Analysis of aspects in multidocument summaries and its correlation with the informativeness

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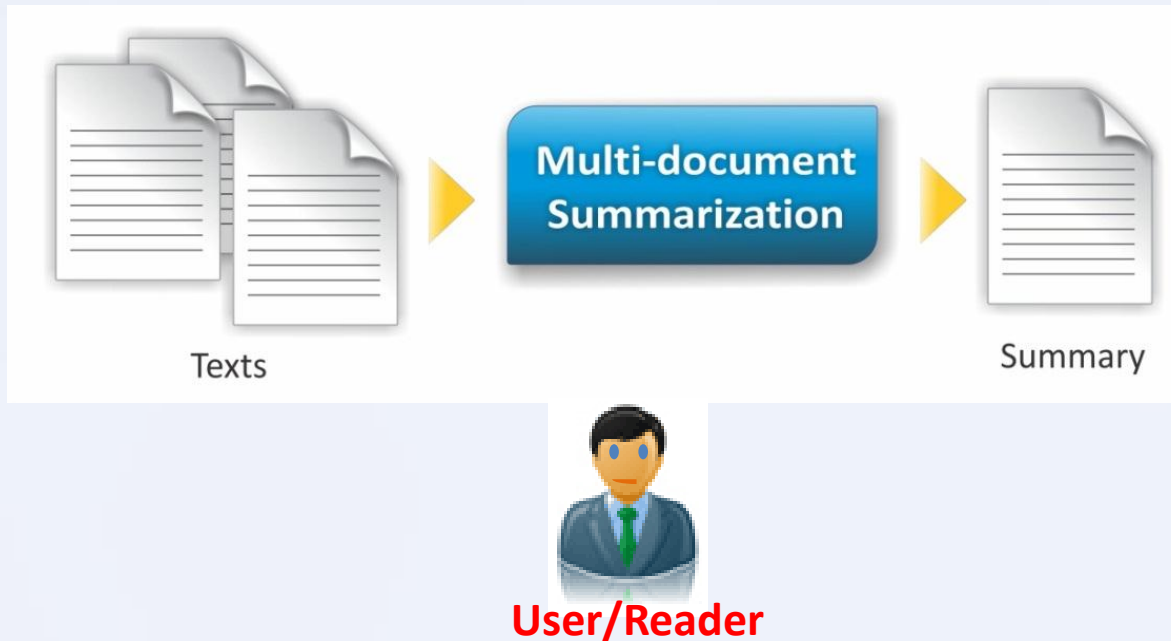
Schedule

- Motivation

- Purposes of this work

- Methodology

- Results

- Future work

- Main references

Motivation

- Multi-document summarization

Motivation

- Guided summarization task
  - It is guided by a list of important aspects whose information should be contained in the generated summary (Hu and Ji, 2011)

  - TAC 2010
    - 5 categories: *Accidents, Attacks, Health, Resources* and *Trials*
    - Example

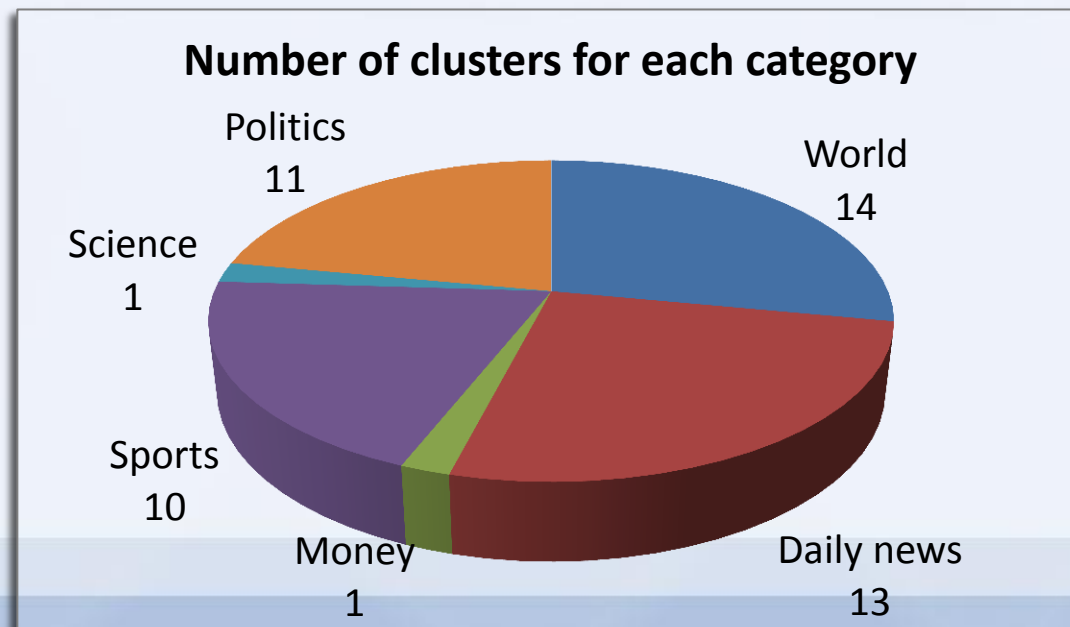| Accidents |
| --- |
| What |
| When |
| Where |
| Why |
| Who affected |
| Damages |
| countermeasures |

4

Motivation

- Guided summarization task
  - Two purposes (Owczarzak and Dang, 2011)
    - It creates a more focused target for automatic summarizers, neutralizing human variance and pointing to concrete types of information the reader requires

    - It provides a detailed diagnostic tool to analyze the automatic summaries

  - A summary with all aspects is ideal in that it (Zhang et al., 2011)
    - Addresses specific and semantically structured user need, and

    - Achieves good coherence on the content level.

Purposes of this work

- Evaluate the automatic summaries are keeping the aspects

- The relation among the aspects and ROUGE measure (Lin, 2004)

Methodology

- Choose a sample of CSTNews corpus (Cardoso et al., 2011)
  - Each cluster has 2 to 3 texts in Brazilian Portuguese
  - Single-document and multi-document summaries
    - **Sample: 4 texts related to events that involved police**
    - **Summarizer system: CSTSUmm** (Jorge and Pardo, 2010)

Number of clusters for each category

Politics 11
World 14
Science 1
Sports 10
Money 1
Daily news 13

Methodology

- The annotation
  - 4 annotators with computational linguistics knowledge
  - The original list of TAC and new aspects were created

Aspects

Aspect	Description
What	What happened
Who	People or entity involved in the main event
When	Date, time, other temporal placement markers
Where	Physical location
Why	Reasons for the event
How	How the event happened
Perpetrator	Individual or groups responsible for the event
Who affected	Individuals negatively affected
What affected *	Physical structures negatively affected
History *	History related to the event

* aspects created by annotators

Example

[Terminou a rebelião de presos no Centro de Custódia de Presos de Justiça (CCPJ), em São Luís, no começo da tarde desta quarta-feira (17).] **WHAT/WHERE/WHEN**

[O motim começou durante a festa do Dia das Crianças.]**HISTORY** [Depois que os presos entregaram o revólver usado para dar início ao motim, a Tropa de Choque da Polícia Militar entrou no presídio e liberou os 30 reféns - sendo 16 crianças.]**HOW/WHO-AFFECTED**

[Alguns menores saíram desmaiados e foram conduzidos para o atendimento médico.]**DAMAGES**

[Quatro pessoas teriam ficado feridas.]**DAMAGES**

Results

- ## Automatic x Reference summaries
  - Frequency of aspects

	Manual Summaries											
	What	Where	When	Who-affected	What-Affected	Who	Why	How	Damage	Perpetrator	History	Importance
C11	1	1	1	0	7	0	0	3	2	1	0	0
C37	1	1	1	1	0	0	0	1	2	0	1	0
C39	1	1	1	0	0	1	1	0	0	0	0	1
C45	1	1	1	0	0	1	1	0	0	2	0	0

	Automatic Summaries (CSTSumm)											
	What	Where	When	Who-affected	What-Affected	Who	Why	How	Damage	Perpetrator	History	Importance
C11	2	2	2	0	2	0	0	2	1	1	0	0
C37	1	1	1	1	0	0	0	1	0	0	0	0
C39	2	2	2	0	0	2	2	0	0	0	0	0
C45	1	1	2	0	0	1	0	0	0	5	1	0

Results

- Automatic x Reference summaries
  - ROUGE evaluation

	Recall	Precision	F-Measure
C11	0.58772	0.58772	0.58772
C37	0.58491	0.45588	0.51240
C39	0.72414	0.51852	0.60432
C45	0.66379	0.53103	0.59003

  - Total of aspects per summary

	Reference	Automatic
C11	16	9
C37	8	5
C39	6	5
C45	7	6

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Final remarks

- How much more aspects of reference summary are present in automatic summaries, we will have more informativeness

- Future: extending the notation for the rest of CSTNews

Main references

Cardoso, P.C.F.; Maziero, E.G.; Jorge, M.L.C.; Seno, E.M.R.; Di Felippo, A.; Rino, L.H.M.; Nunes, M.G.V.; Pardo, T.A.S. (2011). CSTNews - A Discourse-Annotated Corpus for Single and Multi-Document Summarization of News Texts in Brazilian Portuguese.In the *Proceedings of the 3rd RST Brazilian Meeting*, pp. 1-18.October 26, Cuiabá-MT, Brazil.

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