UAlberta at SemEval-2026 Task 5: Disambiguating Stories via Task Decomposition

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Task 5: The goal is to predict the **plausibility** (on a 1-5 scale) that a word expresses a given meaning in **varied contexts**, for example:

Context: Anna's room was a mess, and her computer kept crashing.

Sentence: She asked her friend to help her get rid of the **bugs**.

Varied Endings:	They were crawling on the keyboard.	(none)	New antivirus software didn't do the trick.
Sense Plausibility:			
			
			

Main Idea

- Building on two observations from prior work:
  a. LLMs struggle with numerical reasoning tasks
  b. Breaking tasks into pieces for LLMs improves robustness
- This motivates our **Task Decomposition (TD)** system
- TD breaks Task 5 into simpler tasks for an LLM to solve
- The numerical final answer is handled by a regression tool

Task Decomposition (TD)

- We prompt an LLM with 4 *binary* questions approximating Task 5
- We also prompt it directly to provide a plausibility score from 1 to 5
- We train an XGBoost regressor to produce a final plausibility score

Prompts:	Model Responses
Which of the two senses is more likely?	(**sense a**, sense b)
Is it **clear** or **ambiguous** which sense is being expressed?	(**clear**, ambiguous)
Is the given sense **definitively** correct?	(yes, **no**)
Is **at least one** meaning plausible?	(**yes**, no)
Rate how plausible the given meaning is	(1, 2, 3, **4**, 5)

Output

4.25

Additional Systems

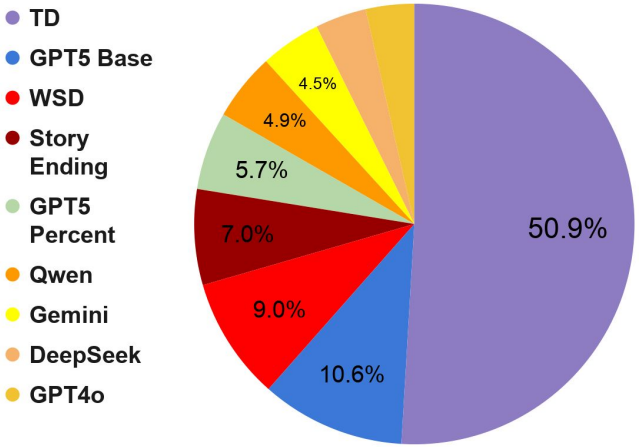
Story Ending:

- We fine-tune an embedding model to predict a plausibility score
- The sense, context and homonym are jointly encoded with the **ending**.

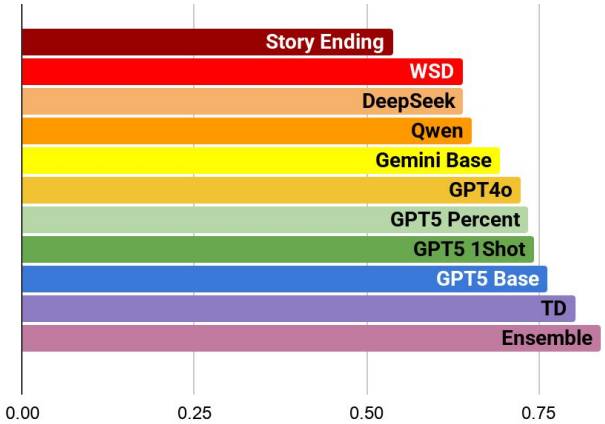
Word Sense Disambiguation (WSD):

- WSD is the task of selecting which sense a word expresses.
- We apply a WSD tool (ConSec) to Task 5, due to their similarity.
- Probabilities for each sense are rescaled to the range [1,5].

Ensemble Weights



Performance (Spearman)



Ensemble & Results

- We also ensemble TD with other systems, including direct LLM prompting and WSD.
- Our ensemble outperforms all component systems.
- Our ensemble is dominated by **TD**, our best-performing system.
- Our Non-LLM systems (WSD and Story Ending) are weighted higher despite lower performance.
- This suggests that the variety in their signals is valuable.

Contributions

An effective approach to SemEval 2026 Task 5:

- Second place on the official leaderboard
- Task Decomposition improves performance over direct prompting
- Ensembling TD with other models further improves performance
- Including non-LLM methods such as WSD boosts performance