Centering Theory

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UIC CS 421

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- At any point in the discourse, one of the entities in the discourse model is salient (**being "centered" on**)
- Discourses in which adjacent sentences **continue** to maintain the same salient entity are more coherent than those which **shift** back and forth between multiple entities

Centering Theory: Intuition

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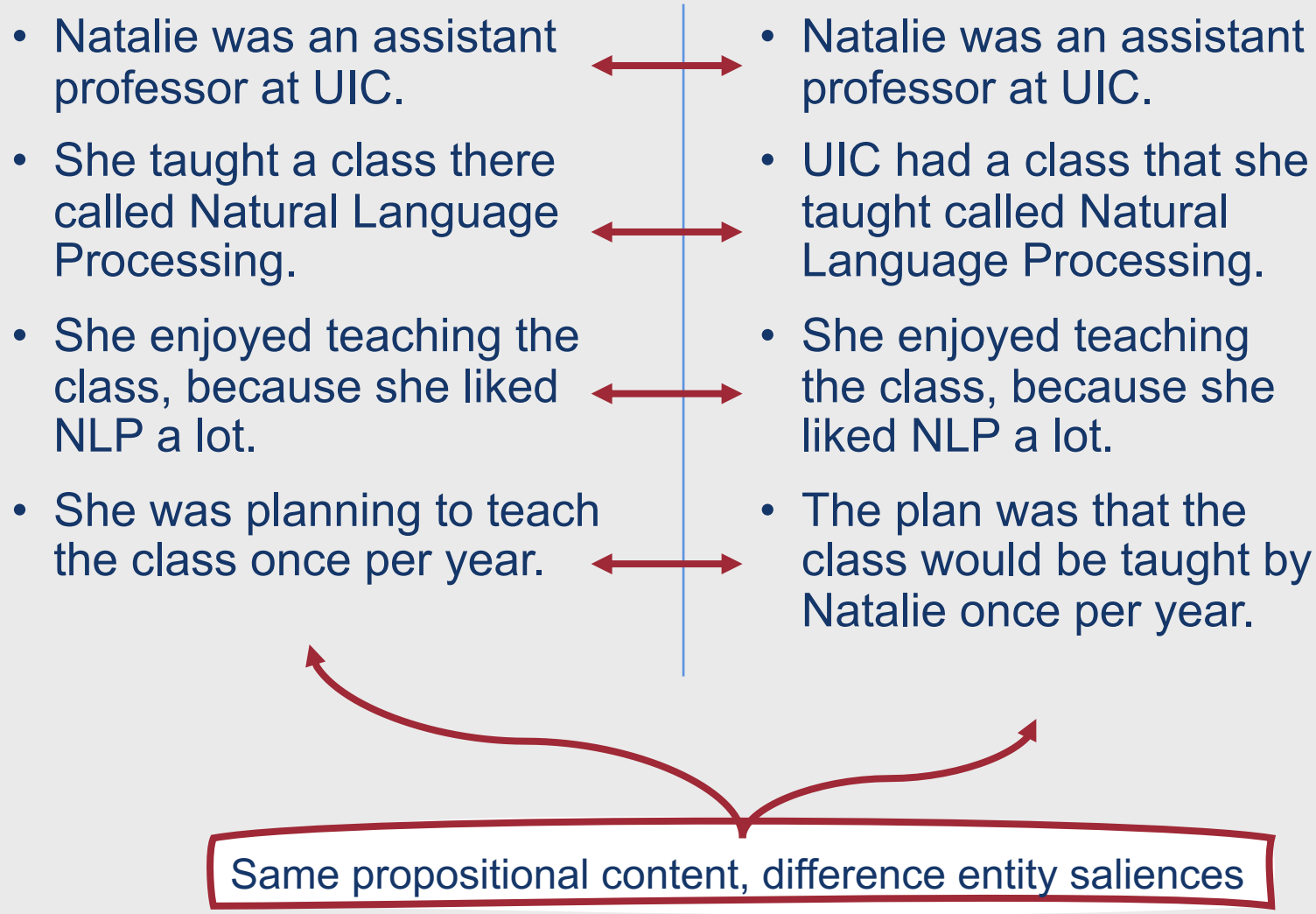

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Much more coherent!

How does Centering Theory realize this intuition?

- Maintain two representations for each utterance U_n
  - $C_b(U_n)$: Backward-looking center of U_n
    - Salient entity being focused on in the discourse after U_n is interpreted
  - $C_f(U_n)$: Forward-looking centers of U_n
    - Set of potential future salient entities (potential $C_b(U_{n+1})$)
- Set of $C_f(U_n)$ are ranked based on a variety of factors (e.g., grammatical role)
- Highest-ranked $C_f(U_n)$ is the preferred center C_p

There are four possible intersentential relationships between U_n and U_{n+1}.

- These relationships depend on $C_b(U_{n+1})$, $C_b(U_n)$, and $C_p(U_{n+1})$

	$C_b(U_{n+1}) = C_b(U_n)$ **or undefined** $C_b(U_n)$	$C_b(U_{n+1}) \neq C_b(U_n)$
$C_b(U_{n+1}) = C_{\boldsymbol{p}}(U_{n+1})$	Continue	Smooth-Shift
$C_b(U_{n+1}) \neq C_{\boldsymbol{p}}(U_{n+1})$	Retain	Rough-Shift

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Speaker has continued talking about the same entity as in the previous utterance, and plans to keep doing that

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Speaker is planning to shift to a new entity

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Based on these relationships, we can define two rules.

- Centered entities should be realized as pronouns when they are continued
- Transition states are ordered such that Continue > Retain > Smooth-Shift > Rough-Shift

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$C_f(U_2)$: {Natalie, UIC, class}
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