

I. DISCOURSE PATTERNS CATALOG

Pattern code: NP_BE_BINARY_VALUE

Description: An attribute is assigned a binary value (e.g., *true/false, on/off, out/inout...*).

Rules:

1. data [be] binary-value
2. data [set] [to] binary-value
3. data [be] [set] [to] binary-value
4. [set] data [to] binary-value
5. data [be] turn binary-value

Definitions:

data $\in$ {NP};
[be] $\in$ {*be, allow, remain, show, '='*};
[set] $\in$ {*set, define, specify, mark, default*}; [to] $\in$ {*to, as, with*};
binary-value $\in$ {*VBN, ADJ, on, off, true, false, ...*};
NP is noun phrase; VBN and ADJ are PoS, denoting the past participle verbs and adjectives, respectively

Examples:

1. fork [=] true (from apache-ant-1.10.6/Tasks_junit.html.txt)
 2. useDefaultExcludes attribute [defaults] [to] false (from apache-ant-1.10.6/Tasks_sync.html.txt)
 3. [setting] setterCanReturnItsClass property [to] true (from checkstyle-8.35/config_coding.html.txt)
 4. [set] ant.build.clonevm [to] true (from apache-ant-1.10.6/clonevm.html.txt)
 5. overwrite [is] turned off (from apache-ant-1.10.6/Tasks_move.html.txt)
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Pattern code: NP_BE_VALUE

Description: An attribute is assigned a concrete value.

Rules:

1. data [be] [value]
2. with data [set] [to] value
3. data [be] [set] [to] value
4. [set] data [to] value
5. require data to [be] [set] [to] value

Definitions:

data $\in$ {NP};
[be] $\in$ {*be, allow, remain, show, '='*};
[set] $\in$ {*set, define, specify, mark, default*};
[to] $\in$ {*to, as, with*};
value $\in$ {NP, CD};
CD is PoS, denoting the cardinal numbers

Examples:

1. default maxwait [is] 3 minutes (from apache-ant-1.10.6/Tasks/waitfor.html.txt)
 2. with its slider [set] by default [to] priority 1 (from argouml-0.35.4/manual.html.txt)
 3. the margin [is] [set] [to] 0 (from jedit-5.6pre0/jedit5.5.0manual-a4.txt)
 4. [defines] a null instant [as] the current time (from joda_time-2.10.3/key_instant.html.txt)
 5. requires fork to [be] [set] [to] true (from apache-ant-1.10.6/Tasks_junit.html.txt)
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Pattern code: NP_CD_TO_CD

Description: An attribute is assigned a range of numeric values. The lower bound and upper bound are connected by a preposition/conjunction pair (e.g., *from...to, between...and*).

Rules:

1. data value1 to value2
2. data [from] value1 [to] value2
3. value1 to value2 data

Definitions:

data $\in$ {NP};
[from] $\in$ {*from, between*};
[to] $\in$ {*to, and*};
value1, value2 $\in$ {NP, CD}

Examples:

1. a valid port number between 0 and 65535 (from log4j-2.13.3/swarm_v2.txt)
 2. hour [from] 00 [to] 23 (from joda_time-2.10.3/cal_iso.html.txt)
 3. two to four authors (from jabref-5.0/en__setup__bibtexkeypatterns.md)
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Pattern code: NUM_NP

Description: A data element is assigned a numeric value.

Rules:

1. value data
2. data value
3. value for data

Definitions:

data $\in$ {NP};
value $\in$ {CD, null}

Examples:

1. 100 edits (from jedit-5.6pre0/jedit5.5.0manual-a4.txt)
 2. the status code 501 (from apache-httpcomponents-4.5.9/Hypertext Transfer Protocol – HTTP_1.0.html.txt)
 3. 443 for https (from log4j-2.13.3/logging.apache.org_log4j__2.x__manual__appenders.html.txt)
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Pattern code: NP_COMP_NP

Description: Compare the value of an attribute with the value of another attribute using the defined comparison words or symbols.

Rules:

1. data1 [compared to] data2
2. [compare to] value data1
3. [compare] data1

Definitions:

data1, data2 $\in$ {NP};

value $\in$ {CD};

[compare to] $\in$ {'<=', '>=', up to, above, before, below, greater than, lower than, newer than, greater than or equal to, less than, more than, less than or equal to, at or before, equal to or earlier than, equal to or later than, equal to or greater than, equal to or less than, the same as, etc..};

[compare] $\in$ {negative, multiple, empty, positive};

Examples:

1. signal [above] corner frequency (from swarm-2.8.11/swarm_v2.txt)
 2. [up to] three editors (from jabref-5.0/en__setup__bibtexkeypatterns.md)
 3. [negative] content length (from apache-httpcomponents-4.5.9/httpcore-tutorial.txt)
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Pattern code: NP_IF_BINARY_VALUE

Description: Check whether the value of an attribute equals a binary value (e.g., true/false, on/off, out/inout) with the conjunction *if*. The conjunction *if* is positioned after the attribute and before its binary value.

Rules:

1. data, if binary-value
2. data, if [set] [to] binary-value

Definitions:

data $\in$ {NP};

binary-value $\in$ {VBN, ADJ, on, off, true, false, ..., etc.};

[set] $\in$ {set, define, mark, specify};

[to] $\in$ {to, as}

Examples:

1. "pages" field, if set (from jabref-5.0/en__collaborative-work__export__customexports.md)
 2. AT_WORD_START - If [set] [to] true (from jedit-5.6pre0/jedit5.5.0manual-a4.txt)
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Pattern code: NP_IN_VALUESSET

Description: A categorical attribute is assigned a finite set of values by using a preposition or a symbol.

Rules:

1. data [in] valueset

Definitions:

data $\in$ {NP};

[be] $\in$ {be, allow, remain, show, '='};

[in] $\in$ {in, include, [be], ':', '(', ',', '-'};

[value] $\in$ {NP, CD};

[valueset] $\in$ {[value] ... [value]}

Examples:

1. Encoding considerations : "7bit", "8bit", or "binary" (from apache-httpcomponents-4.5.9/Hypertext Transfer Protocol – HTTP_1.0.html.txt)
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Pattern code: NP_OF_NP

Description: A data element is assigned a concrete value by using the preposition *of*. The value appears after the data element.

Rules:

1. data of value
2. value of data

Definitions:

data, value $\in$ {NP}

Examples:

1. RSAM period of 10 seconds (from swarm-2.8.11/swarm_v2.txt)
 2. one set of targets (from apache-httpcomponents-4.5.9/httpcore-tutorial.txt)
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Pattern code: NP_EXISTS

Description: Check whether an attribute exists by using the word *exist*.

Rules:

data exist

Definitions:

data $\in$ {NP}

Examples:

output file, exists (from apache-ant-1.10.6/Tasks/tar.html.txt)
