

## Semantic Role Labelling, cont.

Martha Palmer  
University of Colorado

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## From Lexicon to Text Annotation

- Recently, the FrameNet project has added full-text annotation, while continuing our lexicographic work
- The results have had positive effect on the lexicographic work, and presented us with many new challenges...

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## Election Victory Text

- Let's look at a WSJ text and see what we can learn about it from annotations based on
  - FrameNet
  - Proposition Bank
  - WordNet
- This was originally a PropBank text
- WordNet 2.1, manually selected senses

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## Example sentence

Yesterday, jewelry was taken from a house in Bentley after thieves forced their way into the house while the resident was out.

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## Events

Yesterday, jewelry **was taken** from a house in Bentley after thieves **forced** their way into the house while the resident was out.

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## Events + State + NER

Yesterday, jewelry **was taken** from a house in **Bentley** after thieves **forced** their way into the house while the resident **was out**.

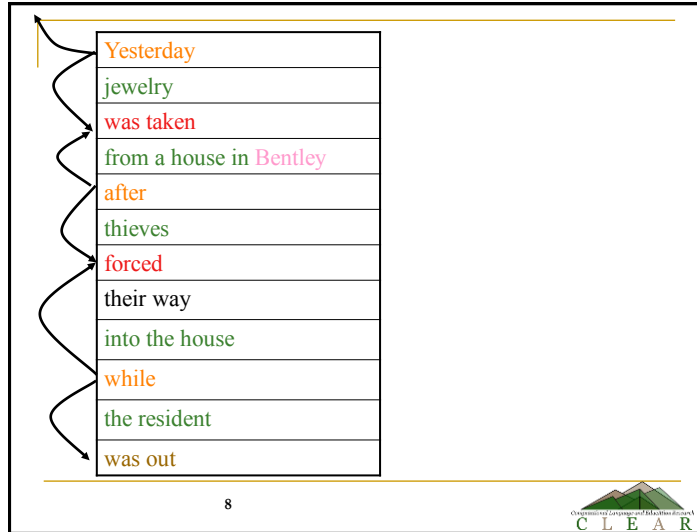
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## Events + State + NER + TimeRels

Yesterday, jewelry **was taken** from a house in **Bentley** **after** thieves **forced** their way into the house **while** the resident was out.


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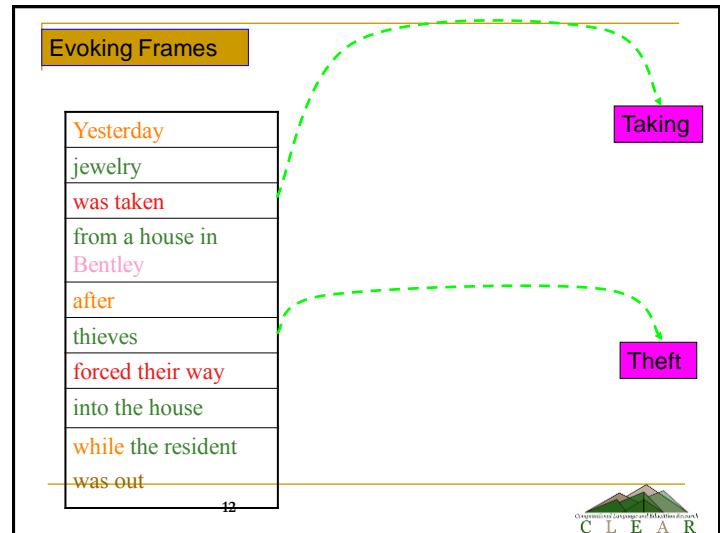
|                         |                |
|-------------------------|----------------|
| Yesterday               | thematic roles |
| jewelry                 | Theme          |
| was taken               |                |
| from a house in Bentley | Source         |
| after                   |                |
| thieves                 | Agent          |
| forced                  |                |
| their way               | Theme?         |
| into the house          | Goal?          |
| while                   |                |
| the resident            | Undergoer?     |
| was out                 | 9              |

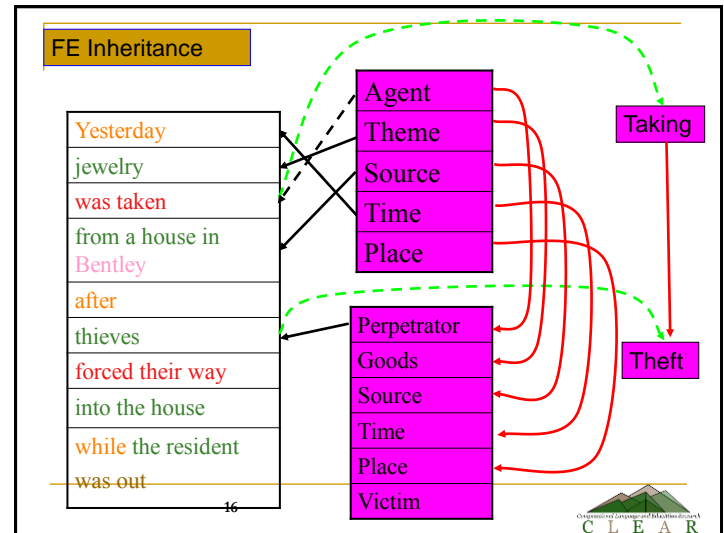
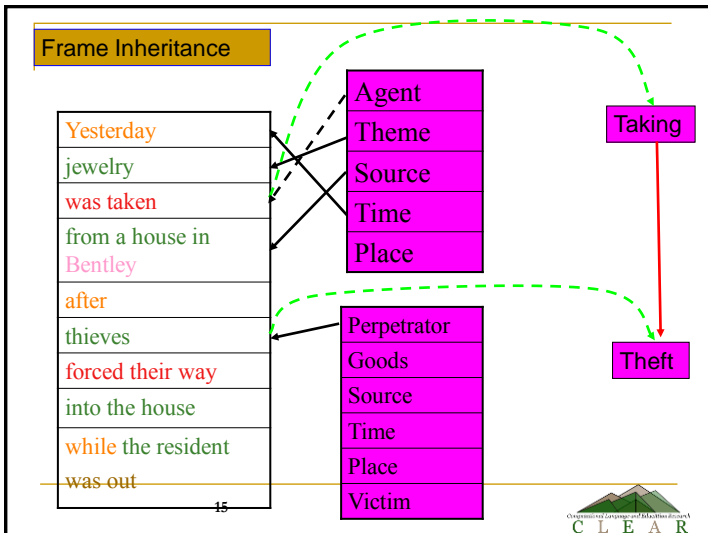
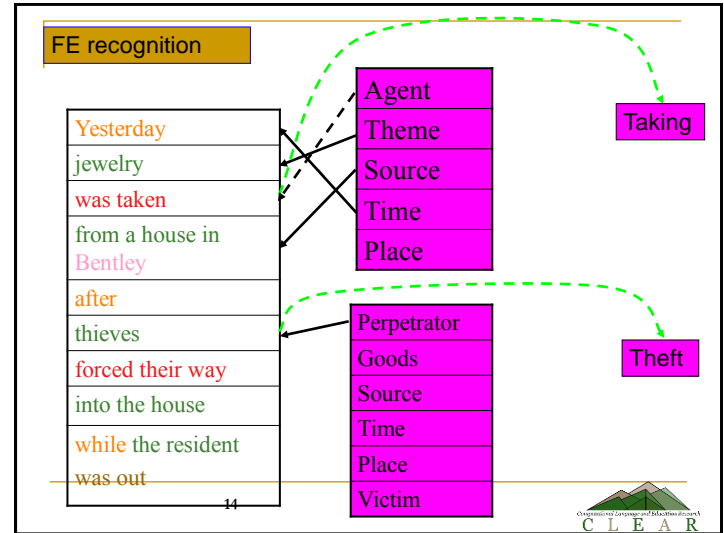
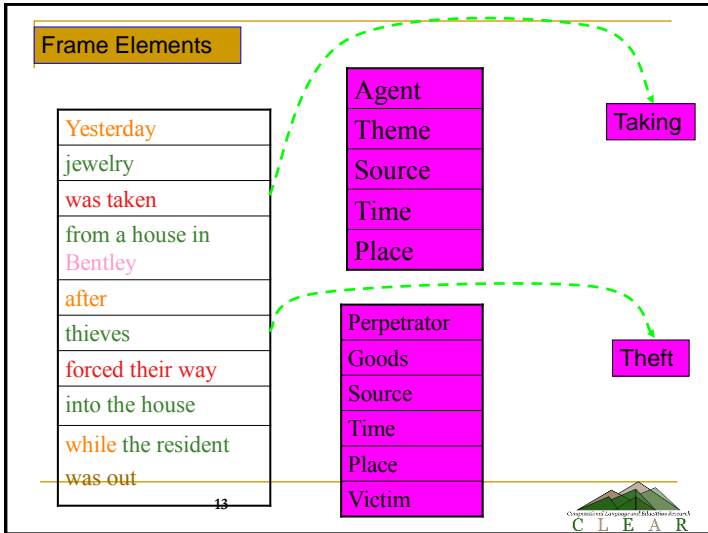


|                         |                |
|-------------------------|----------------|
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| jewelry                 | Theme          |
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| forced                  |                |
| their way               | Theme?         |
| into the house          | Goal?          |
| while                   |                |
| the resident            | Undergoer?     |
| was out                 | 10             |

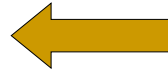


|                         |                |
|-------------------------|----------------|
| Yesterday               | thematic roles |
| jewelry                 | Theme          |
| was taken               |                |
| from a house in Bentley | Source         |
| after                   |                |
| thieves                 | Agent          |
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| their way               | Theme?         |
| into the house          | Goal?          |
| while                   |                |
| the resident            | Undergoer?     |
| was out                 | 11             |



You know what problem I'm talking about. Look back in the text.



I have two solutions to the problem.



I'm about to tell you - in a later part of the discourse - what those two solutions are.



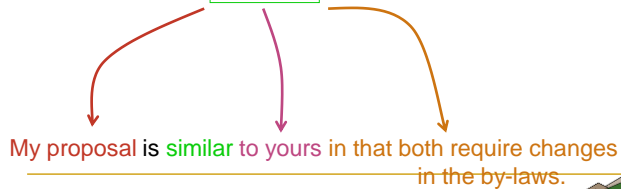
In that example it was explicit pieces of text - "mentions" - that pointed forward or backward. Now let's consider some subtler examples.



### Similar and the Similarity Frame

- The adjective *similar* - when used asymmetrically - shows a relationship between two things (Entity-1, Entity-2),
- and introduces the notion that there is some feature they have in common, or some parameter on which they are alike (Parameter).

Similarity



But now consider a slightly different use:

*My proposal is similar.*

Entity-1 is expressed.

But neither Entity-2 nor the Parameter of comparison is expressed.

Similarity



## So?

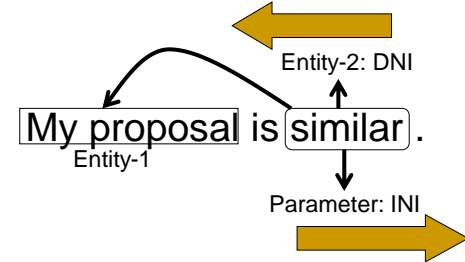
The two missing elements in *My proposal is similar* have different relevance to the ongoing discourse.

- The missing Entity-2 has to be recoverable in the context. You can't cooperatively say this sentence out of the blue unless your interlocutors know what proposal you're talking about. We refer to this kind of omission as "DNI" - definite null instantiation.
- The missing Parameter has just been introduced to the conversation; the speaker can be expected to say something about why the two proposals are alike. We refer to this as "INI" - indefinite null instantiation.

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Entity-2, the thing I'm comparing my proposal to, is something you already know about from earlier talk.



The parameter of comparison, where you learn how our proposals are alike, is something I'm about to tell you.

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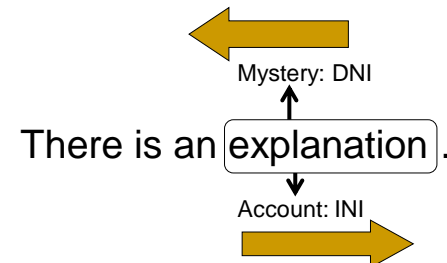
## Explaining

- The concept of *explaining* requires two FEs, a Mystery (something that needs to be explained) and an Account (the story that makes sense of the Mystery). Either of these can show up as the object of the communication verb *explain*.
  - *She explained [why I keep losing].*
  - *She explained [that my competitors cheat].*
- There is a cognitive sense of explain (and explanation) that has just the Mystery and the Account as its frame elements. If they're missing, they get the DNI and INI interpretations respectively.

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Before I can utter this sentence, I have to assume that you already know what mystery I'm talking about.

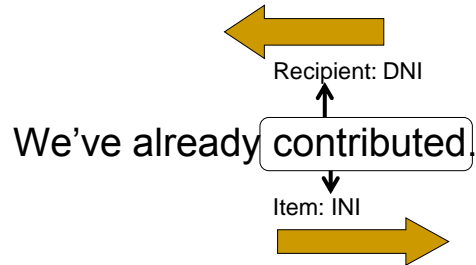


And if I'm a cooperative conversation partner, you can expect me to say what that explanation is in my next contribution to the conversation.

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You already know what charity we're talking about.



I might or might not be willing to tell you how much we contributed to this charity.

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## Null Instantiation

In fact, FrameNet annotations record three kinds of omitted elements.

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## Three kinds of “-NI”

CNI (“constructional null instantiation”)

**grammatically licensed**

- e.g., missing subject of imperative  
*Please leave the room.*

INI (“indefinite null instantiation”)

**existential; lexically licensed**

- e.g., missing objects of some activity verbs  
*I've been baking all afternoon.*

DNI (“definite null instantiation”)

**anaphoric; lexically licensed**

- e.g., omitted complements of some cognitive verbs  
*She already knows.*

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- e.g., missing objects of some activity verbs  
*I've been baking all afternoon.*

DNI (“definite null instantiation”)

**anaphoric; lexically licensed**

- e.g., omitted complements of some cognitive verbs  
*She already knows.*

Information about these two belongs in the lexicon.

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## DNI, INI and Indirect Anaphora

- FrameNet work itself does not cover text cohesion or anaphora resolution, but we think that our practice of recording information about FE omissions makes FN analysis capable of
  - adding a new standard of completeness to descriptions of discourse texture, and of
  - offering precise conceptual tools for hooking pieces of information together.
- The issue is a phenomenon called *indirect / bridging / associative anaphora*.
- But there's still room for "common sense reasoning" with such a phenomenon.

## Null FEs and Text Research

The FN practice of recording the status of implicit arguments leads naturally to a possible enhancement of ongoing research on text cohesion and anaphora resolution. We do not currently do this kind of work, but as automatic methods of assigning frame descriptions to texts proceeds, providing this information will offer new challenges to researchers working on text cohesion, and we hope that FrameNet can become a part of such work.