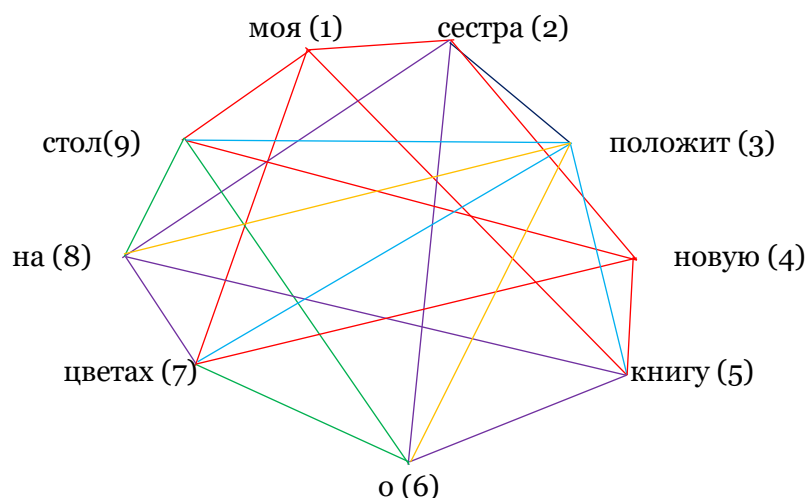


HW5. Базовые алгоритмы зависимостного парсинга.

1. Ограничения



моя	сестра	положит	новую	книгу	о	цветах	на	стол
1	2	3	4	5	6	7	8	9

1. $\text{word}(\text{pos}(x)) = \text{Adj} \Rightarrow$

$(\text{label}(x) = \text{NMOD}, \text{word}(\text{mod}(x)) = \text{N}, \text{pos}(x) < \text{mod}(x))$

An Adj modifies a N on the left. (моя сестра)

2. $\text{word}(\text{pos}(x)) = \text{N} \Rightarrow$

$(\text{label}(x) = \text{SUBJ}, \text{word}(\text{mod}(x)) = \text{V}, \text{pos}(x) < \text{mod}(x))$

An N modifies a V on the left with the label SUBJ. (сестра положит)

3. $\text{word}(\text{pos}(x)) = \text{N} \Rightarrow$

$(\text{label}(x) = \text{OBJ}, \text{word}(\text{mod}(x)) = \text{V}, \text{pos}(x) > \text{mod}(x))$

An N modifies a V on the right with the label OBJ. (положит книгу)

4. $\text{word}(\text{pos}(x)) = \text{P} \Rightarrow$

$(\text{label}(x) = \text{NMOD}, \text{word}(\text{mod}(x)) = \text{N}, \text{pos}(x) > \text{mod}(x))$

A PP modifies a N on the right with the label NMOD. (книгу о)

5. $\text{word}(\text{pos}(x)) = \text{P} \Rightarrow$

$(\text{label}(x) = \text{VMOD}, \text{word}(\text{mod}(x)) = \text{V}, \text{pos}(x) > \text{mod}(x))$

A P modifies a V on the right with the label VMOD. (положит на)

6. $\text{word}(\text{pos}(x)) = \text{N} \Rightarrow$

$(\text{label}(x) = \text{PMOD}, \text{word}(\text{mod}(x)) = \text{P}, \text{pos}(x) > \text{mod}(x))$

An N modifies a P on the right with the label PMOD. (на стол)

2. НС -> зависимости

The diagram illustrates the hierarchical structure of the sentence "Моя сестра положит новую книгу о цветах на стол." (My sister will put a new book about colors on the table). The tree structure is as follows:

- Root node branches into "Моя сестра" and "положит".
- "положит" branches into "новую книгу" and "о цветах".
- "о цветах" branches into "о" and "цветах".
- "на стол." branches into "на" and "стол."

Below the tree, the sentence is written with blue arrows indicating dependencies between words:

- Arrows from "Моя" to "сестра" and "положит".
- Arrows from "положит" to "новую" and "книгу".
- Arrows from "книгу" to "о" and "цветах".
- Arrows from "о" to "цветах" and "на".
- Arrows from "на" to "стол."

3. Nivre

root	моя	сестра	положит	новую	книгу	о	цветах	на	стол	.
0	1	2	3	4	5	6	7	8	9	10

Operation	Stack	Queue	Created arc
	0	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	
Shift	0, 1	2, 3, 4, 5, 6, 7, 8, 9, 10	
Left Arc	0	2, 3, 4, 5, 6, 7, 8, 9, 10	1 <- 2
Shift	0, 2	3, 4, 5, 6, 7, 8, 9, 10	
Left Arc	0	3, 4, 5, 6, 7, 8, 9, 10	2 <- 3
Right Arc	0, 3	4, 5, 6, 7, 8, 9, 10	0 -> 3
Shift	0, 3, 4	5, 6, 7, 8, 9, 10	
Left Arc	0, 3	5, 6, 7, 8, 9, 10	4 <- 5
Right Arc	0, 3, 5	6, 7, 8, 9, 10	3 -> 5
Right Arc	0, 3, 5, 6	7, 8, 9, 10	5 -> 6
Right Arc	0, 3, 5, 6, 7	8, 9, 10	6 -> 7
Reduce	0, 3, 5, 6	8, 9, 10	
Reduce	0, 3, 5	8, 9, 10	
Reduce	0, 3	8, 9, 10	
Right Arc	0, 3, 8		3 -> 8
Right Arc	0, 3, 8, 9	10	8 -> 9
Reduce	0, 3, 8	10	
Reduce	0, 3	10	
Reduce	0	10	
Right Arc	0, 10		0 -> 10