• Some treebanks would use an empty node to represent the second \textit{went}.
• UD enhanced representation allows empty nodes!
• But the basic representation sticks with the overt words.
Kate went to Florida and Jane (went) to Europe
Kate went to Florida and Jane (went) to Europe.
Kate went to Florida and Jane (went) to Europe.
UD V2 Basic Dependencies: The orphan Relation

Kate went to Florida and Jane (went) to Europe
Kate goes to Florida and Jane (goes) to Europe
Kate goes to Florida.

Enhanced UD: Case Information in Dependency Label

Kate \text{nsubj} to \text{obl} \text{case} Florida. 

Case=Acc

Kate goes to Florida.

Case=Acc
Kate goes to Florida.

Katka jede na Floridu.
Kate goes to Florida.

Katka jede na Floridu.  Case=Acc

Kate lives in Florida.

Kǎitè zhù zài fóluólǐdá.

Enhanced UD: Case Information in Dependency Label

Enhanced Universal Dependencies
Kate goes to Florida.

Katka jede na Floridu. **Case=Acc**

Katriina menee Floridaan. **Case=III**
Enhanced UD: Shared Dependent of Coordination

sweet apples and oranges
Enhanced UD: Parent of Coordination

Jane eats apples and oranges
Jane eats sweet apples and oranges.
Kate wants to go to Florida.
Kate made me go to Florida
“And where to look for shampoo that works?”
How to Recognize Relative Clauses

Dorazil he-arrived do města, kde bydlí.

He arrived at the city where he lives.
How to Recognize Relative Clauses

Odpověděl na otázku, kde bydlí.

he-answered to question, where he-lives.

Enhanced Universal Dependencies
Kate wants to go to Florida and Jane (wants) (go) to Europe
Enhanced UD: Five (Six) Enhancements

- Null nodes for **gapping** (12 treebanks in UD 2.5)
- Dependency propagation in **coordination** (22 treebanks)
  - Common parent of coordination
  - Shared dependents of coordination
- External subjects of **controlled predicates** (12 treebanks)
- Cyclic dependencies to/from **relative clauses** (9 treebanks)
- **Case-enhanced** dependency labels (10 treebanks)

- All 5 types: 6 treebanks, 3 languages
- At least 1 type: 24 treebanks, 16 languages
- Only basic UD: 133 treebanks
Stanford Enhancer

- Part of Stanford CoreNLP (Java)
- Rules from basic to enhanced UD
Stanford Enhancer

- Part of Stanford CoreNLP (Java)
- Rules from basic to enhanced UD

- **Gapping**: embeddings for similarity of arguments
Stanford Enhancer

- Part of Stanford CoreNLP (Java)
- Rules from basic to enhanced UD

- **Gapping**: embeddings for similarity of arguments
- **Coordination**:
  - **Parent propagation**: deterministic
  - **Shared dependents**: heuristics (human desirable!)
Stanford Enhancer

- Part of Stanford CoreNLP (Java)
- Rules from basic to enhanced UD

- **Gapping:** embeddings for similarity of arguments
- **Coordination:**
  - Parent propagation: deterministic
  - Shared dependents: heuristics (human desirable!)
- **External subjects:** heuristics (subject vs. object control)
Stanford Enhancer

- Part of Stanford CoreNLP (Java)
- Rules from basic to enhanced UD

- **Gapping:** embeddings for similarity of arguments
- Coordination:
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- **External subjects:** heuristics (subject vs. object control)
- **Relative clauses:** need acl:relcl and list of relative pronouns
Stanford Enhancer

- Part of Stanford CoreNLP (Java)
- Rules from basic to enhanced UD

- **Gapping:** embeddings for similarity of arguments
- **Coordination:**
  - *Parent propagation:* deterministic
  - *Shared dependents:* heuristics (human desirable!)
- **External subjects:** heuristics (subject vs. object control)
- **Relative clauses:** need acl:relcl and list of relative pronouns
- **Case-enhanced labels:** deterministic
Conversion from non-UD Data: Extra Information?

- Analytical layer of Prague-style treebanks: shared dependents of coordination are known!

Karel píše a Lucie prodává knihy.

Karel writes and Lucie sells books.