# CMPT 376W: Technical Writing and Group Dynamics
## A Course Overview

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# Contents

# 1  Introduction

- Characteristics of poor writing: Ambiguity, omissions, obscurity, spelling errors, poor presentation
  - May indicate a lack of care, and create a lack of trust
- Characteristics of good writing: Clearly expressed ideas, well-organized, easy to read
  - Short sentences with fewer clauses
  - Avoids repetition

## 1.1  Technical Writing

- *Technical writing:* Communication about any topic

# 2 Elements of Text

## 2.1 Words

- **Noun:** Person, place, or thing
  - Often a subject of a cluase
  - **Concrete noun:** Physical thing
  - **Abstract noun:** Idea or concept used as a subject
  - **Pronouns:** Substitute for a noun which provides better flexibility and flow
    * E.g. Jeffrey completed *his* homework with extreme diligence.
- **Verb:** Action
  - **Active verb:** Action performed by the subject of a sentence
    * Preferred over passive verbs because active verbs are direct and explicit
    * Examples:
      · "The boy threw the ball."
      · "The whistle blew."
  - **Passive verb:** Action acting on the subject of a sentence
    * Examples:
      · "The ball was thrown by the boy."
      · "The ball was thrown."
  - **Empty verb:** Action which conveys no meaning except to act as a connector between clauses
    * Examples: make, give, be, have do, is
- **Nominalization:** Verb modified to be used as a noun
  - E.g. "The *evolution* of humans is marvelous." (Verb: evolve, noun: evolution)
  - **Gerund:** Nominalization consisting of a verb and the suffix *-ing*
    * E.g. "Humans *evolving* has changed their capability for destruction."
  - Should be replaced with verb or adjective forms to be more direct
    * Rewriting examples:
      · "His carelessness in driving caused an accident." to "His careless driving caused an accident.'
      · "The collection of samples was taking place at the crime scene, and an interrogation of the suspect was happening at police headquarters." to "Samples were being collected at the crime scene and the suspect was being interrogated at police headquarters."
  - Often the subject of an empty verb
    * Rewriting examples:
      · "The expectation of the student is to pass the course." to "The student expects to pass the course".
      · "The defense counsel made an objection to the prosecution's question." vs. "The defense counsel objected to the prosecution's question."

·  "A revision of the program will improve services for clients." to "Revising the program will improve services for clients."

·  "There was considerable erosion of the land from the floods." to "The floods considerably eroded the land." or "The land was considerably eroded by the floods."

- **Conjunction:** Word which connects two clauses

  – E.g. because, if, when, since, unless, which, who, that, those

- **Synonym:** Word which has the same or similar meaning to another word

  – E.g. *Dark* and *shadowy* are synonyms

## 2.2   Clause

- **Clause:** Group of words which contains a subject and verb
- Types of clauses:

  – **Independent clause:** Clause which expresses a complete thought

    * E.g. "She was happy because he was happy."

  – **Dependent clause:** Clause which does not express a complete thought

    * E.g. "Because he was happy."

  – **Subordinate clause:** Proposition (with at least a subject and verb) which begins with a conjunction

    * E.g. "Jeffrey gets full marks *when he completes his homework*".

- **Action:** Verb of a clause

  – E.g. "Jeffrey was *speechless*."

- **Character:** Subject of a clause

  – E.g. "*Jeffrey* was speechless."

- **Phrasal embedding:** Connection of a clause to or within another clause

  – E.g. "Jeffrey left *when class ended*."

## 2.3   Sentences

- Composition:

  – **Simple subject:** Noun which is the singular focus of the sentence

    * E.g. "*Jeffrey* went to the store."

  – **Whole/complex subject:** Noun which is the singular focus of the sentence along with all modifiers

    * E.g. "*Jeffrey's beautiful hair* was fabulous."

  – **Compound subject:** Combination of the nouns of a sentence which contains multiple noun foci

    * E.g. "*Jeffrey and Jeff* were friends."

- Structure:

  – Subject Verb Object

  – MainCharacter Action SecondaryCharacter

## 2.4   Paragraphs

- **Paragraph:** Aggregation of 2 or more sentences to express an idea
- Can be individually titled for clarity
- Should be standalone and not require previous background/context for understanding
- First several sentences should outline the idea expressed in the paragraph

# 3 Writing

- Order clauses in sentence by descending salience/importance
    - E.g. "We compared the effects of the two hashing schemes on our algorithm's running time." to "Two hashing schemes for the algorithm were evaluated for run time."
- Structure of the proposal of a solution:
    - Phrase the problem as a question
    - Explain steps to solve the problem as exposition
    - State the approach and solution
- **Hedging:** Avoidance of stating definitive conclusions
- **Rhetoric:** Use of language (spoken or written)
    - E.g. "I will build a great wall - and nobody builds walls better than me, believe me - and I'll build them very inexpensively, and I will make Mexico pay for that wall."
    - **Rhetorical situation:** Circumstances of conveying information through langauge
- **Shape:** Structure of the communication of ideas
    - Reshaping a text involves reordering of ideas and changing of sentence length without addition or removal of ideas
    - Keep the subject and verb close together to minimize confusion
    - Begin the sentence with the key point (subject, verb, object) before delving into details
    - Separate multiple subordinate clauses into new sentences
    - E.g. "Ph.D. students, who take a large share of their advisor's time by requiring detailed supervision constitute only a small fraction of the total student body." to "Ph.D. students take a large share of their advisor's time by requiring detailed supervision. These students constitute only a small fraction of the total student body."
    - E.g. "High-deductable health plans and Health Saving Accounts into which workers and their employees make tax-deductable deposits result in workers taking more responsibiltiy for their health care." to "Workers take more responsibility for their health care when they adopt high-deductable insurance plans and Health Savings Accounts into which they and their employees deposit tax deductable contributions."
    - **Sprawl:** Overly long and complex sentence structure
        * Reading the sentence out loud will make you feel out of breath
        * Modifiers:
            · *Resumptive modifier:* Textual element continuing discussion on a concept dependent on a word or phrase repeated from a previous sentence
                - E.g. "SFU is a good school. *This school* has 25,000 undergraduate students."
            · *Summative modifier:* Textual element continuing discussion on a concept dependent on summarizing the concept from a previous sentence
                - E.g. "SFU is a good school for academia and co-op. *This* makes it appealing to many students."
            · *Free modifier:* Textual element continuing discussion on a concept dependent on the subject of the closest verb

- E.g. "SFU is a good school for academia and co-op, *making* it appealing to many students."

* E.g. "A musical group specializing in early music that insists on using either instruments that are actually old or instruments that have been created according to historical standards produces a sound markedly different from that of groups playing music on modern instruments." to "Some musical groups specializing in early music insist on using either instruments that are actually old or instruments that have been created according to historical standards. The sound they produce is markedly different from that of groups playing early msuci on modern instruments."

* E.g. "While grade inflation has been a subject of debate by teachers and administrators and even in newspapers, employers looking for people with high levels of technical and analytical skills have not had difficulty identifying desirable candidates." to "Teachers, administrators, and media have debated grade inflation, but employers have found desirable college graduates with high levels of technical and analytical skills."

- *Stress:* Emphasis on clauses in a sentence
  - First several words of a sentence state the topic
  - Begin with peripheral, less important information
  - Echo an earlier word or phrase
  - Suspend the most important point for the end
  - End with new information
  - End with a clause containing 'of'

- *Elegance:* Use of appropriate and graceful words, phrases, sentences, and paragraphs to keep a reader's attention and interest
  - Characteristics: Symmetry, balance, uniqueness, simplicity
  - Avoid mannerisms, cliches, tricks
  - Sound of the language is more important than the content
  - Use metaphors/analogies
  - Use coordination (e.g. and, but, for, how) for rhythm
    * Use the shortest clause first and the longest clause last
    * Balance the lengths of clauses
    * *Correlative conjunction:* Conjunctions that specify correlation or lack thereof of two nouns
      · Provide balance and dramatic impact
      · E.g. Both/and, neither/nor, either/or, not only/but also
  - E.g. "Thank you for the commitment, competence, thoughtfulness, and integrity you have demonstrated over the past 20 years." to "Thank you for all you have given us over the past 20 years. Your commitment is matched only by your competence, your thoughtfulness only by your integrity."

## 3.1  Habits to Avoid

- Avoid using 'firstly', 'secondly', 'finally'
  - Be explicit with the enumerated item - e.g. 'the first issue', 'the final issue'
- Avoid starting sentences with 'because' because the clause at the beginning of the sentence will contain new information

- – To prevent confusion, move the clause to the end of the sentence or use 'since' (which reminds about old information)
- Avoid misleading pronouns such as "this"
- **Monotony:** Lack of variation
  - – Rewriting examples:
    - \* "Jeffrey would eat bananas, and he would throw them at his friends, and he would give them to his teachers, and he would sell them for a significant profit." to "Jeffrey would eat bananas, throw them at his friends, give them to his teachers, and sell them for a significant profit."
- **Metadiscourse:** Discussion of the text itself
  - – Should be avoided because it results in periphrastic and redundant text
  - – Rewriting examples:
    - \* "*In this paper, we perform* an experiment that investigates whether GPU-optimized code performs better than code executing on both GPU and CPU." to "We study whether GPU-optimized code…"

## 3.2 Concision

- **Concision:** Minimal usage of wording and complex clauses to convey information
  - – Avoidance of redundancy and repetition
  - – Ways to create concision:
    - \* Remove empty/filler words
    - \* Avoid redundant pronouns such as "we"
- Rewriting examples:
  - – "After that, Jeffrey went to the store again just like last time."
    - \* "Jeffrey went to the store again."
  - – "This interview with Steven Pinker discusses good and bad writing."
    - \* "Steven Pinker's interview discusses the quality of writing."
    - \* "Steven Pinker is interviewed about good and bad writing."
  - – "What beliefs do you believe in?"
    - \* "What are your beliefs?"
    - \* "What do you believe in?"
    - \* "What do you believe?"
  - – "The difficult experiment was completed with great difficulty."
    - \* "The experiment was completed with great difficulty."
    - \* "The incredibly difficult experiment was completed."
    - \* Replace "great difficulty" with the reasons for difficulty
  - – "The analysis was analyzed."
    - \* "It was analyzed."
    - \* "The analysis was completed."

∗ "The analysis was examined/reviewed."

## 3.3  Cohesion and Coherence

- **Coherence:** Connection of ideas at the idea level
  - Avoid:
    - ∗ Choppiness
    - ∗ Disorganization
  - Should occur within and between sentences, paragraphs, chapters, sections, and the entire document
  - Can be broken by unclear implication
  - Depends on the background knowledge of the reader
- **Cohesion:** Connection of ideas at the sentence level
  - **Faked/forced cohesion:** Using a conjunction when there is no logical connection between two clauses
    - ∗ Example: "Jeffrey liked eating bananas; *therefore* he received high marks on his homework."
    - ∗ To avoid, remove all conjunctions as the text should still be clear without them

## 3.4  Introduction

- Contents:
  - High-level overview
  - Define the problem
  - Motivate the audience/reader that there is a conflict to be resolved
  - Introduce basic terminology
  - Summarize your contributions and results

## 3.5  Body

- Contents:
  - First paragraph should be a rough outline of the background information and the points to discuss
  - Discuss related work
  - Discuss and emphasize your contributions
  - Explain significance of results

## 3.6  Conclusion

- Contents:
  - State the most important outcome
  - Avoid simply summarizing the points from the body
  - Interpret core points at a higher level of abstraction

- Demonstrate how you have addressed the need stated in the introduction

- Include perspectives about what could still be done about the issue

- Provide hindsight

- List open unanswered problems

# 4 Reviewing Papers

- Introduction:
    - Summarize paper briefly to demonstrate understanding
    - Provide positive feedback
    - Provide negative feedback
    - Discuss possible subjectivity
- Body:
    - Discuss:
        * Clarity
        * Tone
        * Related works
        * Proper use of tables/figures/diagrams
        * Personal feelings
        * Expectations
    - Check for secondary sources in references
    - Pose questions to address lacking details
- Conclusion:
    - Discuss overarching impressions

# 5 Allegories

## 5.1 Programming

- Similarities between programming and writing:
    - Decoupling of monolithic code is similar to breaking down and organizing a large text
    - Object-oriented design is similar to refocusing discussions around one issue and fleshing it out
    - *Refactoring:* Rewriting code without modifying functionality/behaviour
    - E.g. Removing complex code, decoupling functionality, improving modularity
    - Similar to restructuring and rewriting a text
    - Compression is similar to making text more concise

## 5.2 Presentations

- Similarities between presenting and writing:
    - Communicate key ideas
    - Avoid being distracted by details
    - Start top-down with high-level ideas before moving to details

## 5.3 Dimensionality Reduction

- **Dimension:** Attribute or statistic describing a phenomenon
- **Dimensionality reduction:** Pruning the number of attributes or factors
    - Can include removal of duplicate dimensions, unimportant or irrelevant dimensions, or untractable dimensions (incalculable or impractical to calculate)
        * Allegory to writing with concision, removal of redundancy, and writing an incredibly long paper

# 6 Writing Samples

- "Decisions in regard to administration of medication despite inability of an irrational patient appearing in a Trauma Center to provide legal consent rest with the attending physician."

    - 'appearing' is redundant

    - 'in a Trauma Center' is a nominalization which should be changed to a noun/subject modifier

    - Rewrites:

        * "Despite the inability of an irrational Trauma Center patient to provide legal consent, decisions about the administration of medicine rest only with the attending physician."

        * "Only the attending physician may provide medication to a Trauma Center patient who is unable to provide legal consent."

        * "When a Trauma Center patient behaves so irrationally that they cannot legally consent to treatment, only the attending physician can decide to medicate them."

- "In the last several years, college costs have been rising so fast that they are now threatening the basis of our American democracy - equal opportunity for all. During that period, tuition has signicantly outpaced increases in family income. If this trend continues, a college education will soon be affordable only by the children of the wealthiest families in our society. When that happens, we will be divided as a people not only by wealth, but by knowledge and intellectual skills. Such a divide will erode equal opportunity and the egalitarian basis of our democratic society."

    - Rewrites:

        * "Recent rising college costs undermine democracy by threatening equality of opportunity through tuition increasing faster than family income. If this continues, only the wealthiest will be able to afford a college education which will divide people by wealth, knowledge, and intellectual skill. This will erode equal opportunity."