Detecting Multiple Transitions in Literary Texts

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Aim

- Distant reading
- Identifying the high level structure in literary text (Genette et al. 1980)
  1. Changes in location
  2. Different perspectives
  3. Variation in the timeline
- The reason for identifying transitions in literary text
  1. Writing styles
  2. Structural differences
  3. Plot types

Aim

- Extending previous work (Heyns et al. 2021)
  1. Increase dataset
  2. Identify multiple transitions
- Introduce new system
- Compare new system with previous system

Related work

- Text segmentation/topic shifting
  1. Similarity methods e.g c99 algorithm Choi et al. (2001)
  2. Lexical chain methods e.g TextTiling
- The difference
  1. News articles vs Literary text
  2. Topic boundaries vs text transitions
  3. Number of transitions is unknown

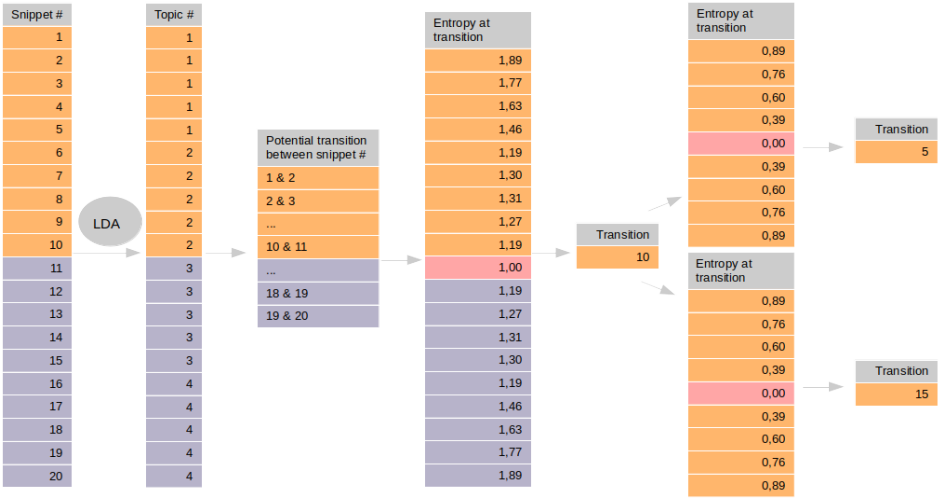
Data

- Pre-processing
  1. Stopword removal using NLTK
  2. Lowercased, punctuation removed and lemmatized using SpaScy
- Size of the dataset
  1. 10 text pairs
  2. 25 snippets from each text
  3. 500 words in each snippet

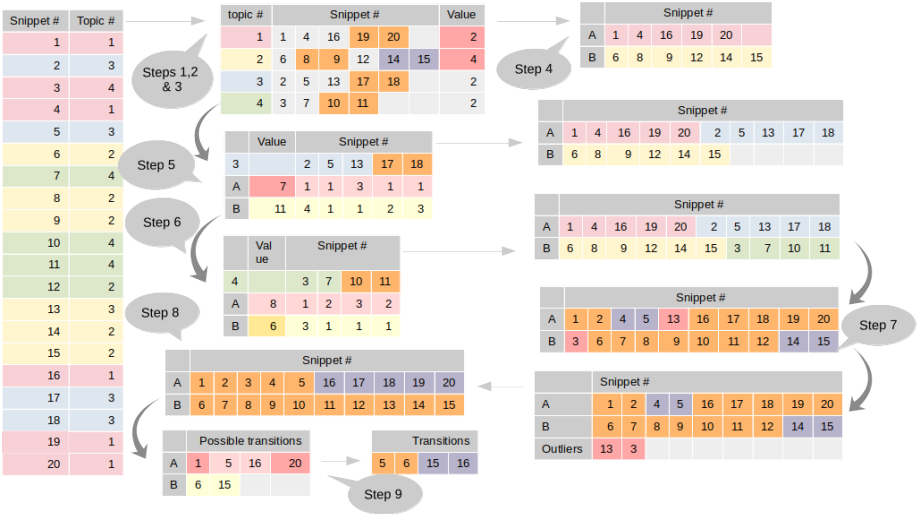
Evaluation data

- The number of boundaries
  1. Single transition: AB
     1. Snippet 1-25 from text A
     2. Snippet 1-25 from text B
     3. Boundary position is 25
  2. Multiple transitions: ABA
     1. Snippet 1-12 from text A
     2. Snippet 1-25 from text B
     3. Snippet 13-25 from text A
     4. Boundary positions are 12 and 37

Extended Single Transition Identification system



Multiple Transition Identification system

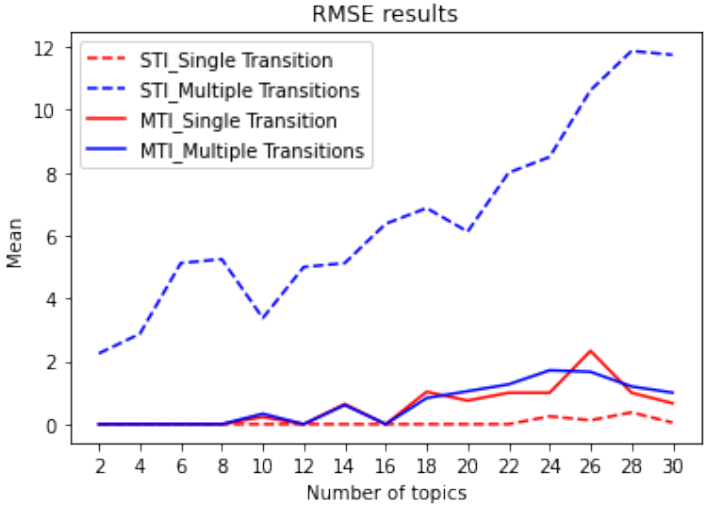


Evaluation

- Extrinsic evaluation method
  1. Root mean squared error (RMSE)

$$RMSE = \sqrt{\frac{\sum_{i=1}^{n} (p_i - r)^2}{n}}$$

System comparison



Future work

- Experiments on larger texts
- System that works well on both datasets
- Human annotated data

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Collins, W. (1861). *Hide and Seek*. Sampson Low.

Dostoevsky, F. (1866). *Crime And Punishment*. Signet Classics.

Genette, G., J. E. Lewin, and J. D. Culler (1980). “Narrative discourse : an essay in method”. In: *Comparative Literature* 32, p. 413.

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Data extraction

Source text	Sentence:
Dostoevsky (1866)	. . . sink upon grass instantly fall asleep morbid condition brain dream often singular actuality vividness extraordinary resemblance reality time monstrous image create set whole picture fill detail delicate unexpectedly artistically consistent dreamer artist like Pushkin Turgenev even can never invent wake state such sick dream always remain make powerful impression
Collins (1861)	ruddy face suddenly turn pale leave circus determine find go behind red curtain walk round outside build waste time find door apply admission last come sort passage tattered horsecloth hang outer entrance you come said shabby lad suddenly appear inside mr blyth take lad pocket money greedily valentine hastily enter passage. . .