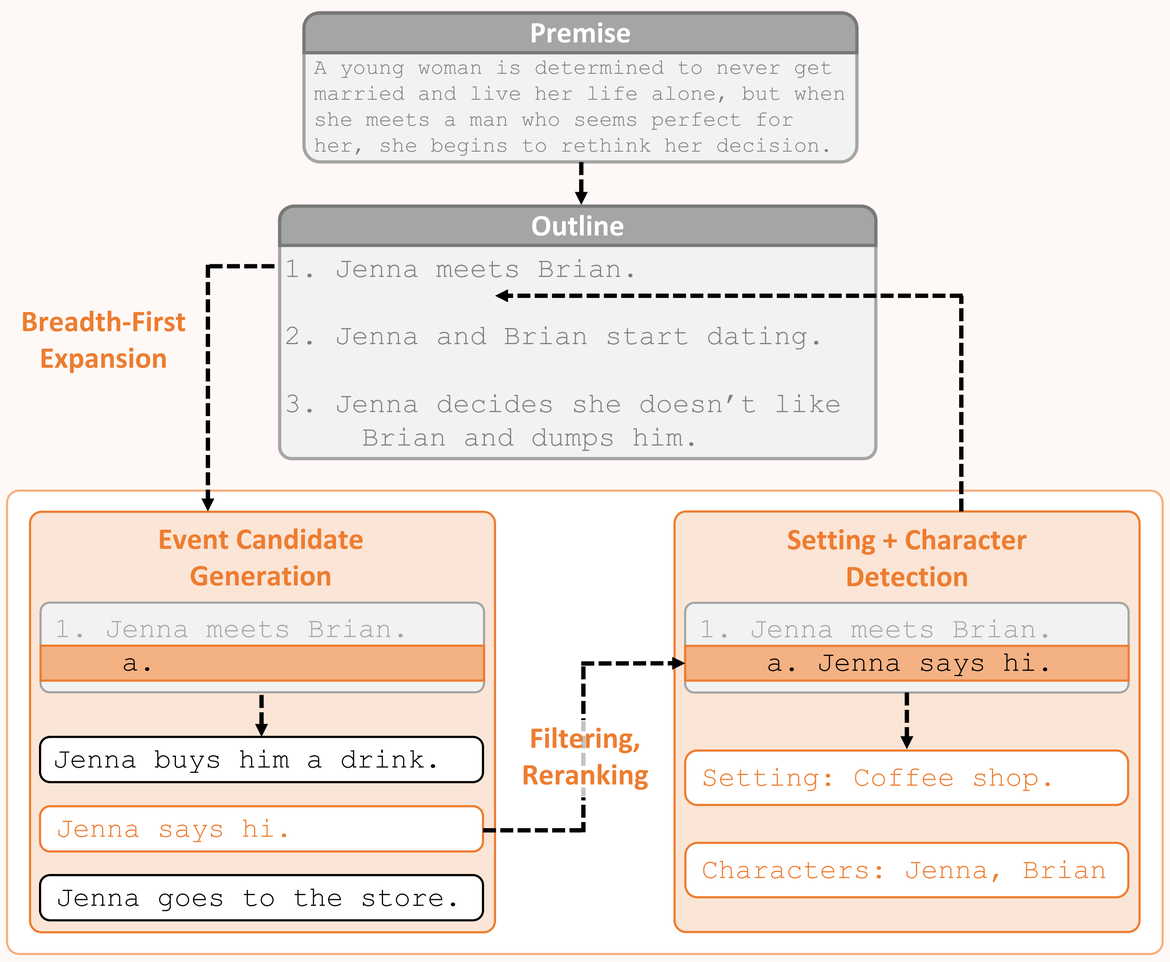
DOC: Improving Long Story Coherence With Detailed Outline Control

Kevin Yang, Dan Klein, Nanyun Peng, Yuandong Tian

Detailed Outliner

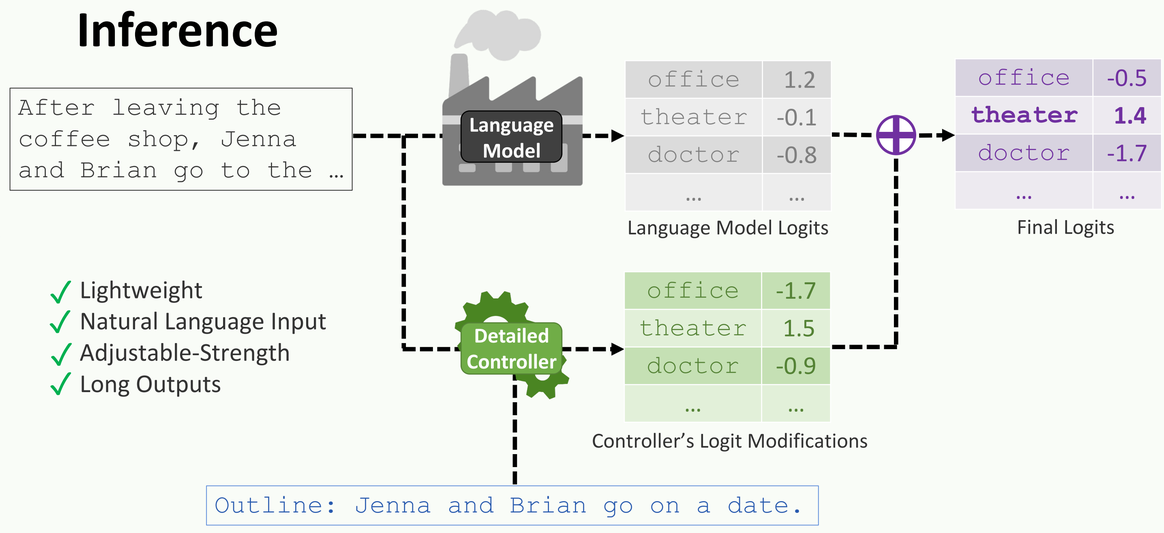
Given a short initial premise, DOC's *detailed outliner* generates an outline and iteratively expands it in breadth-first order until reaching a desired level of granularity.



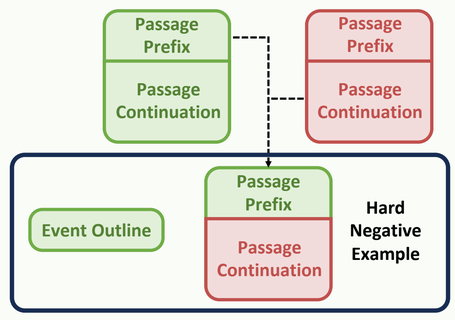
Detailed Controller

Given an outline generated by the detailed outliner, DOC uses a large language model to generate the story conditioned on the outline, using a *detailed controller* to maintain faithfulness to the outline.

Inference



Training



The detailed controller is trained contrastively using (event outline, passage) pairs to predict whether a passage prefix matches the event outline. Positive and negative examples are mixed to create harder data, teaching the controller to stay on topic over the course of long generations.

Example Generated Outline (Abridged)

1. Jenna meets Brian and immediately feels drawn to him.
   a. Jenna meets Brian and feels an instant connection to him.
   b. The two start dating and Jenna begins to fall in love.

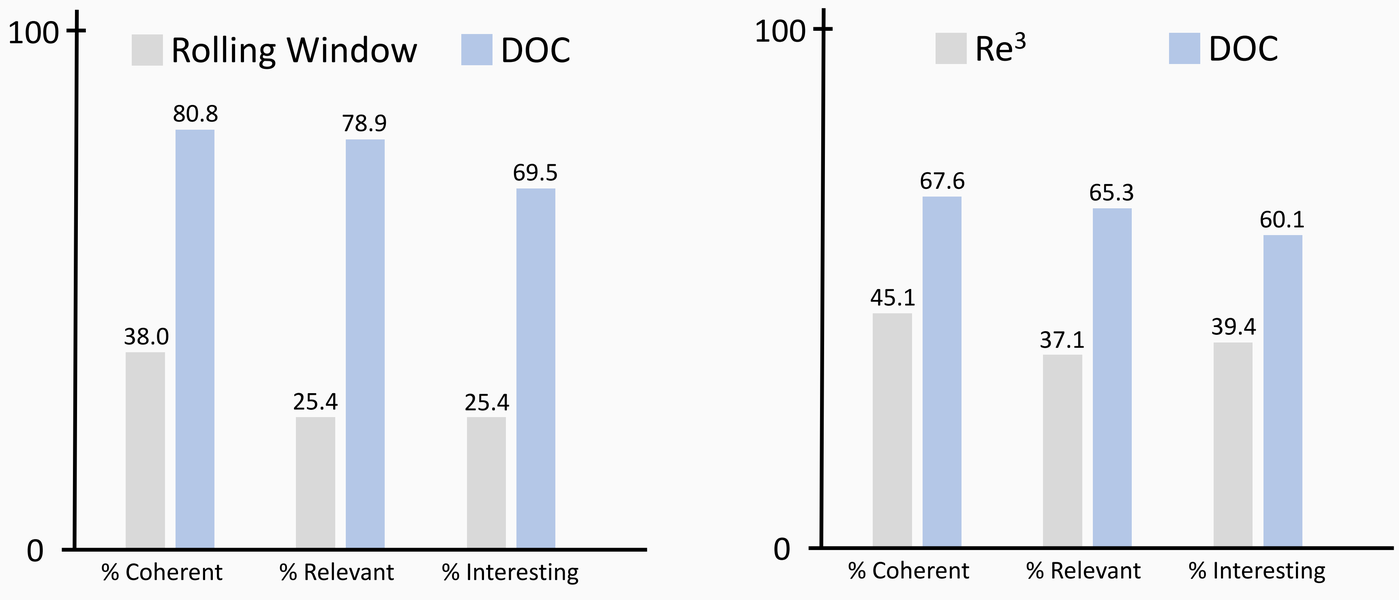
2. Jenna starts to think marriage isn't so bad after all when Brian seems like the perfect man for her.
   a. Jenna starts to think marriage isn't so bad when Brian seems like the perfect man for her.
   b. After much soul searching, Jenna decides that she wants to marry Brian.

3. However, when Brian's ex shows up and tries to win him back, Jenna realizes it's better to be alone than with someone who doesn't truly love you.
   a. Jenna overhears a conversation between Brian and his ex, Teresa.
   b. Jenna confronts Brian and Brian confesses he still has feelings for Teresa.
   c. Jenna breaks up with Brian.
   d. Jenna decides that it's better to be alone than with someone who doesn't truly love you.

Example Generated Story (Abridged)

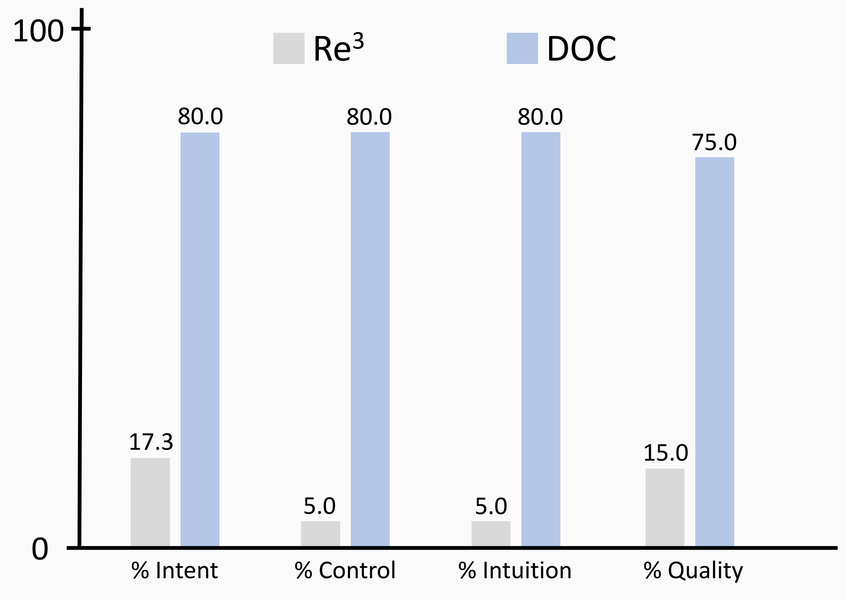
...[85 words]...
The first time Jenna saw him she stopped short in the middle of the aisle between bookshelves and looked up at him, her heart beating faster. ...[331 words]...
Jenna Adams wanted their relationship to go somewhere. ...[106 words]...
Maybe marriage wasn't so bad after all. ...[419 words]...
[Jenna:] I love you, Brian Johnson. I want to be with you forever. I want you to give me a ring and ask me to marry you. ...[811 words]...
[Jenna:] I still love you, but I just cannot trust your promises anymore. ...[222 words]...
[Jenna:] I overheard the conversations that you had with Teresa Campbell ...[122 words]...
[Brian:] I love you. I want you in my life forever. But I am confused about how I feel towards you and Teresa Campbell. ...[220 words]...
[Jenna:] It would be best for us if we decided to go our separate ways and forget about each other. Being alone is better than being with someone who doesn't truly love you, don't you agree? ...[297 words]...

Fully Automatic Generation



On pairwise comparisons against both a rolling window language model baseline and our previous story generation framework Re^3 (Yang et al, EMNLP 2022), humans rate DOC's story passages as substantially more plot-coherent, relevant to the high-level outline, and interesting.

Human-in-the-Loop



DOC's step-by-step outliner enables human-in-the-loop planning. Humans overwhelming prefer DOC for following author intent, controllability, intuitiveness, and final story quality.