

# Introduction to RST

## Rhetorical Structure Theory

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# Preface

- The following is a set of slides from courses taught by Maite Taboada and Manfred Stede
- It is distributed as a starting point for anyone who wants to present an introduction to RST
- You are free to use and modify the slides, but we would appreciate an acknowledgement
- For any comments and suggestions, please contact Maite Taboada: [mtaboada@sfu.ca](mailto:mtaboada@sfu.ca)

# Rhetorical Structure Theory

- Created as part of a project on Natural Language Generation at the Information Sciences Institute ([www.isi.edu](http://www.isi.edu))
- Central publication
  - Mann, William C. and Sandra A. Thompson. (1988). Rhetorical Structure Theory: Toward a functional theory of text organization. *Text*, 8 (3), 243-281.
- Recent overview
  - Taboada, Maite and William C. Mann. (2006). Rhetorical Structure Theory: Looking back and moving ahead. *Discourse Studies*, 8 (3), 423-459.
- For many more publications and applications, visit the bibliography on the RST web site
  - <http://www.sfu.ca/rst/>
  - <http://www.sfu.ca/rst/05bibliographies/>

# Principles

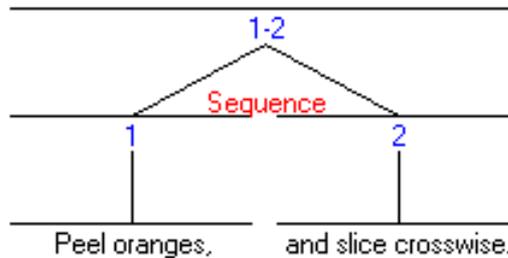
- Coherent texts consist of minimal units, which are linked to each other, recursively, through rhetorical relations
  - Rhetorical relations also known, in other theories, as coherence or discourse relations
- Coherent texts do not show gaps or non-sequiturs
  - Therefore, there must be some relation holding among the different parts of the text

# Components

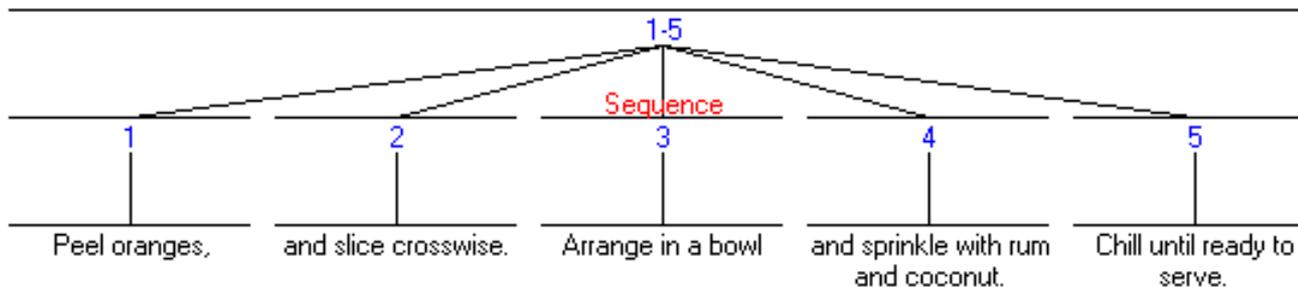
- Units of discourse
  - Texts can be segmented into minimal units, or spans
- Nuclearity
  - Some spans are more central to the text's purpose (nuclei), whereas others are secondary (satellites)
  - Based on hypotactic and paratactic relations in language
- Relations among spans
  - Spans are joined into discourse relations
- Hierarchy/recursion
  - Spans that are in a discourse relation may enter into new relations

# Paratactic (coordinate)

- At the sub-sentential level (traditional coordinated clauses)
  - Peel oranges, and slice crosswise.



- But also across sentences
  - 1. Peel oranges, 2. and slice crosswise. 3. Arrange in a bowl 4. and sprinkle with rum and coconut. 5. Chill until ready to serve.







# Example: Evidence

- Constraints on the Nucleus
  - The reader may not believe N to a degree satisfactory to the writer
- Constraints on the Satellite
  - The reader believes S or will find it credible
- Constraints on the combination of N+S
  - The reader's comprehending S increases their belief of N
- Effect (the intention of the writer)
  - The reader's belief of N is increased
  
- Assuming a written text and readers and writers; extensions of RST to spoken language discussed later
- Definitions of most common relations are available from the RST web site ([www.sfu.ca/rst](http://www.sfu.ca/rst))

# Relation types

- Relations are of different types
  - Subject matter: they relate the content of the text spans
    - Cause, Purpose, Condition, Summary
  - Presentational: more rhetorical in nature. They are meant to achieve some effect on the reader
    - Motivation, Antithesis, Background, Evidence

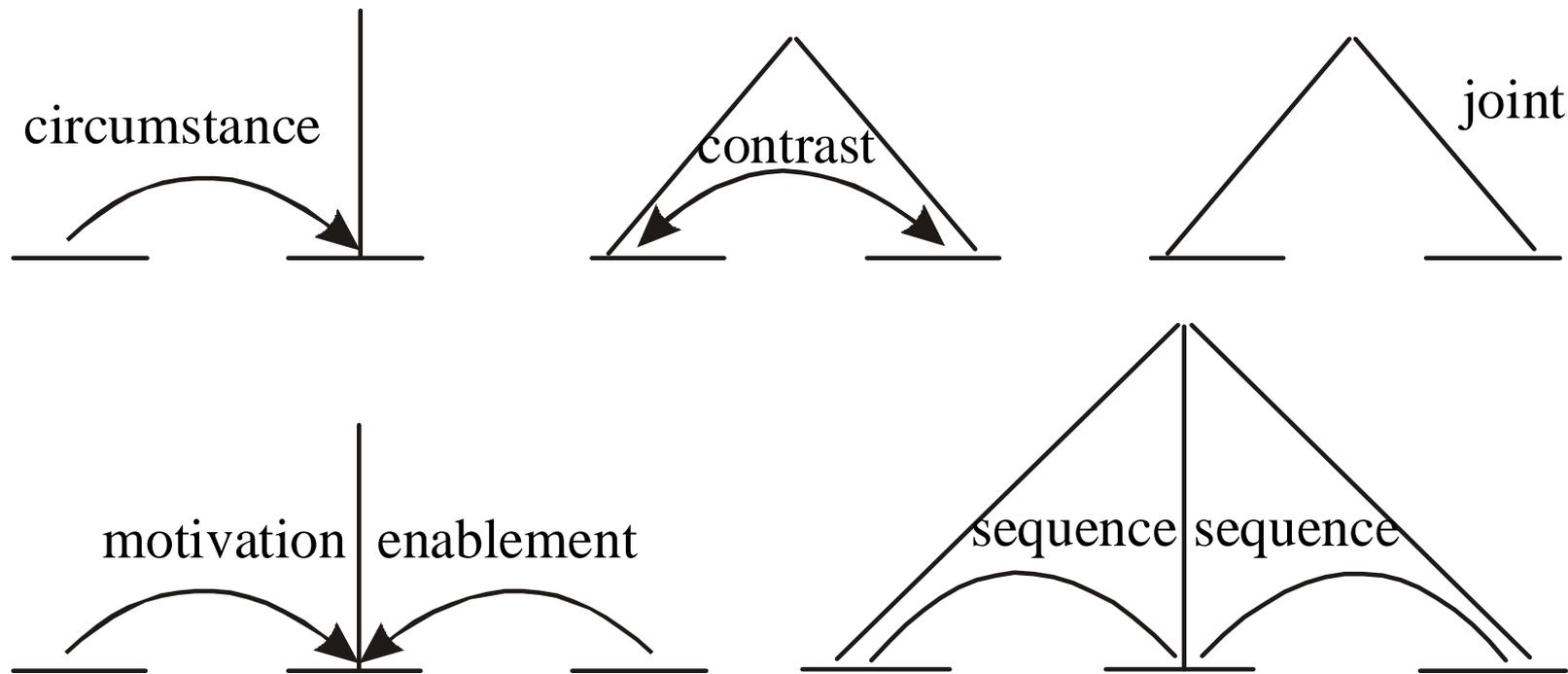
# Other possible classifications

- Relations that hold outside the text
  - Condition, Cause, Resultvs. those that are only internal to the text
  - Summary, Elaboration
- Relations frequently marked by a discourse marker
  - Concession (*although, however*); Condition (*if, in case*)vs. relations that are rarely, or never, marked
  - Background, Restatement, Interpretation
- Preferred order of spans: nucleus before satellite
  - Elaboration – usually first the nucleus (material being elaborated on) and then satellite (extra information)vs. satellite-nucleus
  - Concession – usually the satellite (the *although*-type clause or span) before the nucleus



# Schemas

- They specify how spans of text can co-occur, determining possible RST text structures





# How to do an RST analysis

1. Divide the text into units
  - Unit size may vary, depending on the goals of the analysis
  - Typically, units are clauses (but not complement clauses)
2. Examine each unit, and its neighbours. Is there a clear relation holding between them?
3. If yes, then mark that relation (e.g., Condition)
4. If not, the unit might be at the boundary of a higher-level relation. Look at relations holding between larger units (spans)
5. Continue until all the units in the text are accounted for
6. Remember, marking a relation involves satisfying all 4 fields (especially the Effect). The Effect is the plausible intention that the text creator had.

# Some issues

- Problems in identifying relations
  - Judgments are plausibility judgments. Two analysts might differ in their analyses
- Definitions of units
  - Vary from researcher to researcher, depending on the level of granularity needed
- Relations inventory
  - Many available
  - Each researcher tends to create their own, but large ones tend to be unmanageable
- A theory purely of intentions
  - In contrast with Grosz and Sidner's (1986), it does not relate structure of discourse to attentional state. On the other hand, it provides a much richer set of relations.

# Applications

- Writing research
  - How are coherent texts created
  - RST as a training tool to write effective texts
- Natural Language Generation
  - Input: communicative goals and semantic representation
  - Output: text
- Rhetorical/discourse parsing
  - Rendering of a text in terms of rhetorical relations
  - Using signals, mostly discourse markers
- Corpus analysis
  - Annotation of text with discourse relations (Carlson et al. 2002)
  - Application to spoken language (Taboada 2004, and references in Taboada and Mann 2006)
- Relationship to other discourse phenomena
  - Between nuclei and co-reference
- For more applications (up to 2005 or so):
  - Taboada, Maite and William C. Mann. (2006). Applications of Rhetorical Structure Theory. *Discourse Studies*, 8 (4), 567-588.

# Resources

- RST web page
  - [www.sfu.ca/rst](http://www.sfu.ca/rst)
- RST tool (for drawing diagrams)
  - <http://www.wagsoft.com/RSTTool/>

