly be fatal without producing significant warning symptoms.
Infants, children, older adults, and people with health conditions are more easily affected by Carbon Monoxide and their symptoms are more severe.

Sticker on an updated model:

Using a generator indoors CAN KILL YOU IN MINUTES.
Generator exhaust contains carbon monoxide. This is a poison you cannot see or smell.
NEVER use inside a home or garage, EVEN IF doors and windows are open.
Only use OUTSIDE and far away from windows, doors, and vents.

Abstractions as characters

- Abstractions can be characters, as long as they are subjects of sentences that tell a story.

  - ((Research strategies that look for more than one variable are of more use in understanding factors in psychiatric disorder than strategies based on the assumption that the presence of psychopathology is dependent on a single gene or on strategies in which only one biological variable is studied.))

  - To understand what causes psychiatric disorders, *studies* should look for more than one variable rather than adopt a strategy in which *they* test only one biological variable or assume that a single gene is responsible for a psychopathology.

- Abstractions can be characters, as long as they are subjects of sentences that tell a story.

  - <u>No human right</u> is more basic than *freedom of speech*, <u>*which*</u> ensures individual expression and guarantees the open flow of ideas in society. <u>*It*</u> arose as a pillar of modern political thought during the late eighteenth century, and in 1948, <u>*it*</u> was recognized by the United Nations as a universal right. It protects not only unpopular political views but also other forms of controversial expressions, including artistic expressions. Nevertheless, <u>*freedom of speech*</u> is not absolute, <u>*it*</u> is bounded by other rights and principles, including…

    (<u>Subjects underlined</u>, *characters italicized*, verbs in magenta)
- *Freedom of speech* (or pronouns *which, it*) is main character of a sequence of actions: ensures, guarantees, arose, etc.
- Notice the passive verbs: was recognized, is bounded.
  What is their role?

- But you need to be careful! (**Actions bold**, *human characters italics*)
  - The **argument** is this. The cognitive component of **intention** exhibits a high degree of complexity. **Intention** is temporally divisible into two: prospective **intention** and immediate **intention**. The cognitive function of prospective **intention** is the **representation** of a *subject's* similar past **actions**, *his* current situation, and *his* course of future **actions**. That is, the cognitive component of prospective **intention** is a **plan**. The cognitive function of immediate **intention** is the **monitoring** and **guidance** of ongoing bodily **movement**.

- Characters *prospective intention, immediate intention* are not as familiar. And, they are surrounded by other abstractions.
- Introduce flesh-and-blood characters:
  - *I* argue this about **intention**. **It** has a complex cognitive component of two temporal kinds: prospective and immediate. *We* use prospective **intention** to represent how *we* have **acted** in our past and present and how *we* will **act** in the future. That is, *we* **use** the cognitive component of prospective **intention** to **help** *us* **plan**. *We* **use** immediate **intention** to **monitor** and **guide** *our* bodies as *we* **move** them.
- More clear… Does it change the meaning?

Example

What are the characters? What other abstractions are there? Which character should this paragraph focus on?

- Supervised learning is a machine learning task that learns a function that maps an input to an output based on sampled input-output pairs (called training data). We only consider the functions in a predefined smaller space. The input objects are typically vectors while the desired outputs are the supervisory signals. The supervisory signals are often annotated or generated by human-beings which could be expensive and time-consuming to obtain. Self-supervised learning is a relatively recent supervised learning technique addressing the drawbacks by automatically generating the supervisory signals from the inputs with some very simple algorithms. A good self-supervisory signal makes the learned function able to extract useful information and representations from the input. The idea has a long history and now widely used in domains like natural language processing and computer vision.

Tips to handle abstractions

If you must write about an abstract concept:
- Turn it into a virtual character
  - Make it the subject of verbs
  - Make these verbs tell a story
- Avoid using lots of other abstract nominalizations

If you have hidden characters that are "people in general":
- Try a general term for whoever is doing the actions (researchers, social critics, mathematicians, data scientists, students, one, etc).
- If that doesn't work, try "we".

Last point: noun+noun+noun

- Be careful of *long compound noun phrases*:
  - Early *childhood thought disorder misdiagnosis* often results from unfamiliarity with recent *research literature* describing such conditions. This paper is a review of seven recent studies in which are findings of particular relevance to *pre-adolescent hyperactivity diagnosis* and to *treatment modalities* involving *medication maintenance level evaluation procedures*.
- Short compound nouns are ok, especially if familiar (student center, space shuttle, partial differential equation, data scientist, neural network, Lebesgue integration, etc)
- Long strings of nouns are lumpy. Avoid them.
  (Unless they are technical terms in your field.)
- To revise, reverse order of words, & use prepositions to connect:
  <div align="center">

  early   childhood   thought   disorder   misdiagnosis
  misdiagnose   disordered   thought   in early   childhood
  </div>
  - Physicians misdiagnose disordered thought in young children because they are unfamiliar with recent literature on the subject.
- Or, keeping a known technical term:
  - Physicians misdiagnose **thought disorders** in young children because they are unfamiliar with recent literature on the subject.

Example

Identify any long compound noun phrases that could be revised:

- NUFFT, an acronym for Non-uniform Fast Fourier Transform, is a fast algorithm for discrete Fourier transform summation when sample points are non-uniform.

- Consider fluid flows in applications from cell biology. The relevant length scales in the problem are small, so the nonlinear Navier-Stokes fluid equations simplify to the Stokes equations.

Another problem with nouns! (ambiguous parsing)

A newspaper headline:

ADMITTED OLYMPIC SKATER NANCY KERRIGAN ATTACKER BRIAN SEAN GRIFFITH DIES

A blogger's response:

"Admitted Olympic Skater Nancy Kerrigan Attacker Brian Sean Griffith Web Site Obituary Headline Writer Could Have Been Clearer"

Other newspaper headlines:
TEXTING DEATH CRASH PEER JAILED
FISH FOOT SPA VIRUS BOMBSHELL
CHINA FERRARI SEX ORGY DEATH CRASH

Exercise

- Exchange 100-word summaries with a peer. Read through and ask:
    - Are main characters subjects?
    - Are main actions verbs?
    - Are the nominalizations appropriate?
    - Are the compound noun phrases appropriate? Are any too long?
    - Are there sentences you don't understand?
    - Does it make sense to you overall?
- Suggest possible edits.
- Point out what they did well! (at least one thing)