Semantic Role Labelling, cont.

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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...

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

Example sentence

Yesterday, jewelry was taken from a house in Bentley after thieves forced their way into the house while the resident was out.
Yesterday, jewelry was taken from a house in Bentley after thieves forced their way into the house while the resident was out.
<table>
<thead>
<tr>
<th>Yesterday</th>
<th>thematic roles</th>
</tr>
</thead>
<tbody>
<tr>
<td>jewelry</td>
<td>Theme</td>
</tr>
<tr>
<td>was taken</td>
<td>Source</td>
</tr>
<tr>
<td>from a house in Bentley</td>
<td></td>
</tr>
<tr>
<td>after</td>
<td>Agent</td>
</tr>
<tr>
<td>thieves</td>
<td>forced</td>
</tr>
<tr>
<td>their way</td>
<td>Theme?</td>
</tr>
<tr>
<td>into the house</td>
<td>Goal?</td>
</tr>
<tr>
<td>while</td>
<td>the resident</td>
</tr>
<tr>
<td>was out</td>
<td>Undergoer?</td>
</tr>
</tbody>
</table>

Evoking Frames

Taking

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

### Frame Elements

- **Agent**: 
- **Theme**: 
- **Source**: 
- **Time**: 
- **Place**: 
- **Perpetrator**: 
- **Victim**: 

### Frame Inheritance

- **Agent**: 
- **Theme**: 
- **Source**: 
- **Time**: 
- **Place**: 
- **Perpetrator**: 
- **Victim**: 

### FE recognition

- **Agent**: 
- **Theme**: 
- **Source**: 
- **Time**: 
- **Place**: 
- **Perpetrator**: 
- **Victim**: 

### FE Inheritance

- **Agent**: 
- **Theme**: 
- **Source**: 
- **Time**: 
- **Place**: 
- **Perpetrator**: 
- **Victim**: 

### Theme

- **Theft**
I have two solutions to the problem.

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

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).

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.
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.

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.

Before I can utter this sentence, I have to assume that you already know what mystery I’m talking about.
You already know what charity we’re talking about.

We’ve already contributed.

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

Null Instantiation

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

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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  She already knows.
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.

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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.