

unidep

A fast, beautiful, and highly customizable Typst package for rendering Universal Dependencies (CoNLL-U) trees, powered by Rust/WASM and CeTZ.

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A fast, beautiful, and highly customizable Typst package for rendering Universal Dependencies (CoNLL-U) trees, powered by Rust/WASM and CeTZ.

This package provides an elegant way to visualize dependency parsing results, syntax trees, and enhanced dependency graphs directly in Typst without relying on external Python scripts or LaTeX's tikz-dependency.

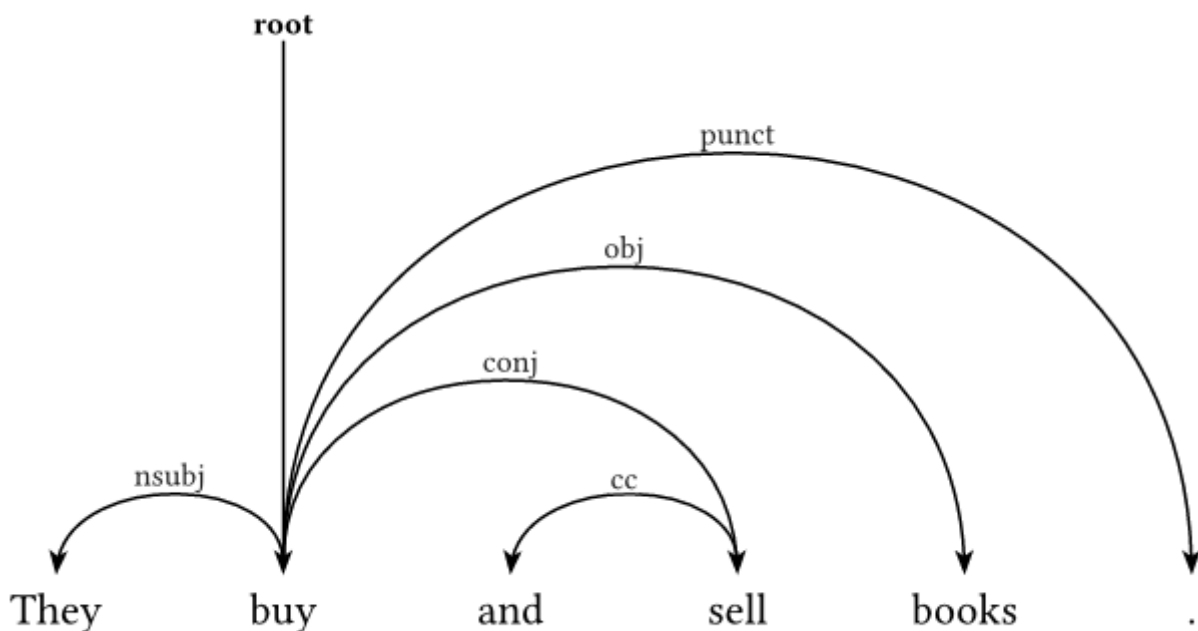
Usage

Import the package and use the `dependency-tree` function. Pass your CoNLL-U text to it.

```
#import "@preview/unidep:0.1.4": dependency-tree
#set page(width: auto, height: auto, margin: 3mm)

#let sample-conllu = ```
# sent_id = 1
# text = They buy and sell books.
1 They they PRON PRP _ 2 nsubj _ _
2 buy buy VERB VBP _ 0 root _ _
3 and and CCONJ CC _ 4 cc _ _
4 sell sell VERB VBP _ 2 conj _ _
5 books book NOUN NNS _ 2 obj _ _
6 . . PUNCT . _ 2 punct _ _
```text

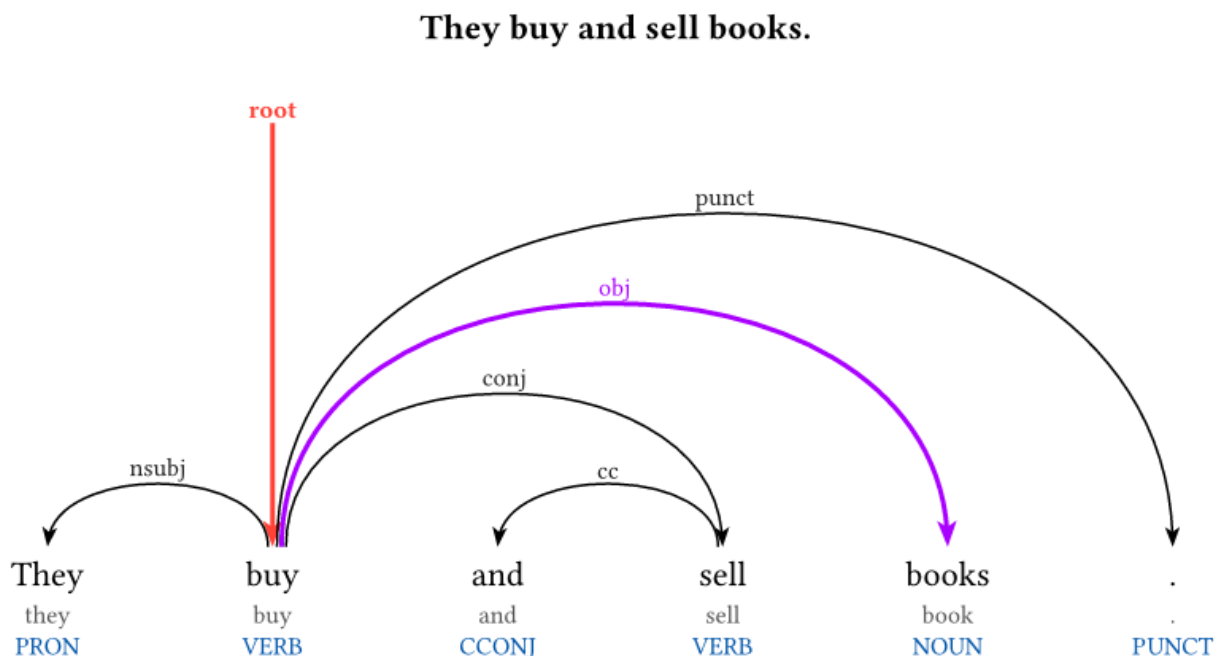
#dependency-tree(sample-conllu)
```



## Advanced Usage & Highlighting

You can display the original sentence text, lemmas, and part-of-speech tags (UPOS, XPOS) directly around the words. Additionally, you can highlight specific dependency arcs by targeting the dependent's ID using the highlights dictionary.

```
#dependency-tree(
 sample-conllu,
 show-text: true,
 word-spacing: 2.5,
 text-gap: 0.35em,
 sentence-gap: 0.75em,
 show-upos: true,
 show-lemma: true,
 tail-offset: 0.0,
 tail-spacing: 0.05,
 highlights: (
 "2": red, // Highlight the ROOT arrow pointing to 'buy'
 "5": rgb("aa00ff") // Highlight the arc pointing to 'books'
)
)
```

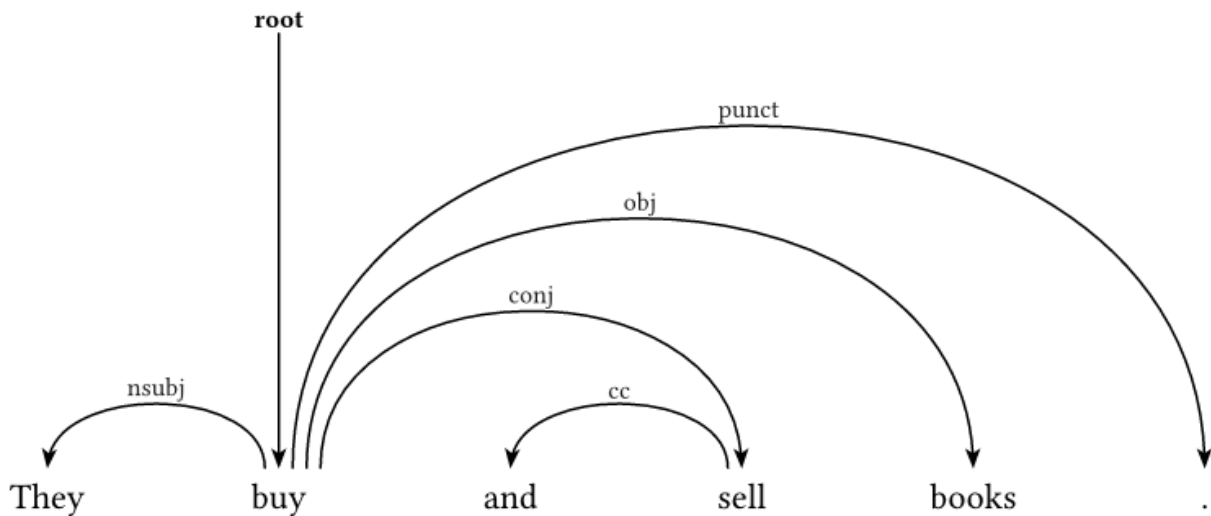


## Arc Geometry

When multiple arcs meet around the same token, tail-spacing fans out the non-arrowhead side of each arc while keeping the arrowhead anchored to the token.

```
#dependency-tree(
 sample-conllu,
 show-text: true,
 word-spacing: 2.5,
 tail-offset: 0.0,
 tail-spacing: 0.15,
)
```

## They buy and sell books.



The default tail-angle, head-angle, and tail-offset already produce upright joins. Adjust them only when you want a softer or steeper look.

## API Reference

### **dependency-tree(conllu-text, ..args)**

Renders one or more sentences from a CoNLL-U formatted string.

#### **Parameters:**

- **conllu-text** (String): The raw text in CoNLL-U format.
- **word-spacing** (Float): Horizontal distance between words. Default: 2.0.
- **level-height** (Float): Vertical height increment for each arc level. Default: 1.0.
- **arc-roundness** (Float): Controls the curvature of the bezier arcs. Lower values make arcs steeper (more U-shaped); higher values make them more elliptical. Default: 0.18.
- **tail-spacing** (Float/None): Horizontal spacing step for non-arrowhead endpoints on the same token side. Lower arcs are placed farther out and higher arcs farther in so clustered starts avoid crossing. Default: none, which resolves to 0.0.
- **head-spacing** (Float/None): Horizontal spacing step for arrowhead endpoints on the same token side. Default: none, which resolves to 0.0.
- **tail-angle** (Angle/Float/None): Connection angle for the non-arrowhead side of each arc. Default: 90deg.
- **head-angle** (Angle/Float/None): Connection angle for the arrowhead side of each arc. Default: 90deg.
- **tail-offset** (Float): Vertical offset for the tail (start point) of the dependency arc. Useful for fine-tuning the join near the source token. Default: 0.1.
- **head-offset** (Float): Vertical offset for the head (end point/arrowhead) of the dependency arc. Useful for fine-tuning the gap between the arrowhead and the token. Default: 0.0.
- **text-gap** (Relative Length): Vertical gap between the optional sentence text (# text = ...) and the dependency tree. Default: 0.5em.
- **sentence-gap** (Relative Length): Vertical gap inserted after each rendered sentence. Default: 1em.
- **show-text** (Bool): If true, displays the sentence text (extracted from # text = ... metadata) above the parsed tree. Default: false.
- **show-upos** (Bool): If true, displays the Universal POS tag (column 4) below the word. Default: false.
- **show-xpos** (Bool): If true, displays the language-specific POS tag (column 5) below the word. Default: false.
- **show-lemma** (Bool): If true, displays the lemma (column 3) below the word. Default: false.

- `show-enhanced-as-dashed` (Bool): If `true`, arcs derived from the DEPS column (enhanced graph) are drawn as blue dashed lines to distinguish them from the basic tree. Default: `true`.
- `show-root` (Bool): If `true`, renders a vertical root arrow centered on the token. Default: `true`.
- `highlights` (Dictionary): A dictionary of (`"ID": color`) pairs to apply custom stroke colors and thicker lines to specific arcs. The key must be the ID of the dependent token (e.g., `"4"`). Default: `( : )`.

## License

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