AceWiki Grammar

- Tobias Kuhn, 8 December 2010 -

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) $\quad text \xrightarrow{\cdot}$

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

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) $\quad complete\_sentence \xrightarrow{\sim} \quad /\!/ \quad sentence \quad [\,.\,]$

(4) $\quad complete\_sentence \xrightarrow{\sim} \quad /\!/ \quad simple\_sentence\_2 \begin{pmatrix} \text{qu: +} \\ \text{whin: } - \\ \text{whout: +} \end{pmatrix} \quad [\,?\,]$

General sentences are represented by 'sentence':

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

(6) $\quad sentence \xrightarrow{\sim} \quad /\!/ \quad [\,\text{for every}\,] \quad nc \begin{pmatrix} \text{qu: } - \\ \text{subj: } - \end{pmatrix} \quad sentence\_coord\_1$

(7) $\quad sentence \xrightarrow{\sim} \quad /\!/ \quad [\,\text{if}\,] \quad sentence\_coord\_1 \quad [\,\text{then}\,] \quad sentence\_coord\_1$

Sentences can be coordinated using "or" ('sentence_coord_1') and "and" ('sentence_coord_2'):

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

(9) $\quad sentence\_coord\_1 \xrightarrow{\sim} \quad /\!/ \quad sentence\_coord\_2 \quad [\,\text{or}\,] \quad sentence\_coord\_1$

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

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

Uncoordinated sentences are represented in two levels by 'simple_sentence_1' and 'simple_sentence_2':

(12) $\quad simple\_sentence\_1 \xrightarrow{\sim} \quad /\!/ \quad [\,\text{it is false that}\,] \quad simple\_sentence\_2 \big(\text{qu: } -\big)$

(13) $\quad simple\_sentence\_1 \xrightarrow{\cdot} \quad [\,\text{there is}\,] \quad np \begin{pmatrix} \text{case: nom} \\ \text{def: } - \\ \text{exist: +} \\ \text{pl: } - \\ \text{qu: } - \\ \text{subj: } - \end{pmatrix}$

(14) $\quad simple\_sentence\_1 \xrightarrow{\cdot} \quad [\,\text{there is}\,] \quad np \begin{pmatrix} \text{case: nom} \\ \text{def: } - \\ \text{exist: +} \\ \text{pl: } - \\ \text{qu: } - \\ \text{subj: } - \end{pmatrix} \quad [\,\text{such that}\,] \quad simple\_sentence\_1$

(15) $\quad simple\_sentence\_1 \xrightarrow{\cdot} \quad [\,\text{there are}\,] \quad np \begin{pmatrix} \text{case: nom} \\ \text{def: } - \\ \text{exist: +} \\ \text{pl: +} \\ \text{qu: } - \\ \text{subj: } - \end{pmatrix}$

(16) $\quad simple\_sentence\_1 \xrightarrow{\cdot} simple\_sentence\_2 \big(\text{qu: } -\big)$

(17) $\quad simple\_sentence\_2 \begin{pmatrix} \text{qu: } \boxed{1} \\ \text{whin: } \boxed{2} \\ \text{whout: } \boxed{3} \end{pmatrix} \xrightarrow{\sim} np \begin{pmatrix} \text{case: nom} \\ \text{id: } \boxed{4} \\ \text{pl: } \boxed{5} \\ \text{qu: } \boxed{1} \\ \text{subj: } - \\ \text{whin: } \boxed{2} \\ \text{whout: } \boxed{6} \end{pmatrix} vp\_coord\_1 \begin{pmatrix} \text{pl: } \boxed{5} \\ \text{qu: } \boxed{1} \\ \text{subj: } \boxed{4} \\ \text{whin: } \boxed{6} \\ \text{whout: } \boxed{3} \end{pmatrix}$

Verb Phrases

Like sentences, verb phrases can be coordinated using "or" ('vp_coord_1') and "and" ('vp_coord_2'):

(18) $\quad vp\_coord\_1 \begin{pmatrix} \text{pl: } \boxed{1} \\ \text{qu: } \boxed{2} \\ \text{subj: } \boxed{3} \\ \text{whin: } \boxed{4} \\ \text{whout: } \boxed{5} \end{pmatrix} \xrightarrow{\cdot} vp\_coord\_2 \begin{pmatrix} \text{pl: } \boxed{1} \\ \text{qu: } \boxed{2} \\ \text{subj: } \boxed{3} \\ \text{whin: } \boxed{4} \\ \text{whout: } \boxed{5} \end{pmatrix}$

(19) $\quad vp\_coord\_1 \begin{pmatrix} \text{pl: } \boxed{1} \\ \text{qu: } \boxed{2} \\ \text{subj: } \boxed{3} \\ \text{whin: } \boxed{4} \\ \text{whout: } \boxed{5} \end{pmatrix} \xrightarrow{\sim} \quad /\!/ \quad vp\_coord\_2 \begin{pmatrix} \text{pl: } \boxed{1} \\ \text{qu: } \boxed{2} \\ \text{subj: } \boxed{3} \\ \text{whin: } \boxed{4} \\ \text{whout: } \boxed{6} \end{pmatrix} \quad [\,\text{or}\,] \quad vp\_coord\_1 \begin{pmatrix} \text{pl: } \boxed{1} \\ \text{qu: } \boxed{2} \\ \text{subj: } \boxed{3} \\ \text{whin: } \boxed{6} \\ \text{whout: } \boxed{5} \end{pmatrix}$

$$(20) \quad vp\_coord\_2 \begin{pmatrix} \text{pl: } \boxed{1} \\ \text{qu: } \boxed{2} \\ \text{subj: } \boxed{3} \\ \text{whin: } \boxed{4} \\ \text{whout: } \boxed{5} \end{pmatrix} \stackrel{.}{\longrightarrow} vp \begin{pmatrix} \text{pl: } \boxed{1} \\ \text{qu: } \boxed{2} \\ \text{subj: } \boxed{3} \\ \text{whin: } \boxed{4} \\ \text{whout: } \boxed{5} \end{pmatrix}$$

$$(21) \quad vp\_coord\_2 \begin{pmatrix} \text{pl: } \boxed{1} \\ \text{qu: } \boxed{2} \\ \text{subj: } \boxed{3} \\ \text{whin: } \boxed{4} \\ \text{whout: } \boxed{5} \end{pmatrix} \stackrel{.}{\longrightarrow} vp \begin{pmatrix} \text{pl: } \boxed{1} \\ \text{qu: } \boxed{2} \\ \text{subj: } \boxed{3} \\ \text{whin: } \boxed{4} \\ \text{whout: } \boxed{6} \end{pmatrix} \; [\,\text{and}\,] \quad vp\_coord\_2 \begin{pmatrix} \text{pl: } \boxed{1} \\ \text{qu: } \boxed{2} \\ \text{subj: } \boxed{3} \\ \text{whin: } \boxed{6} \\ \text{whout: } \boxed{5} \end{pmatrix}$$

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

$$(22) \quad vp \begin{pmatrix} \text{exist: } \boxed{1} \\ \text{pl: } \boxed{2} \\ \text{qu: } \boxed{3} \\ \text{rel: } \boxed{4} \\ \text{subj: } \boxed{5} \\ \text{whin: } \boxed{6} \\ \text{whout: } \boxed{7} \end{pmatrix} \stackrel{\sim}{\longrightarrow} aux \begin{pmatrix} \text{be: } \boxed{8} \\ \text{exist: } \boxed{1} \\ \text{pl: } \boxed{2} \end{pmatrix} \quad v \begin{pmatrix} \text{be: } \boxed{8} \\ \text{exist: } \boxed{1} \\ \text{pl: } \boxed{2} \\ \text{qu: } \boxed{3} \\ \text{rel: } \boxed{4} \\ \text{subj: } \boxed{5} \\ \text{vform: inf} \\ \text{whin: } \boxed{6} \\ \text{whout: } \boxed{7} \end{pmatrix}$$

$$(23) \quad vp \begin{pmatrix} \text{exist: } + \\ \text{pl: } \boxed{1} \\ \text{qu: } \boxed{2} \\ \text{rel: } \boxed{3} \\ \text{subj: } \boxed{4} \\ \text{whin: } \boxed{5} \\ \text{whout: } \boxed{6} \end{pmatrix} \stackrel{\sim}{\longrightarrow} v \begin{pmatrix} \text{be: } - \\ \text{exist: } + \\ \text{pl: } \boxed{1} \\ \text{qu: } \boxed{2} \\ \text{rel: } \boxed{3} \\ \text{subj: } \boxed{4} \\ \text{vform: fin} \\ \text{whin: } \boxed{5} \\ \text{whout: } \boxed{6} \end{pmatrix}$$

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

$$(24) \quad v \begin{pmatrix} \text{be: } - \\ \text{copula: } - \\ \text{exist: } \boxed{1} \\ \text{pl: } \boxed{2} \\ \text{vform: } \boxed{3} \\ \text{whin: } \boxed{4} \\ \text{whout: } \boxed{4} \end{pmatrix} \stackrel{.}{\longrightarrow} verb \begin{pmatrix} \text{be: } - \\ \text{exist: } \boxed{1} \\ \text{pl: } \boxed{2} \\ \text{vcat: itr} \\ \text{vform: } \boxed{3} \end{pmatrix}$$

$$(25) \quad v \begin{pmatrix} \text{be: } - \\ \text{copula: } - \\ \text{embv: } \boxed{1} \\ \text{exist: } \boxed{2} \\ \text{pl: } \boxed{3} \\ \text{qu: } \boxed{4} \\ \text{rel: } \boxed{5} \\ \text{subj: } \boxed{6} \\ \text{vform: } \boxed{7} \\ \text{whin: } \boxed{8} \\ \text{whout: } \boxed{9} \end{pmatrix} \stackrel{.}{\longrightarrow} verb \begin{pmatrix} \text{be: } - \\ \text{exist: } \boxed{2} \\ \text{pl: } \boxed{3} \\ \text{vcat: tr} \\ \text{vform: } \boxed{7} \end{pmatrix} \quad np \begin{pmatrix} \text{case: acc} \\ \text{embv: } \boxed{1} \\ \text{qu: } \boxed{4} \\ \text{rel: } \boxed{5} \\ \text{subj: } \boxed{6} \\ \text{vcat: tr} \\ \text{whin: } \boxed{8} \\ \text{whout: } \boxed{9} \end{pmatrix}$$

$$(26) \quad v \begin{pmatrix} \text{be: } + \\ \text{copula: } - \\ \text{embv: } \boxed{1} \\ \text{qu: } \boxed{2} \\ \text{rel: } \boxed{3} \\ \text{subj: } \boxed{4} \\ \text{whin: } \boxed{5} \\ \text{whout: } \boxed{6} \end{pmatrix} \stackrel{.}{\longrightarrow} verb \begin{pmatrix} \text{be: } + \\ \text{vcat: tr} \end{pmatrix} \quad np \begin{pmatrix} \text{case: acc} \\ \text{copula: } - \\ \text{embv: } \boxed{1} \\ \text{qu: } \boxed{2} \\ \text{rel: } \boxed{3} \\ \text{subj: } \boxed{4} \\ \text{whin: } \boxed{5} \\ \text{whout: } \boxed{6} \end{pmatrix}$$

$$(27) \quad v \begin{pmatrix} \text{be: } + \\ \text{copula: } + \\ \text{embv: } \boxed{1} \\ \text{qu: } \boxed{2} \\ \text{rel: } \boxed{3} \\ \text{subj: } \boxed{4} \\ \text{whin: } \boxed{5} \\ \text{whout: } \boxed{6} \end{pmatrix} \stackrel{.}{\longrightarrow} np \begin{pmatrix} \text{case: acc} \\ \text{copula: } + \\ \text{embv: } \boxed{1} \\ \text{of: } + \\ \text{pl: } - \\ \text{qu: } \boxed{2} \\ \text{rel: } \boxed{3} \\ \text{subj: } \boxed{4} \\ \text{whin: } \boxed{5} \\ \text{whout: } \boxed{6} \end{pmatrix}$$

$$(28) \quad v \begin{pmatrix} \text{be: } + \\ \text{copula: } + \\ \text{embv: } \boxed{1} \\ \text{pl: } - \\ \text{qu: } \boxed{2} \\ \text{rel: } \boxed{3} \\ \text{subj: } \boxed{4} \\ \text{whin: } \boxed{5} \\ \text{whout: } \boxed{6} \end{pmatrix} \stackrel{.}{\longrightarrow} np \begin{pmatrix} \text{case: acc} \\ \text{copula: } + \\ \text{embv: } \boxed{1} \\ \text{of: } - \\ \text{pl: } - \\ \text{qu: } \boxed{2} \\ \text{rel: } \boxed{3} \\ \text{subj: } \boxed{4} \\ \text{whin: } \boxed{5} \\ \text{whout: } \boxed{6} \end{pmatrix}$$

$$(29) \quad v \begin{pmatrix} \text{be: } + \\ \text{copula: } + \\ \text{embv: } \boxed{1} \\ \text{qu: } \boxed{2} \\ \text{rel: } \boxed{3} \\ \text{subj: } \boxed{4} \\ \text{whin: } \boxed{5} \\ \text{whout: } \boxed{6} \end{pmatrix} \stackrel{.}{\longrightarrow} \underline{tradj} \quad np \begin{pmatrix} \text{case: acc} \\ \text{copula: } - \\ \text{embv: } \boxed{1} \\ \text{qu: } \boxed{2} \\ \text{rel: } \boxed{3} \\ \text{subj: } \boxed{4} \\ \text{whin: } \boxed{5} \\ \text{whout: } \boxed{6} \end{pmatrix}$$

Noun Phrases

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

$$(30) \quad np \begin{pmatrix} \text{def: } + \\ \text{embv: } \boxed{1} \\ \text{exist: } + \\ \text{id: } \boxed{2} \\ \text{of: } - \\ \text{pl: } - \\ \text{qu: } \boxed{3} \\ \text{rel: } \boxed{4} \\ \text{whin: } \boxed{5} \\ \text{whout: } \boxed{6} \end{pmatrix} \stackrel{.}{\longrightarrow} \underline{propername} \begin{pmatrix} \text{gender: } \boxed{7} \\ \text{human: } \boxed{8} \\ \text{text: } \boxed{2} \end{pmatrix} \gg \begin{pmatrix} \text{gender: } \boxed{7} \\ \text{hasvar: } - \\ \text{human: } \boxed{8} \\ \text{id: } \boxed{2} \\ \text{type: prop} \end{pmatrix} \quad relcl \begin{pmatrix} \text{embv: } \boxed{1} \\ \text{human: } \boxed{8} \\ \text{qu: } \boxed{3} \\ \text{rel: } \boxed{4} \\ \text{subj: } \boxed{2} \\ \text{whin: } \boxed{5} \\ \text{whout: } \boxed{6} \end{pmatrix}$$

$$
(31)\quad np \begin{pmatrix} \text{def: +} \\ \text{exist: +} \\ \text{id: } \boxed{1} \\ \text{of: } - \\ \text{pl: } - \\ \text{whin: } \boxed{2} \\ \text{whout: } \boxed{2} \end{pmatrix} \xrightarrow{\;\cdot\;} \#\boxed{1}\quad newvar\big(\text{var: } \boxed{3}\big) > \begin{pmatrix} \text{hasvar: +} \\ \text{id: } \boxed{1} \\ \text{type: var} \\ \text{var: } \boxed{3} \end{pmatrix}
$$

$$
(32)\quad np \begin{pmatrix} \text{def: +} \\ \text{exist: +} \\ \text{id: } \boxed{1} \\ \text{of: } - \\ \text{pl: } - \\ \text{whin: } \boxed{2} \\ \text{whout: } \boxed{2} \end{pmatrix} \xrightarrow{\;\cdot\;} \underline{defnoun}\big(\text{noun: } \boxed{3}\big)\quad \underline{reference}\big(\text{text: } \boxed{4}\big) < \begin{pmatrix} \text{gender: } \boxed{5} \\ \text{hasvar: +} \\ \text{human: } \boxed{6} \\ \text{id: } \boxed{1} \\ \text{noun: } \boxed{3} \\ \text{type: noun} \\ \text{var: } \boxed{4} \end{pmatrix} > \begin{pmatrix} \text{gender: } \boxed{5} \\ \text{hasvar: +} \\ \text{human: } \boxed{6} \\ \text{id: } \boxed{1} \\ \text{type: ref} \end{pmatrix}
$$

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

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

$$
(35)\quad np \begin{pmatrix} \text{embv: } \boxed{1} \\ \text{exist: } \boxed{2} \\ \text{id: } \boxed{3} \\ \text{of: } \boxed{4} \\ \text{pl: } - \\ \text{qu: } \boxed{5} \\ \text{rel: } \boxed{6} \\ \text{subj: } \boxed{7} \\ \text{whin: } \boxed{8} \\ \text{whout: } \boxed{9} \end{pmatrix} \xrightarrow{\;\cdot\;} quant\begin{pmatrix} \text{exist: } \boxed{2} \\ \text{qu: } \boxed{5} \end{pmatrix}\quad nc \begin{pmatrix} \text{embv: } \boxed{1} \\ \text{id: } \boxed{3} \\ \text{of: } \boxed{4} \\ \text{qu: } \boxed{5} \\ \text{rel: } \boxed{6} \\ \text{subj: } \boxed{7} \\ \text{whin: } \boxed{8} \\ \text{whout: } \boxed{9} \end{pmatrix}
$$

$$
(36)\quad np \begin{pmatrix} \text{embv: } \boxed{1} \\ \text{exist: } \boxed{2} \\ \text{id: } \boxed{3} \\ \text{of: } - \\ \text{pl: } - \\ \text{qu: } \boxed{4} \\ \text{rel: } \boxed{5} \\ \text{whin: } \boxed{6} \\ \text{whout: } \boxed{7} \end{pmatrix} \xrightarrow{\;\cdot\;} \#\boxed{3}\quad ipron\begin{pmatrix} \text{exist: } \boxed{2} \\ \text{human: } \boxed{8} \\ \text{qu: } \boxed{4} \end{pmatrix}\quad opt\_newvar\begin{pmatrix} \text{hasvar: } \boxed{9} \\ \text{var: } \boxed{10} \end{pmatrix} > \begin{pmatrix} \text{hasvar: } \boxed{9} \\ \text{human: } \boxed{8} \\ \text{id: } \boxed{3} \\ \text{type: ipron} \\ \text{var: } \boxed{10} \end{pmatrix}\quad relcl \begin{pmatrix} \text{embv: } \boxed{1} \\ \text{human: } \boxed{8} \\ \text{qu: } \boxed{4} \\ \text{rel: } \boxed{5} \\ \text{subj: } \boxed{3} \\ \text{whin: } \boxed{6} \\ \text{whout: } \boxed{7} \end{pmatrix}
$$

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

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

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

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

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

$$
(42)\quad np \begin{pmatrix} \text{exist: +} \\ \text{id: } \boxed{1} \\ \text{of: } - \\ \text{pl: +} \\ \text{qu: +} \\ \text{whin: } - \\ \text{whout: +} \end{pmatrix} \xrightarrow{\;\cdot\;} [\,\text{which}\,]\quad \#\boxed{1}\quad \underline{nounpl}
$$

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

$$
(43)\quad nc \begin{pmatrix} \text{embv: } \boxed{1} \\ \text{id: } \boxed{2} \\ \text{of: } - \\ \text{qu: } \boxed{3} \\ \text{rel: } \boxed{4} \\ \text{whin: } \boxed{5} \\ \text{whout: } \boxed{6} \end{pmatrix} \xrightarrow{\;\cdot\;} n\begin{pmatrix} \text{gender: } \boxed{7} \\ \text{human: } \boxed{8} \\ \text{id: } \boxed{2} \\ \text{text: } \boxed{9} \end{pmatrix}\quad opt\_newvar\begin{pmatrix} \text{hasvar: } \boxed{10} \\ \text{var: } \boxed{11} \end{pmatrix} > \begin{pmatrix} \text{gender: } \boxed{7} \\ \text{hasvar: } \boxed{10} \\ \text{human: } \boxed{8} \\ \text{id: } \boxed{2} \\ \text{noun: } \boxed{9} \\ \text{type: noun} \\ \text{var: } \boxed{11} \end{pmatrix}\quad relcl \begin{pmatrix} \text{embv: } \boxed{1} \\ \text{human: } \boxed{8} \\ \text{qu: } \boxed{3} \\ \text{rel: } \boxed{4} \\ \text{subj: } \boxed{2} \\ \text{whin: } \boxed{5} \\ \text{whout: } \boxed{6} \end{pmatrix}
$$

(44) $nc \begin{pmatrix} \text{embv: } \boxed{1} \\ \text{of: } + \\ \text{qu: } \boxed{2} \\ \text{rel: } \boxed{3} \\ \text{subj: } \boxed{4} \\ \text{whin: } \boxed{5} \\ \text{whout: } \boxed{6} \end{pmatrix} \overset{\sim}{\longrightarrow} \underline{nounof} \quad np \begin{pmatrix} \text{case: acc} \\ \text{embv: } \boxed{1} \\ \text{qu: } \boxed{2} \\ \text{rel: } \boxed{3} \\ \text{subj: } \boxed{4} \\ \text{whin: } \boxed{5} \\ \text{whout: } \boxed{6} \end{pmatrix}$

The category 'n' stands for nouns:

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

New variables, optional and mandatory, are represented by 'opt_newvar' and 'newvar', respectively:

(46) $opt\_newvar \big(\text{hasvar: } - \big) \overset{.}{\longrightarrow}$

(47) $opt\_newvar \begin{pmatrix} \text{hasvar: } + \\ \text{var: } \boxed{1} \end{pmatrix} \overset{.}{\longrightarrow} newvar \big(\text{var: } \boxed{1} \big)$

(48) $newvar \big(\text{var: } \boxed{1} \big) \overset{.}{\longrightarrow} \underline{variable} \big(\text{text: } \boxed{1} \big) \not\prec \begin{pmatrix} \text{hasvar: } + \\ \text{var: } \boxed{1} \end{pmatrix}$

Relative Clauses

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

(49) $relcl \begin{pmatrix} \text{whin: } \boxed{1} \\ \text{whout: } \boxed{1} \end{pmatrix} \overset{.}{\longrightarrow}$

(50) $relcl \begin{pmatrix} \text{embv: } + \\ \text{human: } \boxed{1} \\ \text{qu: } \boxed{2} \\ \text{rel: } + \\ \text{subj: } \boxed{3} \\ \text{whin: } \boxed{4} \\ \text{whout: } \boxed{5} \end{pmatrix} \overset{.}{\longrightarrow} relpron \begin{pmatrix} \text{human: } \boxed{1} \\ \text{relpron: } \boxed{6} \end{pmatrix} \quad relcl1 \begin{pmatrix} \text{human: } \boxed{1} \\ \text{qu: } \boxed{2} \\ \text{relpron: } \boxed{6} \\ \text{subj: } \boxed{3} \\ \text{whin: } \boxed{4} \\ \text{whout: } \boxed{5} \end{pmatrix}$

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

(51) $relcl1 \begin{pmatrix} \text{human: } \boxed{1} \\ \text{qu: } \boxed{2} \\ \text{relpron: } \boxed{3} \\ \text{subj: } \boxed{4} \\ \text{whin: } \boxed{5} \\ \text{whout: } \boxed{6} \end{pmatrix} \overset{\sim}{\longrightarrow} /\!\!/ \quad relcl2 \begin{pmatrix} \text{human: } \boxed{1} \\ \text{qu: } \boxed{2} \\ \text{rel: } - \\ \text{relpron: } \boxed{3} \\ \text{subj: } \boxed{4} \\ \text{whin: } \boxed{5} \\ \text{whout: } \boxed{7} \end{pmatrix} \quad or\_relpron \begin{pmatrix} \text{human: } \boxed{1} \\ \text{relpron: } \boxed{3} \end{pmatrix} \quad relcl1 \begin{pmatrix} \text{human: } \boxed{1} \\ \text{qu: } \boxed{2} \\ \text{relpron: } \boxed{3} \\ \text{subj: } \boxed{4} \\ \text{whin: } \boxed{7} \\ \text{whout: } \boxed{6} \end{pmatrix}$

(52) $relcl1 \begin{pmatrix} \text{human: } \boxed{1} \\ \text{qu: } \boxed{2} \\ \text{relpron: } \boxed{3} \\ \text{subj: } \boxed{4} \\ \text{whin: } \boxed{5} \\ \text{whout: } \boxed{6} \end{pmatrix} \overset{.}{\longrightarrow} relcl2 \begin{pmatrix} \text{human: } \boxed{1} \\ \text{qu: } \boxed{2} \\ \text{relpron: } \boxed{3} \\ \text{subj: } \boxed{4} \\ \text{whin: } \boxed{5} \\ \text{whout: } \boxed{6} \end{pmatrix}$

(53) $relcl2 \begin{pmatrix} \text{human: } \boxed{1} \\ \text{qu: } \boxed{2} \\ \text{rel: } \boxed{3} \\ \text{relpron: } \boxed{4} \\ \text{subj: } \boxed{5} \\ \text{whin: } \boxed{6} \\ \text{whout: } \boxed{7} \end{pmatrix} \overset{.}{\longrightarrow} vp \begin{pmatrix} \text{pl: } - \\ \text{qu: } \boxed{2} \\ \text{rel: } - \\ \text{subj: } \boxed{5} \\ \text{whin: } \boxed{6} \\ \text{whout: } \boxed{8} \end{pmatrix} \quad and\_relpron \begin{pmatrix} \text{human: } \boxed{1} \\ \text{relpron: } \boxed{4} \end{pmatrix} \quad relcl2 \begin{pmatrix} \text{human: } \boxed{1} \\ \text{qu: } \boxed{2} \\ \text{rel: } \boxed{3} \\ \text{relpron: } \boxed{4} \\ \text{subj: } \boxed{5} \\ \text{whin: } \boxed{8} \\ \text{whout: } \boxed{7} \end{pmatrix}$

(54) $relcl2 \begin{pmatrix} \text{qu: } \boxed{1} \\ \text{rel: } \boxed{2} \\ \text{subj: } \boxed{3} \\ \text{whin: } \boxed{4} \\ \text{whout: } \boxed{5} \end{pmatrix} \overset{.}{\longrightarrow} vp \begin{pmatrix} \text{pl: } - \\ \text{qu: } \boxed{1} \\ \text{rel: } \boxed{2} \\ \text{subj: } \boxed{3} \\ \text{whin: } \boxed{4} \\ \text{whout: } \boxed{5} \end{pmatrix}$

(55) $relcl2 \begin{pmatrix} \text{qu: } \boxed{1} \\ \text{subj: } \boxed{2} \\ \text{whin: } \boxed{3} \\ \text{whout: } \boxed{4} \end{pmatrix} \overset{\sim}{\longrightarrow} np \begin{pmatrix} \text{case: nom} \\ \text{copula: } - \\ \text{pl: } \boxed{5} \\ \text{qu: } \boxed{1} \\ \text{refl: } - \\ \text{rel: } - \\ \text{subj: } \boxed{2} \\ \text{whin: } \boxed{3} \\ \text{whout: } \boxed{4} \end{pmatrix} \quad aux \begin{pmatrix} \text{be: } - \\ \text{exist: } \boxed{6} \\ \text{pl: } \boxed{5} \end{pmatrix} \quad verb \begin{pmatrix} \text{be: } - \\ \text{exist: } \boxed{6} \\ \text{pl: } \boxed{5} \\ \text{vcat: tr} \\ \text{vform: inf} \end{pmatrix}$

(56) $relcl2 \begin{pmatrix} \text{qu: } \boxed{1} \\ \text{subj: } \boxed{2} \\ \text{whin: } \boxed{3} \\ \text{whout: } \boxed{4} \end{pmatrix} \overset{\sim}{\longrightarrow} np \begin{pmatrix} \text{case: nom} \\ \text{copula: } - \\ \text{pl: } \boxed{5} \\ \text{qu: } \boxed{1} \\ \text{refl: } - \\ \text{rel: } - \\ \text{subj: } \boxed{2} \\ \text{whin: } \boxed{3} \\ \text{whout: } \boxed{4} \end{pmatrix} \quad verb \begin{pmatrix} \text{be: } - \\ \text{exist: } + \\ \text{pl: } \boxed{5} \\ \text{vcat: tr} \\ \text{vform: fin} \end{pmatrix}$

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

(57) $relpron \big(\text{relpron: that} \big) \overset{.}{\longrightarrow} [\,\text{that}\,]$

(58) $relpron \begin{pmatrix} \text{human: } + \\ \text{relpron: who} \end{pmatrix} \overset{.}{\longrightarrow} [\,\text{who}\,]$

(59) $relpron \begin{pmatrix} \text{human: } - \\ \text{relpron: which} \end{pmatrix} \overset{.}{\longrightarrow} [\,\text{which}\,]$

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

(60) $or\_relpron \begin{pmatrix} \text{human: } \boxed{1} \\ \text{relpron: } \boxed{2} \end{pmatrix} \overset{.}{\longrightarrow} [\,\text{or}\,] \quad relpron \begin{pmatrix} \text{human: } \boxed{1} \\ \text{relpron: } \boxed{2} \end{pmatrix}$

(61) $or\_relpron\left(\text{relpron: that}\right) \xrightarrow{\cdot} [\,\text{or that}\,]$

(62) $or\_relpron\left(\begin{smallmatrix}\text{human: +}\\\text{relpron: who}\end{smallmatrix}\right) \xrightarrow{\cdot} [\,\text{or who}\,]$

(63) $or\_relpron\left(\begin{smallmatrix}\text{human: }-\\\text{relpron: which}\end{smallmatrix}\right) \xrightarrow{\cdot} [\,\text{or which}\,]$

(64) $and\_relpron\left(\begin{smallmatrix}\text{human: }\boxed{1}\\\text{relpron: }\boxed{2}\end{smallmatrix}\right) \xrightarrow{\cdot} [\,\text{and}\,] \;\; relpron\left(\begin{smallmatrix}\text{human: }\boxed{1}\\\text{relpron: }\boxed{2}\end{smallmatrix}\right)$

(65) $and\_relpron\left(\text{relpron: that}\right) \xrightarrow{\cdot} [\,\text{and that}\,]$

(66) $and\_relpron\left(\begin{smallmatrix}\text{human: +}\\\text{relpron: who}\end{smallmatrix}\right) \xrightarrow{\cdot} [\,\text{and who}\,]$

(67) $and\_relpron\left(\begin{smallmatrix}\text{human: }-\\\text{relpron: which}\end{smallmatrix}\right) \xrightarrow{\cdot} [\,\text{and which}\,]$

Verbs

The category 'verb' represents main verbs:

(68) $verb\left(\begin{smallmatrix}\text{be: }-\\\text{pl: }-\\\text{vcat: tr}\\\text{vform: fin}\end{smallmatrix}\right) \xrightarrow{\cdot} \underline{verbsg}$

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

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

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

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

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

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

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

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

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

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

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

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

Quantifiers

Existential and universal quantifiers are represented by 'quant':

(80) $quant\left(\text{exist: +}\right) \xrightarrow{\cdot} [\,\text{a}\,]$

(81) $quant\left(\text{exist: +}\right) \xrightarrow{\cdot} [\,\text{an}\,]$

(82) $quant\left(\begin{smallmatrix}\text{exist: }-\\\text{qu: }-\end{smallmatrix}\right) \xrightarrow{\cdot} /\!/ \;\; [\,\text{every}\,]$

(83) $quant\left(\text{exist: }-\right) \xrightarrow{\cdot} /\!/ \;\; [\,\text{no}\,]$

The category 'num_quant' stands for numerical quantifiers:

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

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

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

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

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

Indefinite Pronouns

Indefinite pronouns are represented by 'ipron':

(89) $ipron \begin{pmatrix} \text{exist: +} \\ \text{human: } - \end{pmatrix} \xrightarrow{\cdot} [\,\text{something}\,]$

(90) $ipron \begin{pmatrix} \text{exist: +} \\ \text{human: +} \end{pmatrix} \xrightarrow{\cdot} [\,\text{somebody}\,]$

(91) $ipron \begin{pmatrix} \text{exist: } - \\ \text{human: } - \\ \text{qu: } - \end{pmatrix} \xrightarrow{\cdot} /\!/ \quad [\,\text{everything}\,]$

(92) $ipron \begin{pmatrix} \text{exist: } - \\ \text{human: +} \\ \text{qu: } - \end{pmatrix} \xrightarrow{\cdot} /\!/ \quad [\,\text{everybody}\,]$

(93) $ipron \begin{pmatrix} \text{exist: } - \\ \text{human: } - \end{pmatrix} \xrightarrow{\cdot} /\!/ \quad [\,\text{nothing}\,]$

(94) $ipron \begin{pmatrix} \text{exist: } - \\ \text{human: +} \end{pmatrix} \xrightarrow{\cdot} /\!/ \quad [\,\text{nobody}\,]$