

# AceWiki Grammar

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Below, the grammar rules of the AceWiki grammar are shown:

## Texts and Sentences

'text' stands for a complete text consisting of an arbitrary number of complete sentences (including zero):

$$(1) \text{ text } \xrightarrow{\cdot} \rightarrow$$

$$(2) \text{ text } \xrightarrow{\cdot} \rightarrow \text{ complete\_sentence text}$$

A complete sentence is represented by the category 'complete\_sentence' and is either a declarative sentence that ends with a full stop or a question ending with a question mark:

$$(3) \text{ complete\_sentence } \xrightarrow{\sim} \rightarrow \parallel \text{ sentence } [.]$$

$$(4) \text{ complete\_sentence } \xrightarrow{\sim} \rightarrow \parallel \text{ simple\_sentence\_2 } \left( \begin{smallmatrix} \text{whin: -} \\ \text{whout: +} \end{smallmatrix} \right) [?]$$

General sentences are represented by 'sentence':

$$(5) \text{ sentence } \xrightarrow{\cdot} \rightarrow \text{ sentence\_coord\_1}$$

$$(6) \text{ sentence } \xrightarrow{\sim} \rightarrow \parallel [\text{for every}] \text{ nc } \left( \begin{smallmatrix} \text{subj: -} \end{smallmatrix} \right) \text{ sentence\_coord\_1}$$

$$(7) \text{ sentence } \xrightarrow{\sim} \rightarrow \parallel [\text{if}] \text{ sentence\_coord\_1 } [\text{then}] \text{ sentence\_coord\_1}$$

Sentences can be coordinated using "or" ('sentence\_coord\_1') and "and" ('sentence\_coord\_2'):

$$(8) \text{ sentence\_coord\_1 } \xrightarrow{\cdot} \rightarrow \text{ sentence\_coord\_2}$$

$$(9) \text{ sentence\_coord\_1 } \xrightarrow{\sim} \rightarrow \parallel \text{ sentence\_coord\_2 } [\text{or}] \text{ sentence\_coord\_1}$$

$$(10) \text{ sentence\_coord\_2 } \xrightarrow{\cdot} \rightarrow \text{ simple\_sentence\_1}$$

$$(11) \text{ sentence\_coord\_2 } \xrightarrow{\cdot} \rightarrow \text{ simple\_sentence\_1 } [\text{and}] \text{ sentence\_coord\_2}$$

Uncoordinated sentences are represented in two levels by 'simple\_sentence\_1' and 'simple\_sentence\_2':

$$(12) \text{ simple\_sentence\_1 } \xrightarrow{\sim} \rightarrow \parallel [\text{it is false that}] \text{ simple\_sentence\_2 } \left( \begin{smallmatrix} \text{whin: -} \\ \text{whout: -} \end{smallmatrix} \right)$$

$$(13) \text{ simple\_sentence\_1 } \xrightarrow{\cdot} \rightarrow [\text{there is}] \text{ np } \left( \begin{smallmatrix} \text{case: nom} \\ \text{def: -} \\ \text{exist: +} \\ \text{pl: -} \\ \text{subj: -} \\ \text{whin: -} \\ \text{whout: -} \end{smallmatrix} \right)$$

$$(14) \text{ simple\_sentence\_1 } \xrightarrow{\cdot} \rightarrow [\text{there is}] \text{ np } \left( \begin{smallmatrix} \text{case: nom} \\ \text{def: -} \\ \text{exist: +} \\ \text{pl: -} \\ \text{subj: -} \\ \text{whin: -} \\ \text{whout: -} \end{smallmatrix} \right) [\text{such that}] \text{ simple\_sentence\_1}$$

$$(15) \text{ simple\_sentence\_1 } \xrightarrow{\cdot} \rightarrow [\text{there are}] \text{ np } \left( \begin{smallmatrix} \text{case: nom} \\ \text{def: -} \\ \text{exist: +} \\ \text{pl: +} \\ \text{subj: -} \\ \text{whin: -} \\ \text{whout: -} \end{smallmatrix} \right)$$

$$(16) \text{ simple\_sentence\_1 } \xrightarrow{\cdot} \rightarrow \text{ simple\_sentence\_2 } \left( \begin{smallmatrix} \text{whin: -} \\ \text{whout: -} \end{smallmatrix} \right)$$

$$(17) \text{ simple\_sentence\_2 } \left( \begin{smallmatrix} \text{whin: [1]} \\ \text{whout: [2]} \end{smallmatrix} \right) \xrightarrow{\sim} \rightarrow \text{ np } \left( \begin{smallmatrix} \text{case: nom} \\ \text{id: [3]} \\ \text{pl: [4]} \\ \text{subj: -} \\ \text{whin: [1]} \\ \text{whout: [5]} \end{smallmatrix} \right) \text{ vp\_coord\_1 } \left( \begin{smallmatrix} \text{pl: [4]} \\ \text{subj: [3]} \\ \text{whin: [5]} \\ \text{whout: [2]} \end{smallmatrix} \right)$$

## Verb Phrases

Like sentences, verb phrases can be coordinated using "or" ('vp\_coord\_1') and "and" ('vp\_coord\_2'):

$$(18) \text{ vp\_coord\_1 } \left( \begin{smallmatrix} \text{pl: [1]} \\ \text{subj: [2]} \\ \text{whin: [3]} \\ \text{whout: [4]} \end{smallmatrix} \right) \xrightarrow{\cdot} \rightarrow \text{ vp\_coord\_2 } \left( \begin{smallmatrix} \text{pl: [1]} \\ \text{subj: [2]} \\ \text{whin: [3]} \\ \text{whout: [4]} \end{smallmatrix} \right)$$

$$(19) \text{ vp\_coord\_1 } \left( \begin{smallmatrix} \text{pl: [1]} \\ \text{subj: [2]} \\ \text{whin: [3]} \\ \text{whout: [4]} \end{smallmatrix} \right) \xrightarrow{\sim} \rightarrow \parallel \text{ vp\_coord\_2 } \left( \begin{smallmatrix} \text{pl: [1]} \\ \text{subj: [2]} \\ \text{whin: [3]} \\ \text{whout: [5]} \end{smallmatrix} \right) [\text{or}] \text{ vp\_coord\_1 } \left( \begin{smallmatrix} \text{pl: [1]} \\ \text{subj: [2]} \\ \text{whin: [5]} \\ \text{whout: [4]} \end{smallmatrix} \right)$$

$$(20) \text{ vp\_coord\_2 } \left( \begin{smallmatrix} \text{pl: [1]} \\ \text{subj: [2]} \\ \text{whin: [3]} \\ \text{whout: [4]} \end{smallmatrix} \right) \xrightarrow{\cdot} \rightarrow \text{ vp } \left( \begin{smallmatrix} \text{pl: [1]} \\ \text{subj: [2]} \\ \text{whin: [3]} \\ \text{whout: [4]} \end{smallmatrix} \right)$$

$$(21) \quad vp\_coord\_2 \left( \begin{array}{l} pl: \boxed{1} \\ subj: \boxed{2} \\ whin: \boxed{3} \\ whout: \boxed{4} \end{array} \right) \dot{\rightarrow} vp \left( \begin{array}{l} pl: \boxed{1} \\ subj: \boxed{2} \\ whin: \boxed{3} \\ whout: \boxed{5} \end{array} \right) \text{ [ and ] } vp\_coord\_2 \left( \begin{array}{l} pl: \boxed{1} \\ subj: \boxed{2} \\ whin: \boxed{5} \\ whout: \boxed{4} \end{array} \right)$$

Uncoordinated verb phrases represented by 'vp' can use an auxiliary verb:

$$(22) \quad vp \left( \begin{array}{l} exist: \boxed{1} \\ pl: \boxed{2} \\ rel: \boxed{3} \\ subj: \boxed{4} \\ whin: \boxed{5} \\ whout: \boxed{6} \end{array} \right) \rightsquigarrow aux \left( \begin{array}{l} be: \boxed{7} \\ exist: \boxed{1} \\ pl: \boxed{2} \end{array} \right) v \left( \begin{array}{l} be: \boxed{7} \\ exist: \boxed{1} \\ pl: \boxed{2} \\ rel: \boxed{3} \\ subj: \boxed{4} \\ vform: inf \\ whin: \boxed{5} \\ whout: \boxed{6} \end{array} \right)$$

$$(23) \quad vp \left( \begin{array}{l} exist: + \\ pl: \boxed{1} \\ rel: \boxed{2} \\ subj: \boxed{3} \\ whin: \boxed{4} \\ whout: \boxed{5} \end{array} \right) \rightsquigarrow v \left( \begin{array}{l} be: - \\ exist: + \\ pl: \boxed{1} \\ rel: \boxed{2} \\ subj: \boxed{3} \\ vform: fin \\ whin: \boxed{4} \\ whout: \boxed{5} \end{array} \right)$$

The category 'v' represents the main verb or - if "be" is used as a copula verb - the complementing noun phrase or adjective complement:

$$(24) \quad v \left( \begin{array}{l} be: - \\ copula: - \\ exist: \boxed{1} \\ pl: \boxed{2} \\ vform: \boxed{3} \\ whin: \boxed{4} \\ whout: \boxed{4} \end{array} \right) \dot{\rightarrow} verb \left( \begin{array}{l} be: - \\ exist: \boxed{1} \\ pl: \boxed{2} \\ vcat: itr \\ vform: \boxed{3} \end{array} \right)$$

$$(25) \quad v \left( \begin{array}{l} be: - \\ copula: - \\ embv: \boxed{1} \\ exist: \boxed{2} \\ pl: \boxed{3} \\ rel: \boxed{4} \\ subj: \boxed{5} \\ vform: \boxed{6} \\ whin: \boxed{7} \\ whout: \boxed{8} \end{array} \right) \dot{\rightarrow} verb \left( \begin{array}{l} be: - \\ exist: \boxed{2} \\ pl: \boxed{3} \\ vcat: tr \\ vform: \boxed{6} \end{array} \right) np \left( \begin{array}{l} case: acc \\ embv: \boxed{1} \\ rel: \boxed{4} \\ subj: \boxed{5} \\ vcat: tr \\ whin: \boxed{7} \\ whout: \boxed{8} \end{array} \right)$$

$$(26) \quad v \left( \begin{array}{l} be: + \\ copula: - \\ embv: \boxed{1} \\ rel: \boxed{2} \\ subj: \boxed{3} \\ whin: \boxed{4} \\ whout: \boxed{5} \end{array} \right) \dot{\rightarrow} verb \left( \begin{array}{l} be: + \\ vcat: tr \end{array} \right) np \left( \begin{array}{l} case: acc \\ copula: - \\ embv: \boxed{1} \\ rel: \boxed{2} \\ subj: \boxed{3} \\ whin: \boxed{4} \\ whout: \boxed{5} \end{array} \right)$$

$$(27) \quad v \left( \begin{array}{l} be: + \\ copula: + \\ embv: \boxed{1} \\ rel: \boxed{2} \\ subj: \boxed{3} \\ whin: \boxed{4} \\ whout: \boxed{5} \end{array} \right) \dot{\rightarrow} np \left( \begin{array}{l} case: acc \\ copula: + \\ embv: \boxed{1} \\ of: + \\ pl: - \\ rel: \boxed{2} \\ subj: \boxed{3} \\ whin: \boxed{4} \\ whout: \boxed{5} \end{array} \right)$$

$$(28) \quad v \left( \begin{array}{l} be: + \\ copula: + \\ embv: \boxed{1} \\ pl: - \\ rel: \boxed{2} \\ subj: \boxed{3} \\ whin: \boxed{4} \\ whout: \boxed{5} \end{array} \right) \dot{\rightarrow} np \left( \begin{array}{l} case: acc \\ copula: + \\ embv: \boxed{1} \\ of: - \\ pl: - \\ rel: \boxed{2} \\ subj: \boxed{3} \\ whin: \boxed{4} \\ whout: \boxed{5} \end{array} \right)$$

$$(29) \quad v \left( \begin{array}{l} be: + \\ copula: + \\ embv: \boxed{1} \\ rel: \boxed{2} \\ subj: \boxed{3} \\ whin: \boxed{4} \\ whout: \boxed{5} \end{array} \right) \dot{\rightarrow} tradj \left( \begin{array}{l} case: acc \\ copula: - \\ embv: \boxed{1} \\ rel: \boxed{2} \\ subj: \boxed{3} \\ whin: \boxed{4} \\ whout: \boxed{5} \end{array} \right)$$

## Noun Phrases

Noun phrases are represented by 'np' and can consist of proper names, variables, pronouns, and different noun constructs:

$$(30) \quad np \left( \begin{array}{l} def: + \\ embv: \boxed{1} \\ exist: + \\ id: \boxed{2} \\ of: - \\ pl: - \\ rel: \boxed{3} \\ whin: \boxed{4} \\ whout: \boxed{5} \end{array} \right) \dot{\rightarrow} \underline{propername} \left( \begin{array}{l} gender: \boxed{6} \\ human: \boxed{7} \\ text: \boxed{2} \end{array} \right) \gg \left( \begin{array}{l} gender: \boxed{6} \\ hasvar: - \\ human: \boxed{7} \\ id: \boxed{2} \\ type: prop \end{array} \right) relcl \left( \begin{array}{l} embv: \boxed{1} \\ human: \boxed{7} \\ rel: \boxed{3} \\ subj: \boxed{2} \\ whin: \boxed{4} \\ whout: \boxed{5} \end{array} \right)$$

$$(31) \quad np \left( \begin{array}{l} def: + \\ exist: + \\ id: \boxed{1} \\ of: - \\ pl: - \\ whin: \boxed{2} \\ whout: \boxed{2} \end{array} \right) \dot{\rightarrow} \# \boxed{1} \quad newvar \left( \begin{array}{l} var: \boxed{3} \end{array} \right) > \left( \begin{array}{l} hasvar: + \\ id: \boxed{1} \\ type: var \\ var: \boxed{2} \end{array} \right)$$

$$(32) \quad np \left( \begin{array}{l} def: + \\ exist: + \\ id: \boxed{1} \\ of: - \\ pl: - \\ whin: \boxed{2} \\ whout: \boxed{2} \end{array} \right) \dot{\rightarrow} \underline{defnoun} \left( \begin{array}{l} noun: \boxed{3} \end{array} \right) \underline{reference} \left( \begin{array}{l} text: \boxed{4} \end{array} \right) < \left( \begin{array}{l} gender: \boxed{5} \\ hasvar: + \\ human: \boxed{6} \\ id: \boxed{1} \\ noun: \boxed{3} \\ type: noun \\ var: \boxed{4} \end{array} \right) > \left( \begin{array}{l} gender: \boxed{5} \\ hasvar: - \\ human: \boxed{6} \\ id: \boxed{1} \\ type: ref \end{array} \right)$$

$$(33) \quad np \begin{pmatrix} \text{def: +} \\ \text{exist: +} \\ \text{id: } \boxed{1} \\ \text{of: -} \\ \text{pl: -} \\ \text{whin: } \boxed{2} \\ \text{whout: } \boxed{2} \end{pmatrix} \dot{\rightarrow} \underline{defnoun}(\text{noun: } \boxed{3}) < \begin{pmatrix} \text{gender: } \boxed{4} \\ \text{human: } \boxed{5} \\ \text{id: } \boxed{1} \\ \text{noun: } \boxed{3} \\ \text{type: noun} \end{pmatrix} > \begin{pmatrix} \text{gender: } \boxed{4} \\ \text{hasvar: -} \\ \text{human: } \boxed{5} \\ \text{id: } \boxed{1} \\ \text{type: ref} \end{pmatrix}$$

$$(34) \quad np \begin{pmatrix} \text{def: +} \\ \text{exist: +} \\ \text{id: } \boxed{1} \\ \text{of: -} \\ \text{pl: -} \\ \text{whin: } \boxed{2} \\ \text{whout: } \boxed{2} \end{pmatrix} \dot{\rightarrow} \underline{reference}(\text{text: } \boxed{3}) < \begin{pmatrix} \text{gender: } \boxed{4} \\ \text{hasvar: +} \\ \text{human: } \boxed{5} \\ \text{id: } \boxed{1} \\ \text{var: } \boxed{3} \end{pmatrix} > \begin{pmatrix} \text{gender: } \boxed{4} \\ \text{hasvar: -} \\ \text{human: } \boxed{5} \\ \text{id: } \boxed{1} \\ \text{type: ref} \end{pmatrix}$$

$$(35) \quad np \begin{pmatrix} \text{embv: } \boxed{1} \\ \text{exist: } \boxed{2} \\ \text{id: } \boxed{3} \\ \text{of: } \boxed{4} \\ \text{pl: -} \\ \text{rel: } \boxed{5} \\ \text{subj: } \boxed{6} \\ \text{whin: } \boxed{7} \\ \text{whout: } \boxed{8} \end{pmatrix} \dot{\rightarrow} \underline{quant}(\text{exist: } \boxed{2}) \quad nc \begin{pmatrix} \text{embv: } \boxed{1} \\ \text{id: } \boxed{3} \\ \text{of: } \boxed{4} \\ \text{rel: } \boxed{5} \\ \text{subj: } \boxed{6} \\ \text{whin: } \boxed{7} \\ \text{whout: } \boxed{8} \end{pmatrix}$$

$$(36) \quad np \begin{pmatrix} \text{embv: } \boxed{1} \\ \text{exist: } \boxed{2} \\ \text{id: } \boxed{3} \\ \text{of: -} \\ \text{pl: -} \\ \text{rel: } \boxed{4} \\ \text{whin: } \boxed{5} \\ \text{whout: } \boxed{6} \end{pmatrix} \dot{\rightarrow} \# \boxed{3} \quad ipron(\text{exist: } \boxed{2} \text{ human: } \boxed{7}) \quad opt\_newvar(\text{hasvar: } \boxed{8} \text{ var: } \boxed{9}) > \begin{pmatrix} \text{hasvar: } \boxed{8} \\ \text{human: } \boxed{7} \\ \text{id: } \boxed{3} \\ \text{type: ipron} \\ \text{var: } \boxed{9} \end{pmatrix} \quad relcl \begin{pmatrix} \text{embv: } \boxed{1} \\ \text{human: } \boxed{7} \\ \text{rel: } \boxed{4} \\ \text{subj: } \boxed{3} \\ \text{whin: } \boxed{5} \\ \text{whout: } \boxed{6} \end{pmatrix}$$

$$(37) \quad np \begin{pmatrix} \text{copula: -} \\ \text{exist: +} \\ \text{id: } \boxed{1} \\ \text{of: -} \\ \text{pl: +} \\ \text{whin: } \boxed{2} \\ \text{whout: } \boxed{2} \end{pmatrix} \dot{\rightarrow} \underline{num\_quant} \quad \underline{number} \quad \# \boxed{1} \quad \underline{nounpl}$$

$$(38) \quad np \begin{pmatrix} \text{copula: -} \\ \text{exist: +} \\ \text{id: } \boxed{1} \\ \text{of: -} \\ \text{pl: -} \\ \text{whin: } \boxed{2} \\ \text{whout: } \boxed{2} \end{pmatrix} \dot{\rightarrow} \underline{num\_quant} \quad [1] \quad \# \boxed{1} \quad \underline{noun} \begin{pmatrix} \text{gender: } \boxed{3} \\ \text{human: } \boxed{4} \\ \text{id: } \boxed{1} \\ \text{text: } \boxed{5} \end{pmatrix} > \begin{pmatrix} \text{gender: } \boxed{3} \\ \text{hasvar: -} \\ \text{human: } \boxed{4} \\ \text{id: } \boxed{1} \\ \text{noun: } \boxed{5} \\ \text{type: noun} \end{pmatrix}$$

$$(39) \quad np \begin{pmatrix} \text{exist: +} \\ \text{id: } \boxed{1} \\ \text{of: -} \\ \text{pl: -} \\ \text{whout: +} \end{pmatrix} \dot{\rightarrow} \# \boxed{1} \quad [\text{what}] > \begin{pmatrix} \text{hasvar: -} \\ \text{human: -} \\ \text{id: } \boxed{1} \\ \text{type: wh} \end{pmatrix}$$

$$(40) \quad np \begin{pmatrix} \text{exist: +} \\ \text{id: } \boxed{1} \\ \text{of: -} \\ \text{pl: -} \\ \text{whout: +} \end{pmatrix} \dot{\rightarrow} \# \boxed{1} \quad [\text{who}] > \begin{pmatrix} \text{hasvar: -} \\ \text{human: +} \\ \text{id: } \boxed{1} \\ \text{type: wh} \end{pmatrix}$$

$$(41) \quad np \begin{pmatrix} \text{embv: } \boxed{1} \\ \text{exist: +} \\ \text{id: } \boxed{2} \\ \text{of: } \boxed{3} \\ \text{pl: -} \\ \text{rel: } \boxed{4} \\ \text{subj: } \boxed{5} \\ \text{whout: +} \end{pmatrix} \dot{\rightarrow} [\text{which}] \quad nc \begin{pmatrix} \text{embv: } \boxed{1} \\ \text{id: } \boxed{2} \\ \text{of: } \boxed{3} \\ \text{rel: } \boxed{4} \\ \text{subj: } \boxed{5} \\ \text{whin: +} \\ \text{whout: +} \end{pmatrix}$$

$$(42) \quad np \begin{pmatrix} \text{exist: +} \\ \text{id: } \boxed{1} \\ \text{of: -} \\ \text{pl: +} \\ \text{whout: +} \end{pmatrix} \dot{\rightarrow} [\text{which}] \quad \# \boxed{1} \quad \underline{nounpl}$$

The category 'nc' represents nouns optionally followed by variables, relative clauses, and of-constructs:

$$(43) \quad nc \begin{pmatrix} \text{embv: } \boxed{1} \\ \text{id: } \boxed{2} \\ \text{of: -} \\ \text{rel: } \boxed{3} \\ \text{whin: } \boxed{4} \\ \text{whout: } \boxed{5} \end{pmatrix} \dot{\rightarrow} n \begin{pmatrix} \text{gender: } \boxed{6} \\ \text{human: } \boxed{7} \\ \text{id: } \boxed{2} \\ \text{text: } \boxed{8} \end{pmatrix} \quad opt\_newvar(\text{hasvar: } \boxed{9} \text{ var: } \boxed{10}) > \begin{pmatrix} \text{gender: } \boxed{6} \\ \text{hasvar: } \boxed{9} \\ \text{human: } \boxed{7} \\ \text{id: } \boxed{2} \\ \text{noun: } \boxed{8} \\ \text{type: noun} \\ \text{var: } \boxed{10} \end{pmatrix} \quad relcl \begin{pmatrix} \text{embv: } \boxed{1} \\ \text{human: } \boxed{7} \\ \text{rel: } \boxed{3} \\ \text{subj: } \boxed{2} \\ \text{whin: } \boxed{4} \\ \text{whout: } \boxed{5} \end{pmatrix}$$

$$(44) \quad nc \begin{pmatrix} \text{embv: } \boxed{1} \\ \text{of: +} \\ \text{rel: } \boxed{2} \\ \text{subj: } \boxed{3} \\ \text{whin: } \boxed{4} \\ \text{whout: } \boxed{5} \end{pmatrix} \xrightarrow{\sim} \underline{nounof} \quad np \begin{pmatrix} \text{case: acc} \\ \text{embv: } \boxed{1} \\ \text{rel: } \boxed{2} \\ \text{subj: } \boxed{3} \\ \text{whin: } \boxed{4} \\ \text{whout: } \boxed{5} \end{pmatrix}$$

The category 'n' stands for nouns:

$$(45) \quad n \begin{pmatrix} \text{gender: } \boxed{1} \\ \text{human: } \boxed{2} \\ \text{id: } \boxed{3} \\ \text{text: } \boxed{4} \end{pmatrix} \dot{\rightarrow} \# \boxed{3} \quad \underline{noun} \begin{pmatrix} \text{gender: } \boxed{1} \\ \text{human: } \boxed{2} \\ \text{id: } \boxed{3} \\ \text{text: } \boxed{4} \end{pmatrix}$$

New variables, optional and mandatory, are represented by 'opt\_newvar' and 'newvar', respectively:

$$(46) \quad opt\_newvar(\text{hasvar: -}) \dot{\rightarrow}$$

$$(47) \quad opt\_newvar \begin{pmatrix} \text{hasvar: +} \\ \text{var: } \boxed{1} \end{pmatrix} \dot{\rightarrow} newvar(\text{var: } \boxed{1})$$

$$(48) \quad newvar(\text{var: } \boxed{1}) \dot{\rightarrow} \underline{variable}(\text{text: } \boxed{1}) \not\prec \begin{pmatrix} \text{hasvar: +} \\ \text{var: } \boxed{1} \end{pmatrix}$$

## Relative Clauses

Relative clauses are represented by 'relcl'. They start with a relative pronoun and are always optional:

$$(49) \quad \text{relcl} \left( \begin{array}{l} \text{whin: } [1] \\ \text{whout: } [1] \end{array} \right) \dot{\rightarrow}$$

$$(50) \quad \text{relcl} \left( \begin{array}{l} \text{embv: +} \\ \text{human: } [1] \\ \text{rel: +} \\ \text{subj: } [2] \\ \text{whin: } [3] \\ \text{whout: } [4] \end{array} \right) \dot{\rightarrow} \text{relpron} \left( \begin{array}{l} \text{human: } [1] \\ \text{relpron: } [5] \end{array} \right) \text{relcl1} \left( \begin{array}{l} \text{human: } [1] \\ \text{relpron: } [5] \\ \text{subj: } [2] \\ \text{whin: } [3] \\ \text{whout: } [4] \end{array} \right)$$

Like sentences and verb phrases, relative clauses can be coordinated by "or" ('relcl1') and "and" ('relcl2'):

$$(51) \quad \text{relcl1} \left( \begin{array}{l} \text{human: } [1] \\ \text{relpron: } [2] \\ \text{subj: } [3] \\ \text{whin: } [4] \\ \text{whout: } [5] \end{array} \right) \rightsquigarrow \parallel \text{relcl2} \left( \begin{array}{l} \text{human: } [1] \\ \text{rel: -} \\ \text{relpron: } [2] \\ \text{subj: } [3] \\ \text{whin: } [4] \\ \text{whout: } [5] \end{array} \right) \text{or\_relpron} \left( \begin{array}{l} \text{human: } [1] \\ \text{relpron: } [2] \end{array} \right) \text{relcl1} \left( \begin{array}{l} \text{human: } [1] \\ \text{relpron: } [2] \\ \text{subj: } [3] \\ \text{whin: } [6] \\ \text{whout: } [5] \end{array} \right)$$

$$(52) \quad \text{relcl1} \left( \begin{array}{l} \text{human: } [1] \\ \text{relpron: } [2] \\ \text{subj: } [3] \\ \text{whin: } [4] \\ \text{whout: } [5] \end{array} \right) \dot{\rightarrow} \text{relcl2} \left( \begin{array}{l} \text{human: } [1] \\ \text{relpron: } [2] \\ \text{subj: } [3] \\ \text{whin: } [4] \\ \text{whout: } [5] \end{array} \right)$$

$$(53) \quad \text{relcl2} \left( \begin{array}{l} \text{human: } [1] \\ \text{rel: } [2] \\ \text{relpron: } [3] \\ \text{subj: } [4] \\ \text{whin: } [5] \\ \text{whout: } [6] \end{array} \right) \dot{\rightarrow} \text{vp} \left( \begin{array}{l} \text{pl: -} \\ \text{rel: -} \\ \text{subj: } [4] \\ \text{whin: } [5] \\ \text{whout: } [7] \end{array} \right) \text{and\_relpron} \left( \begin{array}{l} \text{human: } [1] \\ \text{relpron: } [3] \end{array} \right) \text{relcl2} \left( \begin{array}{l} \text{human: } [1] \\ \text{rel: } [2] \\ \text{relpron: } [3] \\ \text{subj: } [4] \\ \text{whin: } [7] \\ \text{whout: } [6] \end{array} \right)$$

$$(54) \quad \text{relcl2} \left( \begin{array}{l} \text{rel: } [1] \\ \text{subj: } [2] \\ \text{whin: } [3] \\ \text{whout: } [4] \end{array} \right) \dot{\rightarrow} \text{vp} \left( \begin{array}{l} \text{pl: -} \\ \text{rel: } [1] \\ \text{subj: } [2] \\ \text{whin: } [3] \\ \text{whout: } [4] \end{array} \right)$$

$$(55) \quad \text{relcl2} \left( \begin{array}{l} \text{subj: } [1] \\ \text{whin: } [2] \\ \text{whout: } [3] \end{array} \right) \rightsquigarrow \text{np} \left( \begin{array}{l} \text{case: nom} \\ \text{copula: -} \\ \text{pl: } [4] \\ \text{refl: -} \\ \text{rel: -} \\ \text{subj: } [1] \\ \text{whin: } [2] \\ \text{whout: } [3] \end{array} \right) \text{aux} \left( \begin{array}{l} \text{be: -} \\ \text{exist: } [5] \\ \text{pl: } [4] \end{array} \right) \text{verb} \left( \begin{array}{l} \text{be: -} \\ \text{exist: } [5] \\ \text{pl: } [4] \\ \text{vcat: tr} \\ \text{vform: inf} \end{array} \right)$$

$$(56) \quad \text{relcl2} \left( \begin{array}{l} \text{subj: } [1] \\ \text{whin: } [2] \\ \text{whout: } [3] \end{array} \right) \rightsquigarrow \text{np} \left( \begin{array}{l} \text{case: nom} \\ \text{copula: -} \\ \text{pl: } [4] \\ \text{refl: -} \\ \text{rel: -} \\ \text{subj: } [1] \\ \text{whin: } [2] \\ \text{whout: } [3] \end{array} \right) \text{verb} \left( \begin{array}{l} \text{be: -} \\ \text{exist: +} \\ \text{pl: } [4] \\ \text{vcat: tr} \\ \text{vform: fin} \end{array} \right)$$

Relative pronouns are represented by 'relpron' and can be either "that", "who" or "which":

$$(57) \quad \text{relpron} \left( \begin{array}{l} \text{relpron: that} \end{array} \right) \dot{\rightarrow} [\text{that}]$$

$$(58) \quad \text{relpron} \left( \begin{array}{l} \text{human: +} \\ \text{relpron: who} \end{array} \right) \dot{\rightarrow} [\text{who}]$$

$$(59) \quad \text{relpron} \left( \begin{array}{l} \text{human: -} \\ \text{relpron: which} \end{array} \right) \dot{\rightarrow} [\text{which}]$$

The categories 'or\_relpron' and 'and\_relpron' define shortcuts - like "or that" as one token - for better usability inside of the predictive editor:

$$(60) \quad \text{or\_relpron} \left( \begin{array}{l} \text{human: } [1] \\ \text{relpron: } [2] \end{array} \right) \dot{\rightarrow} [\text{or}] \text{relpron} \left( \begin{array}{l} \text{human: } [1] \\ \text{relpron: } [2] \end{array} \right)$$

$$(61) \quad \text{or\_relpron} \left( \begin{array}{l} \text{relpron: that} \end{array} \right) \dot{\rightarrow} [\text{or that}]$$

$$(62) \quad \text{or\_relpron} \left( \begin{array}{l} \text{human: +} \\ \text{relpron: who} \end{array} \right) \dot{\rightarrow} [\text{or who}]$$

$$(63) \quad \text{or\_relpron} \left( \begin{array}{l} \text{human: -} \\ \text{relpron: which} \end{array} \right) \dot{\rightarrow} [\text{or which}]$$

$$(64) \quad \text{and\_relpron} \left( \begin{array}{l} \text{human: } [1] \\ \text{relpron: } [2] \end{array} \right) \dot{\rightarrow} [\text{and}] \text{relpron} \left( \begin{array}{l} \text{human: } [1] \\ \text{relpron: } [2] \end{array} \right)$$

$$(65) \quad \text{and\_relpron} \left( \begin{array}{l} \text{relpron: that} \end{array} \right) \dot{\rightarrow} [\text{and that}]$$

$$(66) \quad \text{and\_relpron} \left( \begin{array}{l} \text{human: +} \\ \text{relpron: who} \end{array} \right) \dot{\rightarrow} [\text{and who}]$$

$$(67) \quad \text{and\_relpron} \left( \begin{array}{l} \text{human: -} \\ \text{relpron: which} \end{array} \right) \dot{\rightarrow} [\text{and which}]$$

## Verbs

The category 'verb' represents main verbs:

$$(68) \quad \text{verb} \left( \begin{array}{l} \text{be: -} \\ \text{pl: -} \\ \text{vcat: tr} \\ \text{vform: fin} \end{array} \right) \dot{\rightarrow} \underline{\text{verbsg}}$$

$$(69) \quad \textit{verb} \left( \begin{smallmatrix} \text{be:} - \\ \text{pl:} + \\ \text{vcat:} \text{tr} \\ \text{vform:} \text{fin} \end{smallmatrix} \right) \xrightarrow{\cdot} \underline{\textit{verbinf}}$$

$$(70) \quad \textit{verb} \left( \begin{smallmatrix} \text{be:} - \\ \text{vcat:} \text{tr} \\ \text{vform:} \text{inf} \end{smallmatrix} \right) \xrightarrow{\cdot} \underline{\textit{verbinf}}$$

$$(71) \quad \textit{verb} \left( \begin{smallmatrix} \text{be:} + \\ \text{vcat:} \text{tr} \end{smallmatrix} \right) \xrightarrow{\cdot} \underline{\textit{pverb}}$$

Auxiliary verbs are represented by 'aux', which includes negation markers:

$$(72) \quad \textit{aux} \left( \begin{smallmatrix} \text{be:} + \\ \text{exist:} + \\ \text{pl:} - \end{smallmatrix} \right) \xrightarrow{\cdot} [\text{is}]$$

$$(73) \quad \textit{aux} \left( \begin{smallmatrix} \text{be:} + \\ \text{exist:} - \\ \text{pl:} - \end{smallmatrix} \right) \xrightarrow{\cdot} // [\text{is not}]$$

$$(74) \quad \textit{aux} \left( \begin{smallmatrix} \text{be:} + \\ \text{exist:} - \\ \text{pl:} - \end{smallmatrix} \right) \xrightarrow{\cdot} // [\text{is}] [\text{not}]$$

$$(75) \quad \textit{aux} \left( \begin{smallmatrix} \text{be:} + \\ \text{exist:} + \\ \text{pl:} + \end{smallmatrix} \right) \xrightarrow{\cdot} [\text{are}]$$

$$(76) \quad \textit{aux} \left( \begin{smallmatrix} \text{be:} + \\ \text{exist:} - \\ \text{pl:} + \end{smallmatrix} \right) \xrightarrow{\cdot} // [\text{are not}]$$

$$(77) \quad \textit{aux} \left( \begin{smallmatrix} \text{be:} + \\ \text{exist:} - \\ \text{pl:} + \end{smallmatrix} \right) \xrightarrow{\cdot} // [\text{are}] [\text{not}]$$

$$(78) \quad \textit{aux} \left( \begin{smallmatrix} \text{be:} - \\ \text{exist:} - \\ \text{pl:} - \end{smallmatrix} \right) \xrightarrow{\cdot} // [\text{does not}]$$

$$(79) \quad \textit{aux} \left( \begin{smallmatrix} \text{be:} - \\ \text{exist:} - \\ \text{pl:} + \end{smallmatrix} \right) \xrightarrow{\cdot} // [\text{do not}]$$

## Quantifiers

Existential and universal quantifiers are represented by 'quant':

$$(80) \quad \textit{quant} \left( \begin{smallmatrix} \text{exist:} + \end{smallmatrix} \right) \xrightarrow{\cdot} [\text{a}]$$

$$(81) \quad \textit{quant} \left( \begin{smallmatrix} \text{exist:} + \end{smallmatrix} \right) \xrightarrow{\cdot} [\text{an}]$$

$$(82) \quad \textit{quant} \left( \begin{smallmatrix} \text{exist:} - \end{smallmatrix} \right) \xrightarrow{\cdot} // [\text{every}]$$

$$(83) \quad \textit{quant} \left( \begin{smallmatrix} \text{exist:} - \end{smallmatrix} \right) \xrightarrow{\cdot} // [\text{no}]$$

The category 'num\_quant' stands for numerical quantifiers:

$$(84) \quad \textit{num\_quant} \xrightarrow{\cdot} [\text{at least}]$$

$$(85) \quad \textit{num\_quant} \xrightarrow{\cdot} [\text{at most}]$$

$$(86) \quad \textit{num\_quant} \xrightarrow{\cdot} [\text{less than}]$$

$$(87) \quad \textit{num\_quant} \xrightarrow{\cdot} [\text{more than}]$$

$$(88) \quad \textit{num\_quant} \xrightarrow{\cdot} [\text{exactly}]$$

## Indefinite Pronouns

Indefinite pronouns are represented by 'ipron':

$$(89) \quad \textit{ipron} \left( \begin{smallmatrix} \text{exist:} + \\ \text{human:} - \end{smallmatrix} \right) \xrightarrow{\cdot} [\text{something}]$$

$$(90) \quad \textit{ipron} \left( \begin{smallmatrix} \text{exist:} + \\ \text{human:} + \end{smallmatrix} \right) \xrightarrow{\cdot} [\text{somebody}]$$

$$(91) \quad \textit{ipron} \left( \begin{smallmatrix} \text{exist:} - \\ \text{human:} - \end{smallmatrix} \right) \xrightarrow{\cdot} // [\text{everything}]$$

$$(92) \quad \textit{ipron} \left( \begin{smallmatrix} \text{exist:} - \\ \text{human:} + \end{smallmatrix} \right) \xrightarrow{\cdot} // [\text{everybody}]$$

$$(93) \quad \textit{ipron} \left( \begin{smallmatrix} \text{exist:} - \\ \text{human:} - \end{smallmatrix} \right) \xrightarrow{\cdot} // [\text{nothing}]$$

$$(94) \quad \textit{ipron} \left( \begin{smallmatrix} \text{exist:} - \\ \text{human:} + \end{smallmatrix} \right) \xrightarrow{\cdot} // [\text{nobody}]$$