Is Everything in Order?
A Simple Way to Order Sentences

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I packed my raincoat.
The forecast called for rainy.
It never rained.
The weather is never predictable.
Instead it started to snow.

Sentence Ordering

Shuffled Input
1. I packed my raincoat.
2. The forecast called for rainy.
3. It never rained.
4. The weather is never predictable.
5. Instead it started to snow.

Ordered Output
1. The forecast called for rainy.
2. I packed my raincoat.
3. It never rained.
4. Instead it started to snow.
5. The weather is never predictable.

Sentences are shuffled and ordered to test the model's ability to predict the correct order.

Method

- We solve sentence ordering in a text generation setup
- We append shuffled sentences with marker tokens
- We except marker positions in the correct order
- We experiment with different types of markers and vary other input features to investigate model performance

Re-BART

BART Encoder

Marker Outputs
2 1 3 4

BART Decoder

Final Ordered Output
<2> The forecast called for rainy.
<1> I packed my raincoat.
<3> It never rained.
<4> Instead it started to snow.
<5> The weather is never predictable.

Results

Perfect Match Ratio

NeurIPS  AAN  NSF  arXiv  SIND  ROCStories

BERSON  Re-BART

BART vs. T5

Sentence permutation objective of BART provides it an edge over other sequence-to-sequence models.

Analysis

- Performance decreases with degree of shuffling
- Performance peaks for starting and ending sentences
- Prediction displacement is small for most instances
- Sentence displacement has no effect on performance

Conclusion

- We solve sentence ordering as conditional text-to-marker generation problem and introduce Re-BART
- Relative gain of 11-36% in PMR over SOTA
- Exhaustive analysis shows Re-BART is sensitive to certain factors like shuffling and input length
- We achieve SOTA on 7 datasets (paper abstracts & narratives)