

The inventory of linguistic relations used in the Copenhagen Dependency Treebanks

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April 27, 2011

Abstract

This manual describes the inventory of linguistic relations used in the Copenhagen Dependency Treebanks, a set of parallel treebanks for Danish, English, German, Italian, and Spanish annotated with respect to syntax, morphology, discourse, coreference, and translational equivalence. The manual is generated automatically from the CDT project's online relation spreadsheet.¹

¹<http://spreadsheets.google.com/ccc?key=0ArjTKYTQS1lWcnNUWGJrX3lZTkxDc3QxYmlqWlRXQ1E&hl=en>

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Chapter 1

Introduction

This manual describes the relations used in the Copenhagen Dependency Treebanks. The relations are ordered in a hierarchy, where each relation may have zero or more immediate super types, and zero or more immediate subtypes. The relations are presented in detail in the following chapters, grouped by linguistic level and general relation type. Every time a relation is introduced, its name is written in the left margin, with an indication of its immediate super types and the row in the online CDT spreadsheet in which the relation was defined. An example is shown below.

relation The notation in the left margin indicates that we now describe the relation *relation*; it has
isa super immediate super type *super* and is defined in row 12 in the spreadsheet. When describing a
[12] relation, we also lists its other properties, if relevant, including its:

- *long name*: we use short names in the annotation for brevity, but long names are sometimes more descriptive, so we provide these as an alias for the short relation name;
- *deprecated names*: when renaming relations, the old name is listed as a deprecated name for backwards compatibility, but it should be avoided in future annotation;
- *immediate subtypes*: the relation names that have been specified as the immediate subtypes of the relation;
- *related types*: lists the relations that are closely related to this relation, in some way or another, and which you might want to consult for clarification or additional information;
- *confusion*: lists relations that are confused with this relation with percentages (ie, the probability that other annotators will use another relation name); the numbers in “Confusion $_{A,A_U,A_L}^N$ ” list the number of times the relation name has been used for a multiply-annotated in-node, and the labeled agreement A , the unlabeled agreement A_U , and the label agreement A_L for the relation.
- *examples*: small annotated text examples that illustrate how the relation is used;

In PDF versions of this document, relation names are clickable so that you can navigate through the relation hierarchy by clicking on the relation names.

Chapter 2

Top-level relations: ANY

ANY: formal top node
CDT1: Deprecated CDT1 relations
DIM: dimension
 DIM:LEVEL: dimension: linguistic level
 DIM:TYPE: dimension: annotation type
RULE: generative type specification rule
TOPIC: annotation topic

Figure 2.1: The relations matching ANY-!DIM:LEVEL-!DIM:TYPE-!RULE-!TOPIC-!CDT1.

ANY *Formal top node.* The formal top node in the type hierarchy. The type hierarchy contains [2] all the annotations (features and relations) used in the Copenhagen Dependency Treebanks; it also contains all other documentation for the treebank, including hierarchically organized topics in the annotation which describe how to annotate particular linguistic constructions in the treebanks.

Subtypes: CDT1 DIM RULE TOPIC.

CDT1 *Deprecated CDT1 relations.* Deprecated relations from the CDT1+2 treebanks.
isa ANY
[394] Subtypes: CDT1ADJ CDT1COMP CDT1GAP.

DIM *Dimension* (long: DIMENSION). A dimension in the type hierarchy. The dimensions include [3] the linguistic level (eg, syntax, morphology, semantics) and the annotation type (eg, primary dependency, secondary dependency, idiomatic construction)
isa ANY
Subtypes: DIM:LEVEL DIM:TYPE.

DIM:LEVEL *Dimension: linguistic level.* A dimension specifying the linguistic level of the relation. The [8] isa DIM classification of relations into linguistic levels is meant to give a rough classification of the relations that corresponds to the standard terminology in linguistic theory. The classification is intended for human use. It is not an important feature in the underlying linguistic theory, and there are borderline cases where the distinction between the levels is somewhat fuzzy.
Subtypes: ALIGN ANA DISC MORPH ONTO SEM SYN.

DIM:TYPE *Dimension: annotation type.* A dimension specifying the type of the annotation. Eg, a lexical [17] isa DIM feature or a directed bilexical relation.
Subtypes: FEAT REL.

RULE *Generative type specification rule.* Generative type specification rules specify how type names are created generatively using rules. A rule consists of a sequence of null-separated items which are either character sequences enclosed in double quotes or type names; parts of a rule may be enclosed in parentheses and followed by an optional repetition operator: "" (0 or more times), "+" (1 or more times), or "?" (0 or 1 times). When specifying the super types for a generated type, \$1 refers to the part of the type name matched within the first pair of parentheses, \$2 the part within the second pairs of parentheses, etc. Generated types may be used as super types.

For example, the rule "<"PRIM">" generates all relation names formed by enclosing any relation name from the "PRIM" hierarchy in angle brackets. "<"PRIM("PRIM")*">" generates all relation names formed by enclosing a "-separated sequence of "PRIM" relation names in angle brackets.

Subtypes: ""QUALIA RuleAnd RuleAttr RuleAttrD RuleAttrH RuleDisc RuleExpConn RuleGap RuleIdiom RuleImpConn RuleMorph RuleOblAdv RuleOr RulePar RuleSec.

TOPIC *Annotation topic.* A topic in the annotation guidelines. A topic describes how a particular linguistic construction is annotated in the treebanks, as an aid for the annotators and human users of the CDT treebanks. If a linguistic relation is very closely associated to one or more topics (eg, "gobj" for genitive constructions), the topics should be added as super types for the relation, so that the relations and the topics are properly linked in the annotation manual.

Subtypes: %ALIGN %DISC %MORPH %SEM %SYN.

2.1 Linguistic level dimension: DIM:LEVEL

DIM:LEVEL: dimension: linguistic level
 ALIGN: alignment level
 ANA: anaphor level
 DISC: discourse level
 MORPH: morphology level
 ONTO: ontology level
 SEM: semantic level
 SYN: syntax level

Figure 2.2: The relations matching DIM:LEVEL-!SYNTAX-!MORPH-!DISC-!ANA-!SEM-!ALIGN-!ONTO-!RULE-!TOPIC-!CDT1.

DIM:LEVEL *Dimension: linguistic level.* A dimension specifying the linguistic level of the relation. The classification of relations into linguistic levels is meant to give a rough classification of the relations that corresponds to the standard terminology in linguistic theory. The classification is intended for human use. It is not an important feature in the underlying linguistic theory, and there are borderline cases where the distinction between the levels is somewhat fuzzy.

Subtypes: ALIGN ANA DISC MORPH ONTO SEM SYN.

ALIGN *Alignment level* (long: ALIGNMENT). The alignment level includes alignment relations as well as lexical features associated with alignments.

[15] Subtypes: ALIGNREL.

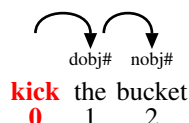
- ANA** *Anaphor level* (long: ANAPHORA). The anaphor level includes relations between anaphors and their antecedents, as well as lexical features associated with anaphora.
isa DIM:LEVEL [14]
Subtypes: ANAREL anaphor.
- DISC** *Discourse level* (long: DISCOURSE). The discourse level includes relations between segments in different sentences, as well as lexical features associated with discourse units.
isa DIM:LEVEL [11]
Subtypes: DISCOTHER DISCPRAG DISCSEM RuleDisc.
- MORPH** *Morphology level* (long: MORPHOLOGY). The morphological level includes relations between two word segments within a single word, as well as lexical features associated with morphemes.
isa DIM:LEVEL [9]
Subtypes: MORPHCOMP MORPHDERIV RuleMorph.
- ONTO** *Ontology level* (long: ONTOLOGY). The ontological level includes relations between lexical elements construed as ontological units, as well as lexical features associated with ontological units.
isa DIM:LEVEL [13]
Subtypes: ONTOCLASS.
- SEM** *Semantic level* (long: SEMANTICS). The semantic level includes relations between lexical elements construed as functors, arguments, and modifiers, as well as lexical features associated with semantic units.
isa DIM:LEVEL [12]
Subtypes: SEMREL.
- SYN** *Syntax level* (long: SYNTAX). The syntactic level includes relations between two segments within a sentence, but not within a single word, as well as lexical features associated with syntactic units.
isa DIM:LEVEL [10]
Subtypes: SYNADJ SYNCOMP.

2.2 Annotation type dimension: DIM:TYPE

- DIM:TYPE** *Dimension: annotation type*. A dimension specifying the type of the annotation. Eg, a lexical feature or a directed billexical relation.
isa DIM [17]
Subtypes: FEAT REL.
- FEAT** *Lexical feature* (long: FEATURE). A lexical feature. Ie, an annotation that describes a particular property of a lexical element.
isa DIM:TYPE [18]
Subtypes: ONTOCLASS.
- REL** *Directed billexical relation* (long: RELATION). A directed billexical relation. Ie, a directed relation that goes from one lexical element (the parent, head, governor, nucleus, stem, antecedent) to a dependent lexical element (the child, dependent, satellite, affix, anaphor).
isa DIM:TYPE [19]
Subtypes: ALIGNREL ANAREL IDIOM LAND PRIM SEC SEMREL.
- IDIOM** *Idiomatic relation*. An idiomatic relation. The relation links independent lexical elements that jointly form an idiomatic lexical unit, ie, a unit where the meaning of the whole cannot be described as a semantic composition of its parts.
isa REL [32]
Subtypes: RuleIdiom.
Related types: +.

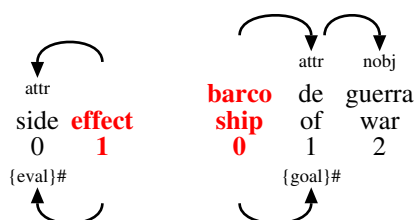
DIM:TYPE: dimension: annotation type
 FEAT: lexical feature
 REL: directed bilexical relation
 IDIOM: idiomatic relation
 RuleIdiom: idiomatic relation pattern
 LAND: landing relation
 fill: licensed filler
 land: landed lexical element
 PRIM: primary dependency relation
 +: segment concatenation
 ADJ: adjunct relation
 COMP: complement relation
 RuleOblAdv: valency-bound adverbial
 SEC: secondary dependency relation
 RuleSec: secondary relation pattern
 repl: replacement in gapping coordination

Figure 2.3: The relations matching DIM:TYPE-!SYNTAX-!MORPH-!DISC-!ANA-!SEM-!ALIGN-!ONTO-!TOPIC-!CDT1.



RuleIdiom *Idiomatic relation pattern* (long: (SEMREL)"#"). A semantic relation can be marked as idiomatic by putting a trailing "#" after the semantic relation name. The idiom marker is only used with semantic relations, not with syntactic relations.

warship



LAND *Landing relation* (long: LANDING). A relation between a lexical element and its landing site.

Landing relations are not annotated explicitly in the Copenhagen Dependency Treebanks.

[25] In Discontinuous Grammar, the word order is determined by a projective surface tree. The projective surface tree can be derived from the deep tree by defining the landing site for a node as the lowest transitive governor in the deep tree that deeply dominates all nodes between the node and the transitive governor. The resulting set of landing relations can be shown to form a projective tree. In this tree, a global word order uniquely corresponds to a local ordering of all the landed nodes at each landing site.

Subtypes: fill land.

fill *Licensed filler*. A landing relation from a filler licenser to a phonetically empty filler that it licenses. The filler licenser is viewed as the landing site for the filler. Filler relations are never

annotated explicitly in the CDT treebanks, but play an important role in the underlying linguistic theory, Discontinuous Grammar. In DG, a "filler" is a phonetically empty constituent which is licensed lexically by a "filler licenser" lexeme, and which functions as an anaphoric element that requires a "filler source" as its antecedent. For example, the relative verb in a relative construction acts as filler licenser for a filler that essentially provides a copy of the relativized noun; in control constructions, the controlling verb passes on a copy of the controlled complement to the subordinate verb; and in gapping coordinations, the first conjunct licenses one or more gapping fillers that function as the elided heads of the gapped conjuncts.

land *Landed lexical element*. A landing relation for lexical elements. This relation is used when the landed node is a lexical element rather than a filler. Landing relations are not annotated explicitly in the CDT annotation, but follow implicitly from the other annotation.

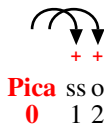
Related types: LAND.

PRIM *Primary dependency relation* (long: PRIMARY). A primary dependency relation. Ie, a billexical relation which specifies the primary head associated with each lexical element in the analysis at the level of syntax, discourse, and morphology. The primary dependencies in a well-formed analysis must form a deep tree, which may be non-projective. The deep tree provides the primary interface to the underlying compositional semantics. In particular, the deep tree defines the application order in the compositional semantics by inducing a unique functor-argument tree for each modifier scope, ie, for each ordering of the adjuncts at all nodes in the analysis.

Subtypes: + ADJ COMP.

+ *Segment concatenation* (long: CONCATENATION). A concatenation relation. The relation is used to correct segmentation errors, and specifies that two nodes should have been analyzed as subsegments of the same lexical unit. The relation always goes from a node to its immediately following neighbour in the segmentation.

Related types: IDIOM.



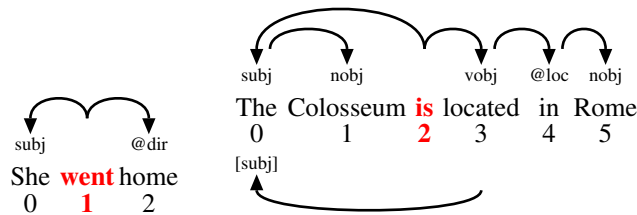
ADJ *Adjunct relation* (long: ADJUNCT). A primary adjunct relation. The relation is licensed by the adjunct, ie, the lexical entry of the adjunct specifies the adjunct relations licensed by the adjunct, along with the associated semantic interpretation mechanisms and selectional restrictions on the licensed governors. In the compositional semantics, the adjunct acts as a modifier, ie, a functor that as its argument takes the semantic representation corresponding to the governor along with the governor's arguments and lower-scoped adjuncts.

Subtypes: DISCOTHER DISCPRAG DISCSEM SYNADJ.

COMP *Complement relation* (long: COMPLEMENT). A primary complement relation. The relation is licensed by the governor, ie, the lexical entry of the governor specifies the complement frames that it allows, along with the associated semantic interpretation mechanisms and selectional restrictions associated with each complement role. In the compositional semantics, the complements act as arguments with the governor as their functor.

Subtypes: RuleOblAdv SYNCOMP.

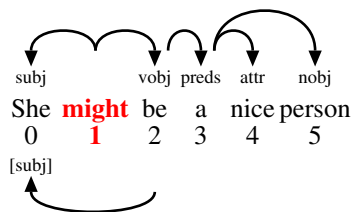
RuleOblAdv *Valency-bound adverbial* (long: "@ADVERB). An adverbial relation can be marked as obligatory by putting "@" in front of the relation name.
 isa COMP RULE
 [370] Related types: cont dir dur ext hab loc prec succ time.



SEC *Secondary dependency relation* (long: SECONDARY). A secondary dependency relation. Intuitively, if a node functions as a dependent of more than one word (eg, in verbal chains, raising and control constructions, relatives, and elliptic coordinations), the dependency relation that determines the word order is encoded as a primary relation, and the remaining dependency relations are encoded as secondary dependency relations. In terms the underlying linguistic theory in Discontinuous Grammar, the secondary relations in the CDT annotation encode that the child node in the secondary dependency functions as the filler source for a filler that functions as a primary dependent of the parent node. Since the CDT annotation does not include filler nodes, there is no explicit annotation of the filler and its associated filler licenser and filler source, and the filler licenser must be reconstructed from the secondary dependency by means of heuristic rules.
 isa REL
 [24]

Subtypes: RuleSec ref repl.
 Related types: fill fsrc.

RuleSec *Secondary relation pattern* (long: "["PRIM"]"). A secondary relation name is formed by enclosing a primary relation name in square brackets.
 isa RULE SEC
 [368] Related types: SEC.



repl *Replacement in gapping coordination*. A relation that encodes a constituent in the first conjunct replaced by a gapping dependent. The relation goes from the head of the replaced constituent to the head of the gapping dependent. The extraction path for the gapping dependent is defined as the path from the replaced constituent to the head of the first conjunct.
 isa SEC
 [34]

Related types: gapd.

Chapter 3

Syntactic relations: SYNTAX

SYN: syntax level
SYNADJ: syntactic adjunct
SYNCOMP: syntactic complement

Figure 3.1: The relations matching SYNTAX-!SYNCOMP-!SYNADJ-!CDT1-TOPIC.

SYN *Syntax level* (long: SYNTAX). The syntactic level includes relations between two segments within a sentence, but not within a single word, as well as lexical features associated with syntactic units.

[10]

Subtypes: SYNADJ SYNCOMP.

SYNADJ *Syntactic adjunct*. An adjunct role at the syntactic level. This relation type is used to group a large class of adjunct roles that only apply at the syntactic level.

isa ADJ SYN

[105]

Subtypes: ADVERB CDT1ADJ app attr attrg conj coord correl fpred gapd name pnct rel voc xtop.

SYNCOMP *Syntactic complement*. A complement role at the syntactic level. This relation type is used to group a large class of complement roles that only apply at the syntactic level.

isa COMP SYN

[77]

Subtypes: @space @time CDT1COMP aobj avobj dobj fobj gobj iobj nobj numa numm part pobj possd possr pred qobj robj subj vobj.

3.1 Complement relations: SYNCOMP

SYNCOMP *Syntactic complement*. A complement role at the syntactic level. This relation type is used to group a large class of complement roles that only apply at the syntactic level.

isa COMP SYN

[77]

Subtypes: @space @time CDT1COMP aobj avobj dobj fobj gobj iobj nobj numa numm part pobj possd possr pred qobj robj subj vobj.

@space *Valency-bound location/direction adverbial* (deprecated lobj). A valency bound locative expression. Formerly analyzed as locative object "lobj", but we have decided to provide a general mechanism (@) for converting adverbial relations into valency-bound relations instead.

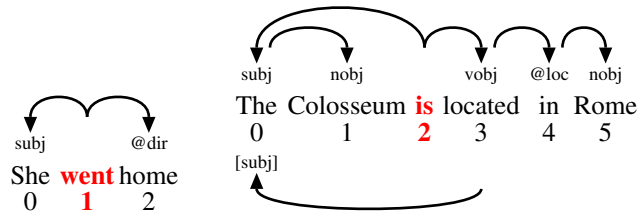
isa SYNCOMP

[86]

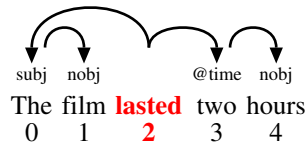
Related types: dir loc.

SYNCOMP: syntactic complement
 @space: valency-bound location/direction adverbial
 @time: valency-bound time adverbial
 avobj: adverbial object
 dobj: direct object
 fobj: filler object
 gobj: genitive object
 iobj: indirect object
 nobj: nominal object
 numa: additive numeral complement
 numm: multiplicative numeral complement
 part: verbal particle
 pobj: prepositional object
 possd: possessed complement
 possr: possessor complement
 pred: predicative
 predo: object predicative
 preds: subject predicative
 qobj: quotational object
 robj: reflexive object
 subj: subject
 expl: expletive subject
 vobj: verbal object

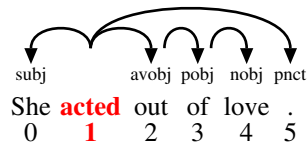
Figure 3.2: The relations matching SYNCOMP-!CDT1-TOPIC.



@time *Valency-bound time adverbial* (deprecated tobj). A valency bound time expression. Formerly
 isa SYNCOMP analyzed as temporal object "tobj", but we have decided to provide a general mechanism (@)
 [102] for converting adverbial relations into valency-bound relations instead.
 Related types: cont dur ext hab prec succ.



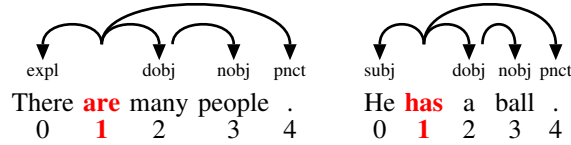
avobj *Adverbial object*.
 Related types: aobj part.
 isa SYNCOMP
 [94] Confusion³⁴_{67.6%/97.1%/67.6%}: avobj_{67.6%} other_{11.8%} part_{5.9%} quant_{5.9%} aobj_{2.9%} loc_{2.9%} pobj_{2.9%} .



dobj *Direct object*. A direct object relation. In languages with case, the direct object is typically accusative-marked.

[82] Related types: iobj robj.

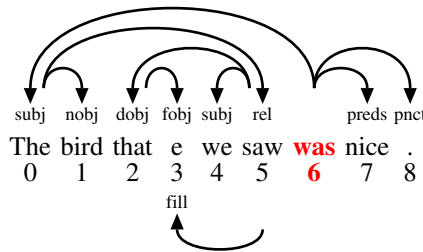
Confusion⁷²⁶_{93.8%/98.3%/94.5%}: dobj94.5% nobj1.7% pobj1% robj0.8% iobj0.7% preds0.3% goal0.3% pnct0.3% predob0.1% dir0.1% quant0.1% vobj0.1% .



fobj *Filler object*. Filler objects are never annotated explicitly in the CDT annotation. In Discontinuous Grammar, a "filler" is a phonetically empty constituent which is licensed lexically

[95] by a "filler licenser" lexeme (eg, the relative verb in a relative construction acts as filler licenser for a filler that essentially provides a copy of the relativized noun). A "filler object" is reserved for the special case where a particular word (eg, a relative pronoun) must consume a filler (eg, the filler created by the relative verb). That is, most of the constructions which include a "ref" relation in the CDT involve the use of a filler object in the detailed theoretical account in Discontinuous Grammar.

Related types: fill ref.

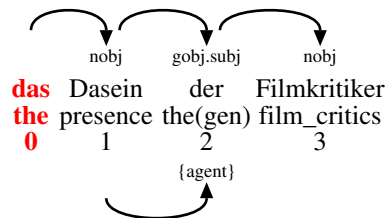


gobj *Genitive object*. If the genitive object is part of a NP with a deverbal nucleus, the following annotation possibilities are available: gobj.subj{SEMROLE} gobj.dobj{SEMROLE} gobj.pobj{SEMROLE}

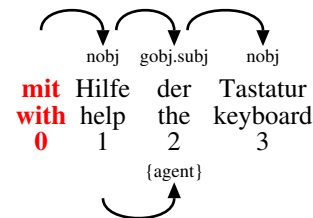
[84] gobj.iobj{SEMROLE} The relevant semantic roles in this context are agent, patient, recipient, experient, location.

Related types: SEMROLE attrg.

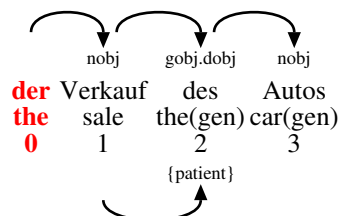
the presence of film critics



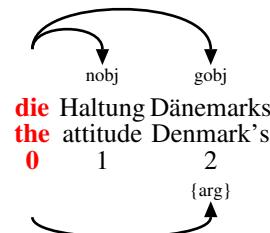
with help from the keyboard



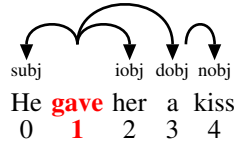
the sale of the car



Denmark's attitude

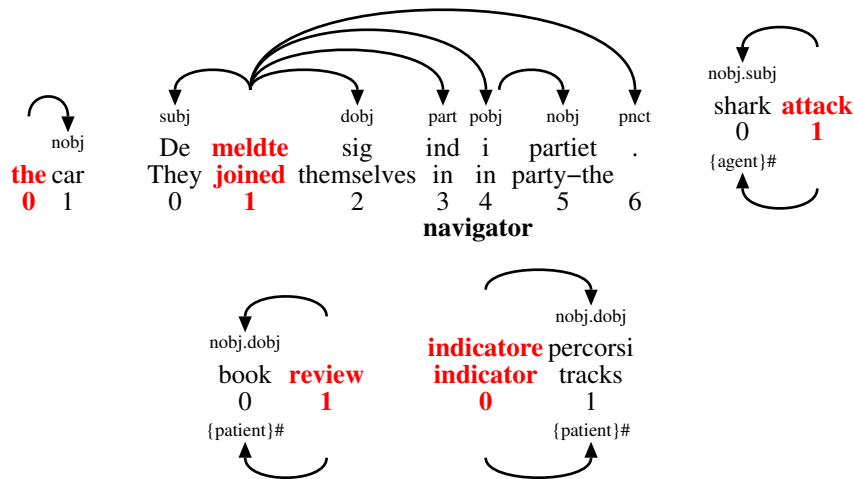


iobj *Indirect object.*
isa SYNCOMP Related types: dobj.
[85] Confusion²⁴_{70.8%/100%/70.8%}: iobj70.8% dobj20.8% robj8.3% .

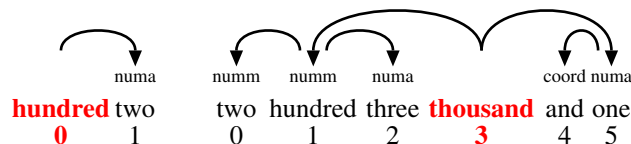


nobj *Nominal object.* If the nominal object is part of a NP with a deverbal nucleus, the following annotation possibilities are available: nobj.subj{SEMROLE} nobj.dobj{SEMROLE} nobj.pobj{SEMROLE} nobj.iobj{SEMROLE} The relevant semantic roles in this context are agent, patient, recipient, experient, location.
[92] Confusion²⁷⁸²_{95.2%/97.6%/96%}: nobj96% attr1.3% dobj0.4% aobj0.3% vobj0.3% preds0.2% name0.2% time0.2% subj0.2% pobj0.2% conj0.1% pnct0.1% possd0.1% other0.1% title0.1% loc0.1% numa0% quant0% cond0% appr0% .

They joined the party.



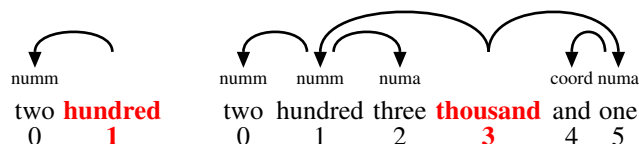
numa *Additive numeral complement.* An additive numeral complement relation. Numerals license one additive and one numeral complement, both optional. The numerical value associated with the expression is the value $M * N + A$, where M is the numerical value of the multiplicative complement, A is the numerical value of the additive complement, and N is the numerical value associated with the lexical numeral itself. Eg, "two hundred four" has value " $2 * 100 + 4$ ", "two hundred four thousand" has value " $(2 * 100 + 4) * 1000$ ", and "two hundred four thousand and twenty three" has value " $(2 * 100 + 4) * 1000 + (20 + (3))$ ".
Related types: numm.
[96] Confusion⁵_{80%/100%/80%}: numa80% nobj20% .



numm *Multiplicative numeral complement.* An multiplicative numeral complement relation. Numerals license one additive and one numeral complement, both optional. The numerical value associated with the expression is the value $M * N + A$, where M is the numerical value of the multiplicative complement, A is the numerical value of the additive complement, and N is the numerical value associated with the lexical numeral itself. Eg, "two hundred four" has value " $2 * 100 + 4$ ", "two hundred four thousand" has value " $(2 * 100 + 4) * 1000$ ", and "two hundred four thousand and twenty three" has value " $(2 * 100 + 4) * 1000 + (20 + (3))$ ".

Related types: numa.

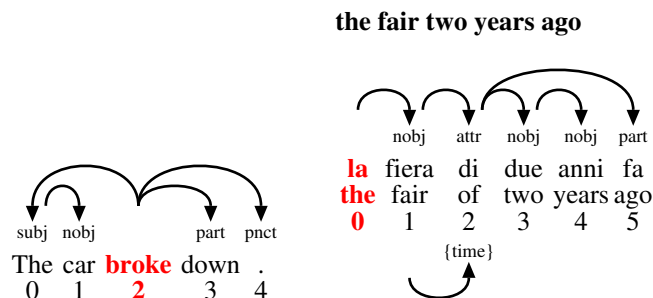
Confusion¹²_{100%/100%/100%}: numm100% .



part *Verbal particle.* Verbal particle.

isa SYNCOMP Related types: avobj.

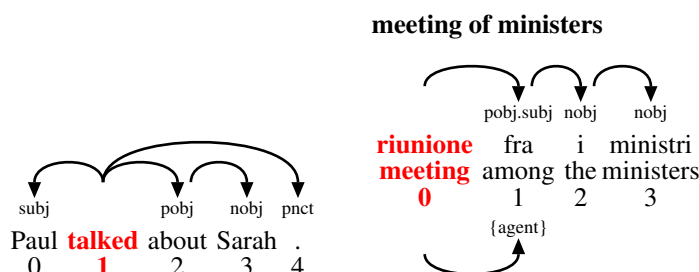
[98] Confusion¹⁹_{78.9%/100%/78.9%}: part78.9% avobj10.5% other5.3% dir5.3% .



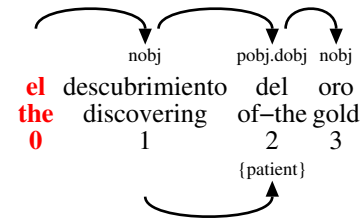
pobj *Prepositional object.* A prepositional object relation. The governor may be a verb, noun, adjective, adverbial, or another preposition. The preposition is analyzed as the head of the prepositional object itself. If the prepositional object is part of a deverbal NP (ie, an NP where the nucleus is derived from a verb), the CDT annotation specifies the underlying role of the NP within the PP by adding a " followed by the underlying role to the relation, e.g., "pobj.subj" (the NP in the PP would act as subject in the underlying V), "pobj.dobj", "pobj.pobj", and "pobj.iobj"; in these cases, the semantic role "{SEMROLE}" must be annotated as well (the most relevant semantic roles in this context are "agent", "patient", "recipient", "experiencer", "location").

Related types: SEMROLE avobj.

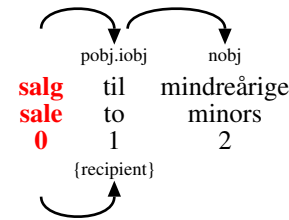
Confusion⁵⁸⁸_{78.7%/94.4%/79.4%}: pobj79.4% attr8.3% goal2.4% other1.9% dir1.5% agent1.4% dobj1.2% loc1.2% nobj0.9% source0.5% preds0.3% inst0.3% avobj0.2% man0.2% cause0.2% accom0.2% .



the discovering of the gold



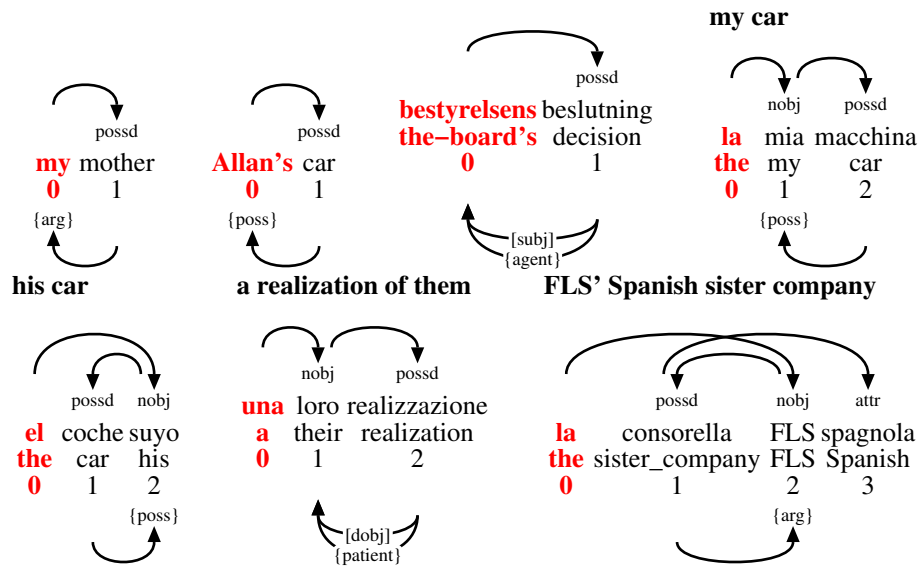
sale to minors



possd *Possessed complement.* The possessed complement in a possessive construction. Possession is understood in a syntactic sense as any construction with a clitic genitive marker, not necessarily as possession in a narrow semantic sense. A better name may be chosen for this relation in the future.

Related types: "{ '\$PRIM' }" SEMROLE poss possr.

Confusion²⁴⁰_{95.6%/96.5%/98.1%:} possd_{98.1%} nobj_{1.3%} attr_{0.4%} pnct_{0.2%} .

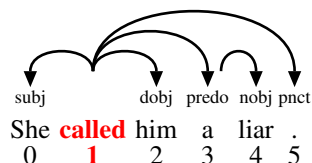


possr *Possessor complement.* NO LONGER IN USE
The possessor complement in a possessive construction. Possession is understood in a syntactic sense as any construction with a clitic genitive marker, not necessarily as possession in a narrow semantic sense. A better name may be chosen for this relation in the future.

Related types: poss possd.

pred *Predicative.*
Subtypes: predo preds.
[87] Related types: predo preds.

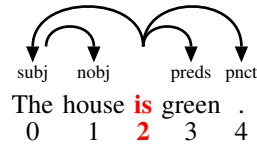
predo *Object predicative.*
Related types: preds.
[89] Confusion²¹_{9.5%/85.7%/9.5%:} predo_{57.1%} inst_{9.5%} predo_{9.5%} vobj_{9.5%} attr_{4.8%} fpredo_{4.8%} dobj_{4.8%} .



preds *Subject predicative.*

isa pred Related types: predo.

[88] Confusion⁴³⁰_{78.8%/99.3%/78.8%}: preds78.8% vobj10.9% predo2.8% loc2.8% nobj1.4% time0.7% dobj0.5% subj0.5% aobj0.5% pobj0.5% fpredo0.2% inst0.2% resem0.2% .

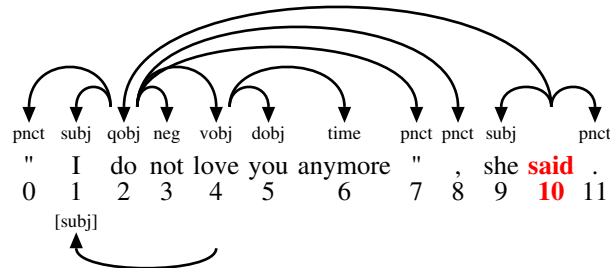


qobj *Quotational object.* A phrase or discourse segment functioning as directly quoted speech,

isa SYNCOMP typically by an attribution verb. Indirect speech is analyzed as "dobj" or "nobj".

[101] Related types: xpl.

Confusion⁷⁰_{76.4%/76.4%/76.4%}: qobj76.4% conj7.1% coord7.1% discmark2.9% CONJ:add2.1% CONJ:elab1.4% CONST:rest1.4% AGENTIVE:reas1.4% .

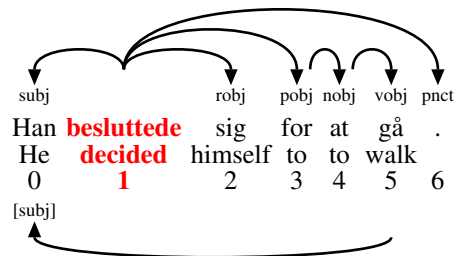


robj *Reflexive object.*

isa SYNCOMP Related types: dobj.

[91] Confusion⁹_{11.1%/100%/11.1%}: dobj66.7% iobj22.2% robj11.1% .

He decided to walk.



subj *Subject.* A subject relation. In languages with case, subjects are usually nominative-marked.

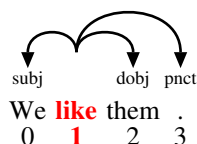
isa SYNCOMP Agent-roles are often encoded as subjects, but not necessarily so (eg, in passive constructions).

[80]

Subtypes: expl.

Related types: expl.

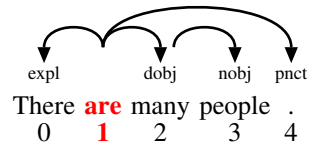
Confusion¹¹⁷²_{98.3%/99.1%/98.7%}: subj98.7% nobj0.4% expl0.4% preds0.2% attr0.1% appr0.1% correl0.1% CONJ:elab0% .



expl *Expletive subject*. An expletive subject relation. The expletive subject is typically a situational place adverbial like "there" or time adverbial like "now", and is only possible for verbs that support the expletive alternation. The expletive alternation applies to all verbs that do not have a direct object (this observation, due to Richard Hudson, can be used as a test to distinguish between direct and indirect objects in verbs that take a single object). The alternation creates a new lexicalization of the verb by demoting the original subject to the vacant direct object role (with the restriction that only indefinites are allowed in this direct object role), and letting the subject role be filled by a situational place or time adverbial.

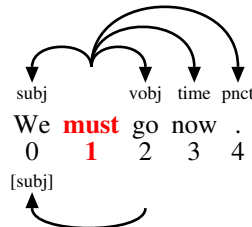
Related types: subj.

Confusion⁶⁰_{91.7%/100%/91.7%}: expl_{91.7%} subj_{8.3%} .



vobj *Verbal object*.
isa SYNCOMP Related types: "["\$PRIM"]".

[90] Confusion⁸⁹³_{91.7%/98.7%/92.7%}: vobj_{92.7%} preds_{5.3%} nobj_{0.8%} punct_{0.3%} relr_{0.2%} pred_{0.2%} rel_{0.1%} conj_{0.1%} dobj_{0.1%} fpreds_{0.1%} .



3.2 Non-adverbial adjunct relations: SYNADJ

SYNADJ *Syntactic adjunct*. An adjunct role at the syntactic level. This relation type is used to group a large class of adjunct roles that only apply at the syntactic level.

[105] Subtypes: ADVERB CDT1ADJ app attr attrg conj coord correl fpred gapd name punct rel voc xtop.

ADVERB *Adverbial*. V/N/P->adverbial

isa SYNADJ Subtypes: agent cause conc concom cond cons event exem man neg other prg quant resem source space time.
[141]

app *Apposition*. An appositional relation between two phrases, typically NPs. The head of the first NP in the apposition is always analyzed as the head of the second NP.

[116] Subtypes: appa appr.

Related types: appa appr.

appa *Parenthetical apposition (comma)*.

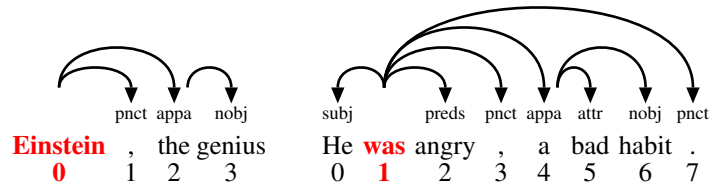
isa app Subtypes: xpl.

[117] Related types: appr xpl.

Confusion²⁷_{88.9%/88.9%/100%}: appa_{100%} .

SYNADJ: syntactic adjunct
 ADVERB: adverbial
 app: apposition
 appa: parenthetic apposition (comma)
 xpl: explication
 appr: restrictive apposition (no comma)
 attrg: genitive attributive
 conj: conjunct relation
 coord: coordinator relation
 correl: correlative coordinator relation
 fpred: free predicative
 fpredo: free direct-object predicative
 fpreds: free subject predicative
 gapd: gapping dependent
 RuleGap: gapping dependent
 name: part of name
 namef: first name
 namel: last name
 title: person title
 pnct: punctuation
 rel: relative clause
 relelab: elaborating relative clause
 relpa: parenthetic relative clause
 reldr: restrictive relative clause
 voc: vocative
 xtop: external topic with resuming pronoun

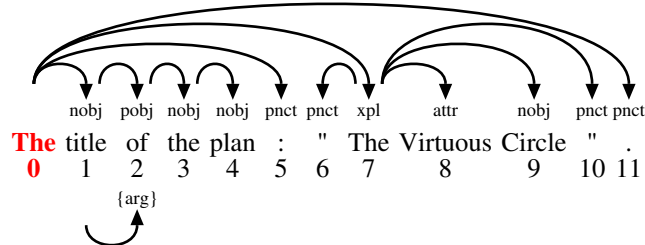
Figure 3.3: The relations matching SYNADJ-!CDT1-!ADVERB-TOPIC.



xpl *Explication*. Explication of an NP or VP.

isa appa Related types: qobj.

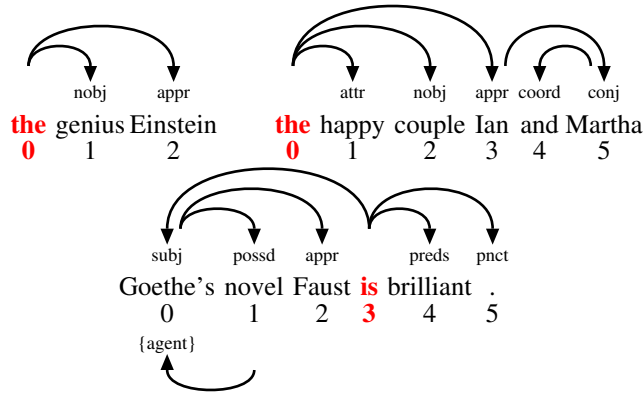
[130] Confusion¹⁸_{88.9%/100%/88.9%}: xpl88.9% conj5.6% other5.6% .



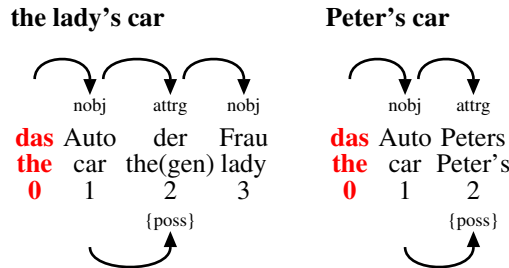
appr *Restrictive apposition (no comma)*.

isa app Related types: appa.

[118] Confusion³⁶_{88.9%/94.4%/88.9%}: appr88.9% nobj2.8% pnct2.8% title2.8% subj2.8% .



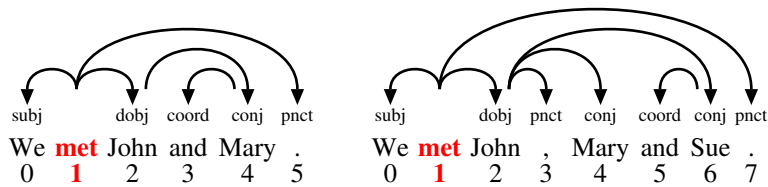
attrg *Genitive attributive.*
 isa SYNADJ Related types: SEMROLE gobj.
 [115]



conj *Conjunct relation.* A dependency relation relating the conjuncts in a coordination. Secondary conjuncts are analyzed as "conj"-dependents of the first conjunct. Coordinators are analyzed as dependents of the secondary conjuncts.

Related types: coord correl.

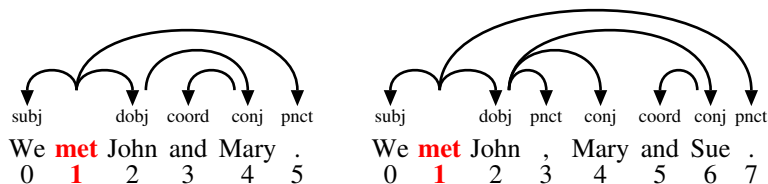
Confusion⁵⁵²_{92.1%/93.2%/94.7%}: conj94.7% CONJ:add1.4% qobj0.9% nobj0.5% attr0.5% CONTR:sbj0.4% CONTR:dir0.4% CONST:rest0.2% TELIC:cons.dir0.2% coord0.2% cause0.2% vobj0.2% xpl0.2% pnct0.1% .



coord *Coordinator relation.* A dependency relation between a coordinating conjunction and a secondary conjunct. The coordinator is analyzed as a dependent of the secondary conjunct. Secondary conjuncts are in turn analyzed as "conj"-dependents of the first conjunct.

Related types: conj correl discmark.

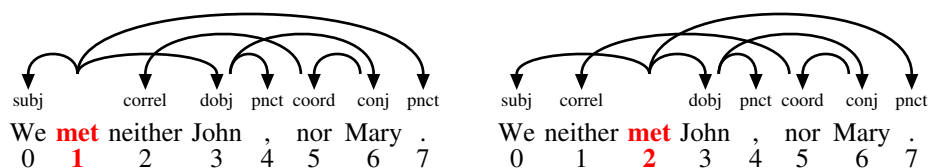
Confusion⁴⁰⁰_{92%/97%/93.3%}: coord93.3% discmark4.5% qobj1.3% contr0.5% conj0.3% neg0.3% .



correl *Correlative coordinator relation.*

isa SYNADJ Related types: conj coord.

[108] Confusion⁹_{55.6%/77.8%/55.6%}: correl_{55.6%} add_{11.1%} other_{11.1%} focal_{11.1%} subj_{11.1%} .



fpred *Free predicative.*

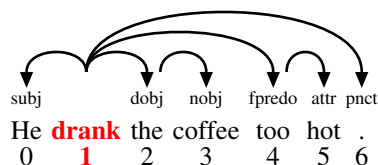
isa SYNADJ Subtypes: fpredo fpreds.

[111] Related types: fpredo fpreds.

fpredo *Free direct-object predicative.*

isa fpred Related types: fpreds man.

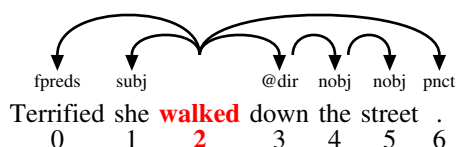
[113] Confusion⁶_{0%/66.7%/0%}: loc_{33.3%} goal_{16.7%} man_{16.7%} preds_{16.7%} predo_{16.7%} .



fpreds *Free subject predicative.*

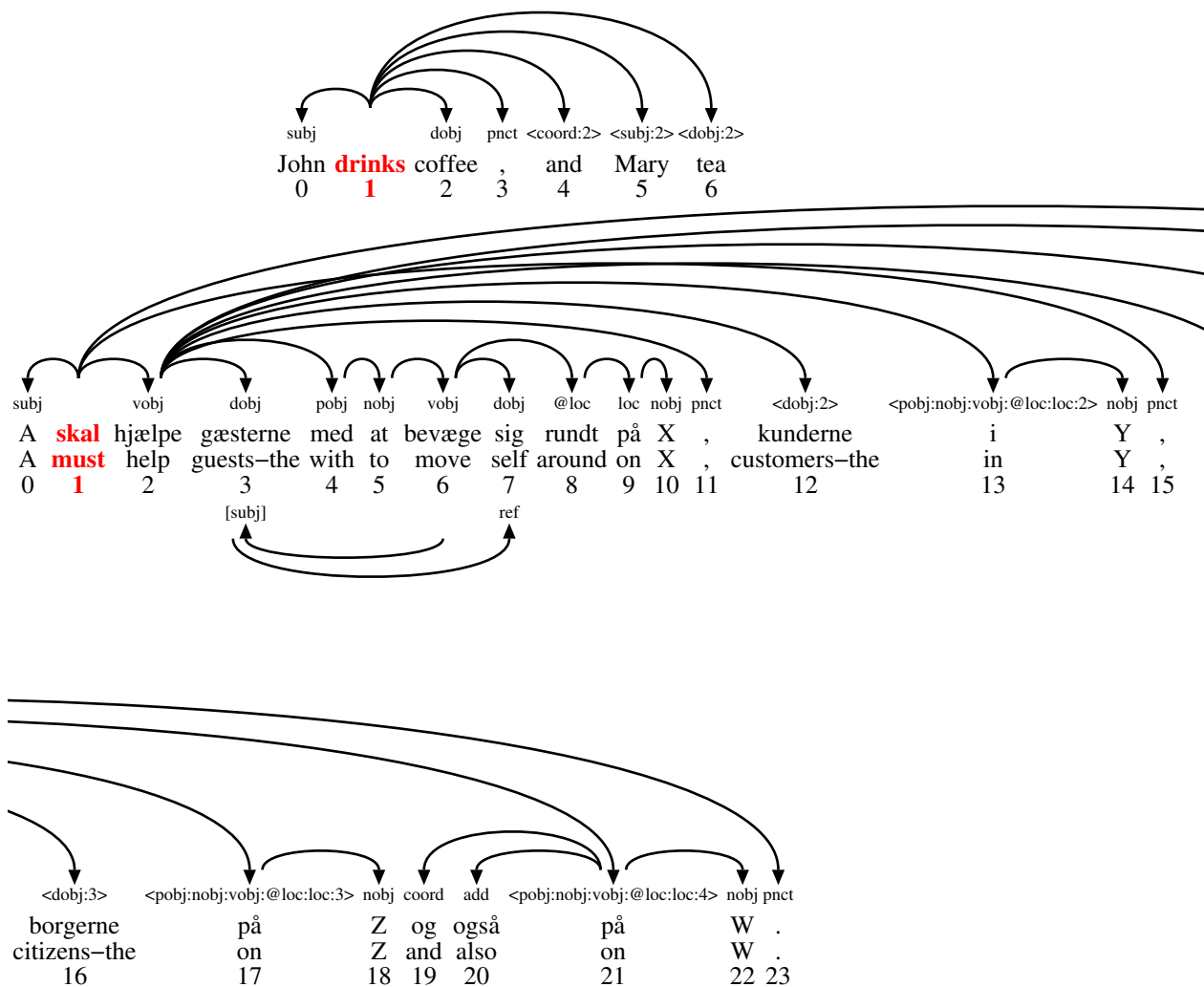
isa fpred Related types: fpredo.

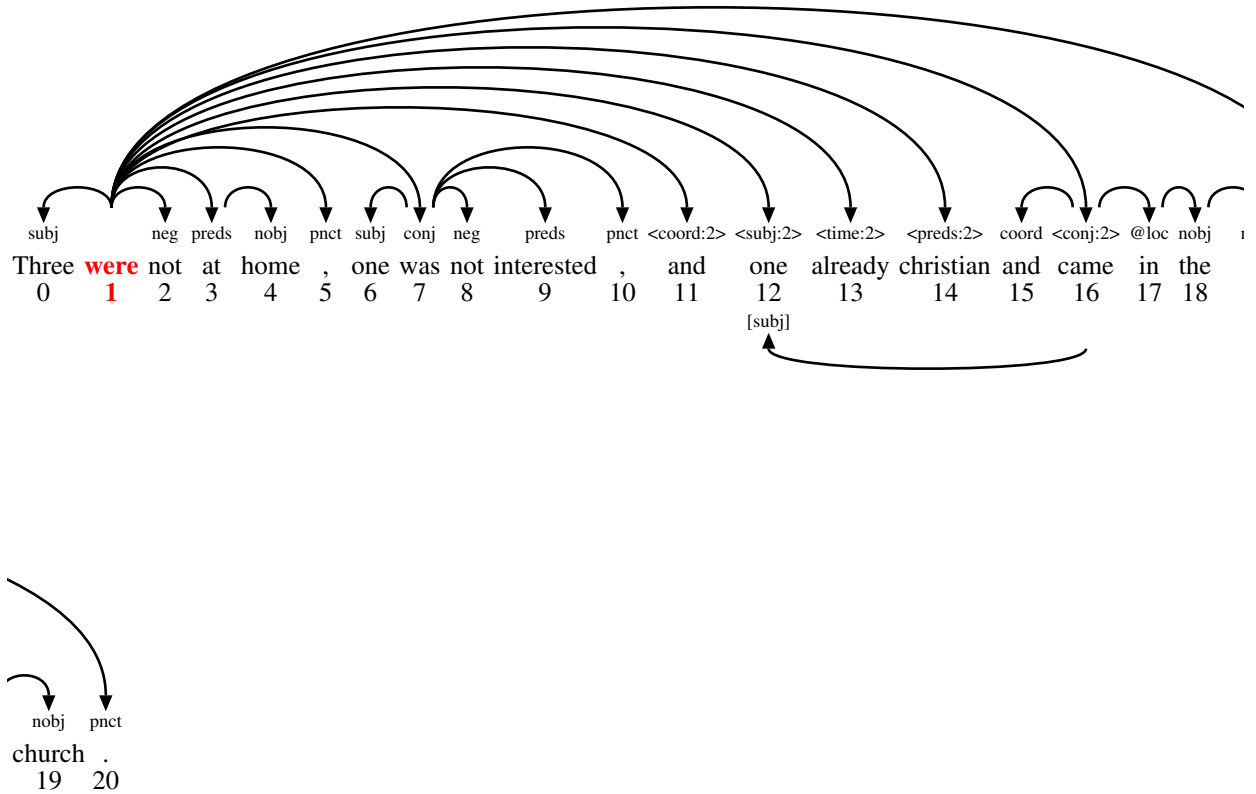
[112] Confusion³_{0%/100%/0%}: man_{66.7%} vobj_{33.3%} .



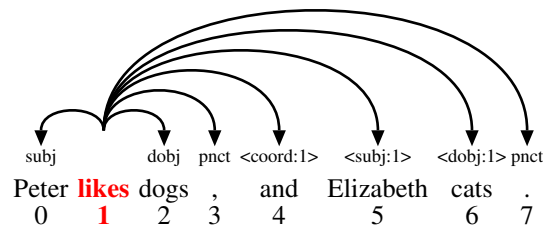
gapd *Gapping dependent* (long: GAPPING, deprecated GAP). A relation between a gapping dependent in a secondary conjunct and the head of the first conjunct. In gapping coordinations, the secondary conjuncts have an elided head, so the remaining material in the secondary conjuncts is analyzed as gapping dependents of the head of the first conjunct instead. In Discontinuous Grammar, the first conjunct is assumed to generate a gapping filler for each gapping conjunct which encodes a copy of the entire tree associated with the first conjunct, and the gapping dependent is analyzed as a primary dependent of this gapping filler; any node within the copied tree may function as the primary governor of the gapping dependent, but the gapping filler always functions as the landing site for the gapping dependent, and the gapping dependent functions as an anaphoric element that must identify a phrase within the copied tree that it replaces, encoded with a "repl" relation.

Subtypes: CDT1GAP RuleGap.

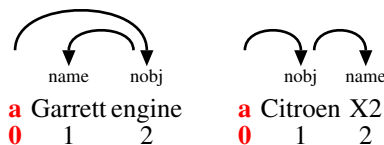




RuleGap *Gapping dependent* (long: "<PRIM(:PRIM)*:INTEGER>"). A gapping dependency relation is formed by using angled brackets to enclose a colon-separated list of primary relations followed by an integer that indicates the number of the gapped conjunct, starting with 1. The list of primary relations describes the path from the head of the gapped conjunct to the gapping dependent within the gapped conjunct, viewed as a copy of the tree structure within the first conjunct.



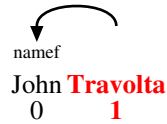
name *Part of name.* Part of a name.
 isa SYNADJ Subtypes: namef namel title.
 [124] Confusion²⁷_{70.4%/77.8%/74.1%:} name74.1% nobj22.2% attr3.7% .



namef *First name.* A first name.

isa name Related types: namef title.

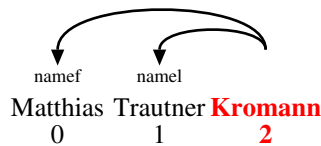
[125] Confusion¹⁴⁶_{97.9%/97.9%/100%%}: namef_{100%} .



namel *Last name.* A second last name

isa name Related types: namef title.

[126] Confusion⁸_{100%/100%/100%%}: namel_{100%} .



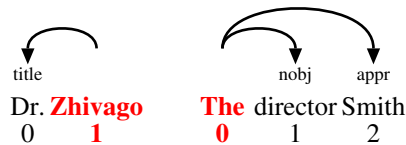
title *Person title.* A title in a name. If the title is determined by an article, eg. the director Smith,

isa name the article is the head of the DP and the title and the name are dependents of the article,

[127] annotated as "nobj" and "appr", respectively.

Related types: namef namel.

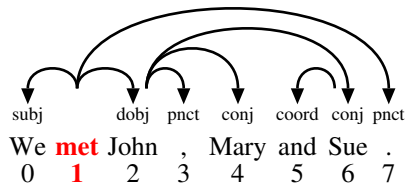
Confusion³⁰_{86.7%/90%/86.7%%}: title_{86.7%} nobj_{10%} appr_{3.3%} .



punct *Punctuation.*

isa SYNADJ Confusion¹⁷⁹⁹_{92.6%/92.6%/99.3%%}: punct_{99.3%} nobj_{0.2%} vobj_{0.2%} dobj_{0.1%} conj_{0.1%} attr_{0.1%} possd_{0.1%} appr_{0.1%} .

[109]



rel *Relative clause.* A relation between a relative clause and a relativized NP/VP. The finite verb

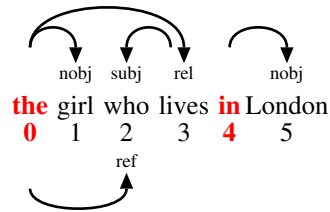
isa SYNADJ in the relative clause is analyzed as a "rel" dependent of the head of the relativized NP/VP

[119] (ie, the determiner if present, otherwise the noun). If there is a relative pronoun, it receives an incoming "ref" arrow from the head of the relativized NP/VP; otherwise, the head of the relativized NP/VP must function as a secondary dependent of some word within the relative clause (often the relative verb itself).

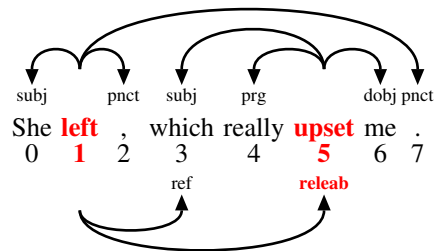
Subtypes: relelab relpa relr.

Related types: relelab relpa relr.

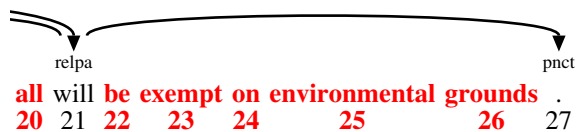
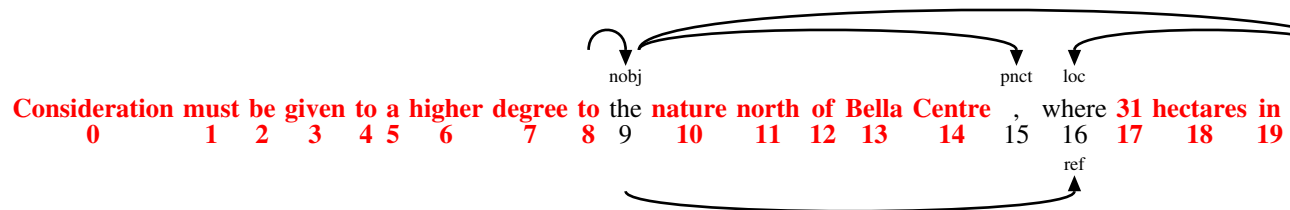
Confusion⁷⁹_{3.8%/94.9%/3.8%%}: relr_{88.6%} relelab_{5.1%} rel_{3.8%} relpa_{1.3%} vobj_{1.3%} .



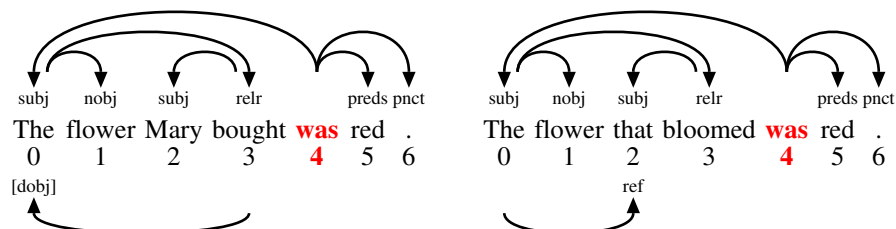
relelab *Elaborating relative clause*. Ledsætning med sætningsantecedent i hovedsætning; da: hvilket,
 isa rel it: il che, cosa che
 [122] Related types: relpa relr.
 Confusion⁶_{0%/100%/0%}: rel_{66.7%} relr_{33.3%} .



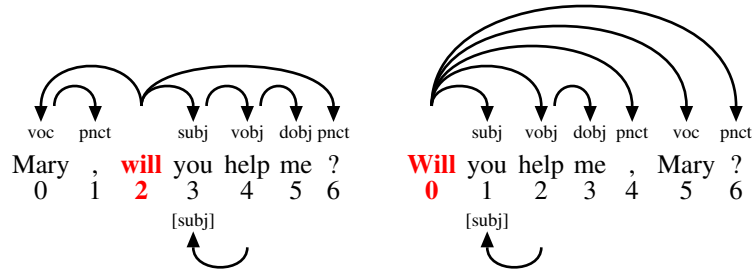
relpa *Parenthetic relative clause* (deprecated relp).
 isa rel Related types: relelab relr.
 [121] Confusion¹⁷_{29.4%/100%/29.4%}: relr_{64.7%} relpa_{29.4%} rel_{5.9%} .



relr *Restrictive relative clause*.
 isa rel Related types: relelab relpa.
 [120] Confusion¹⁴⁵_{37.2%/93.8%/40.7%}: rel_{48.3%} relr_{40.7%} relpa_{7.6%} relelab_{1.4%} vobj_{1.4%} attr_{0.7%} .

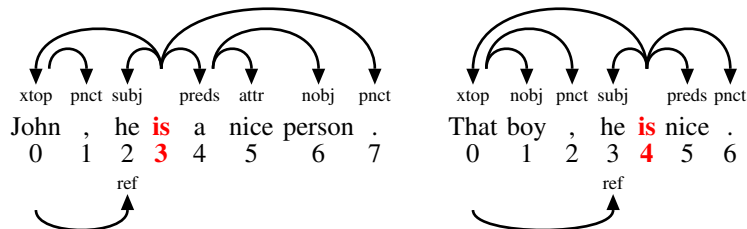


voc *Vocative.* Vocative specification. The person to whom the statement is directed.
 isa SYNADJ Confusion³_{100%/100%/100%}: voc100% .
 [129]

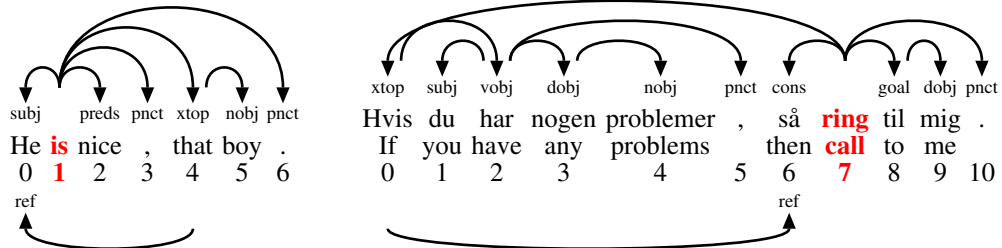


xtop *External topic with resuming pronoun.* An external topic is a sentence-initial NP whose only function is to provide the antecedent for a pronoun later in the sentence. Eg in "John, he is a nice person". Here "John" is the "xtp" of "is", and "he" is the subject of "is".
 isa SYNADJ [123]

Related types: cons ref xtop.
 Confusion⁴_{100%/100%/100%}: xtop100% .



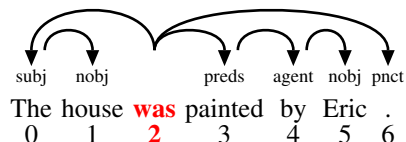
If you are having any problems, call me.



3.3 Adverbial adjunct relations: ADVERB

ADVERB *Adverbial.* V/N/P->adverbial
 isa SYNADJ Subtypes: agent cause conc concom cond cons event exem man neg other prg quant resem source space time.
 [141]

agent *Agent adverbial.* The passivized agent in passives.
 isa ADVERB Confusion¹⁵_{40%/100%/40%}: pobj53.3% agent40% attr6.7% .
 [170]

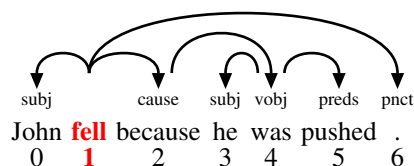


ADVERB: adverbial

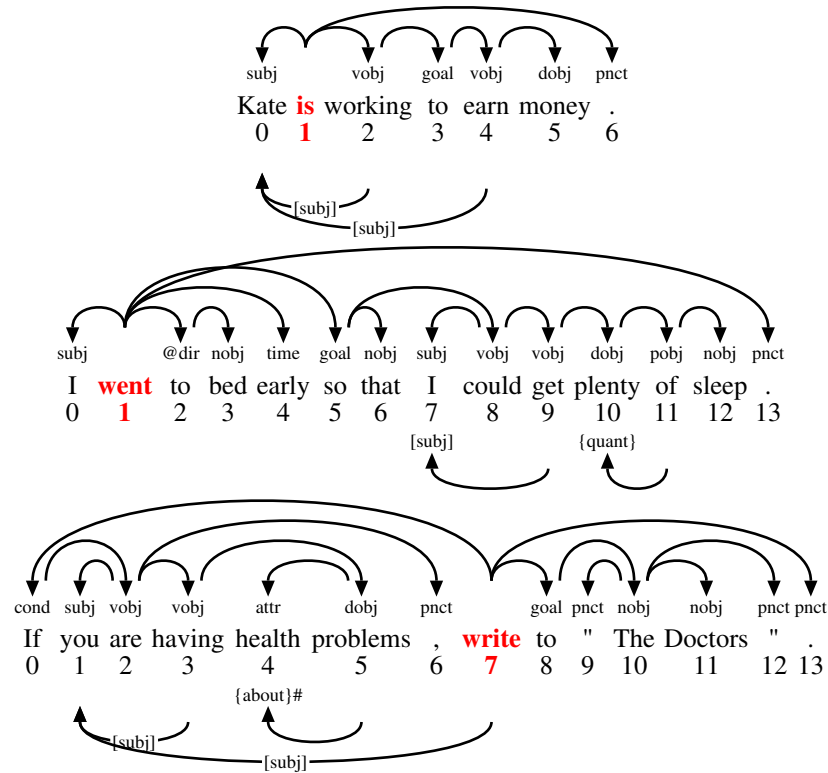
- agent: agent adverbial
- cause: causation adverbial
 - goal: goal adverbial
- conc: concession adverbial
- concom:
- cond: condition adverbial
- cons: consequence adverbial
- event: Adverbial expressing an event
- exem: example adverbial
- man: manner adverbial
 - accom: companionship adverbial
 - inst: instrument adverbial
- neg: negation adverbial
- other: other adverbial
- prg: pragmatic adverbial
 - discmark: sentence-initial discourse marker
 - epi: epistemic adverbial
 - eval: evaluation adverbial
 - focal: focalizer adverbial
 - scene: pragmatic condition and structural adverbial
 - add: additive adverbial
 - contr: contrast adverbial
 - elab: elaboration adverbial
- quant: degree adverbial
- resem: comparison adverbial
- source: source attribution adverbial
- space: space adverbial
 - dir: direction adverbial
 - loc: location adverbial
- time: time adverbial
- iter: habituality adverb

Figure 3.4: The relations matching ADVERB-!CDT1-TOPIC.

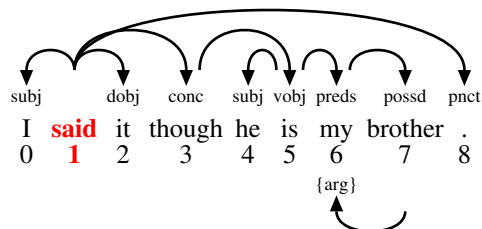
cause *Causation adverbial*. Causation adverbial. Describes why the event occurred.
 isa ADVERB Subtypes: goal.
 [160] Confusion⁴⁸_{79.2%/87.5%/87.5%}: cause87.5% attr4.2% conj2.1% time2.1% cons2.1% pobj2.1% .



goal *Goal adverbial* (deprecated ben). Describes the intended goal of the event/action. Also used in
 isa cause connection with free datives.
 [161] Related types: reas.
 Confusion⁴³_{34.9%/86%/41.9%}: goal41.9% pobj32.6% attr9.3% scene4.7% dobj4.7% man2.3% other2.3% fpredo2.3% .

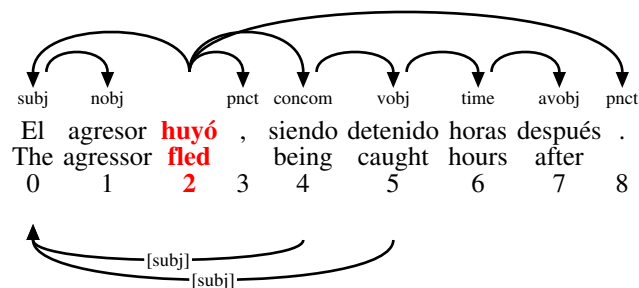


conc *Concession adverbial*. Describes the concession of the event/action.
 isa ADVERB Confusion¹³_{38.5%/92.3%/38.5%}: conc38.5% contr23.1% prg15.4% other15.4% attr7.7% .
 [164]



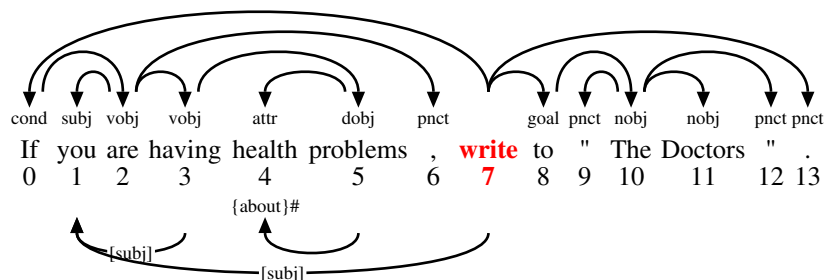
concom . Gerunds in Romance
 isa ADVERB Related types: vobj.
 [168] Confusion⁴_{25%/100%/25%}: source25% concom25% man25% inst25% .

The agressor fled and/but got caught hours later.



cond *Condition adverbial*. Describes the condition of the event/action.
isa ADVERB Related types: pcond.

[163] Confusion³⁰_{83.3%/90%/90%%}: cond90% nobj3.3% man3.3% time3.3% .

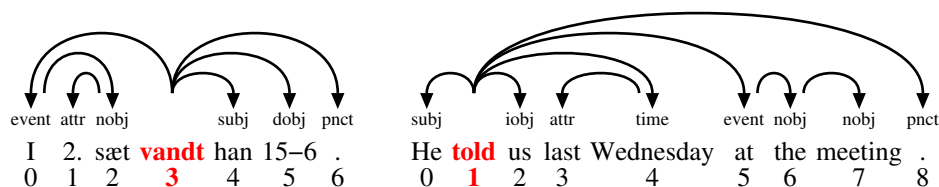


cons *Consequence adverbial*. Describes the consequence of the event/action.
isa ADVERB Related types: xtop.

[162] Confusion¹⁴_{50%/85.7%/64.3%%}: cons64.3% time21.4% inst7.1% cause7.1% .

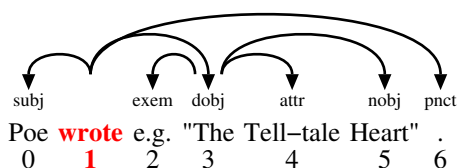
event *Adverbial expressing an event*. Used when the adverbial in questions expresses an event rather than time or place.

[156] Confusion⁴_{0%/75%/0%%}: time50% loc50% .



exem *Example adverbial* (long: exemplification, deprecated ex). Exemplification; subordinated the object which is added to a list.

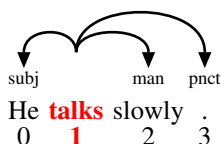
[167] Confusion¹⁴_{71.4%/78.6%/92.9%%}: exem92.9% ex7.1% .



man *Manner adverbial*. The way things are done
isa ADVERB Subtypes: accom inst.

[157] Related types: fpredo.

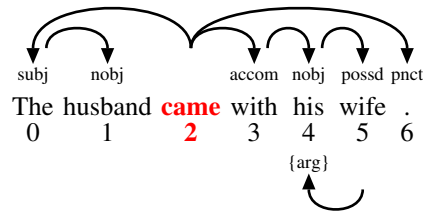
Confusion¹⁰⁶_{55.7%/88.7%/61.3%%}: man61.3% accom6.6% attr3.8% quant3.8% other3.8% time2.8% inst2.8% epi1.9% fpreds1.9%
source0.9% prg0.9% dir0.9% aobj0.9% eval0.9% cond0.9% concom0.9% scene0.9% fpredo0.9% goal0.9% resem0.9%
pobj0.9% .



accom *Companionship adverbial* (deprecated comp). Companionship

isa man Related types: man.

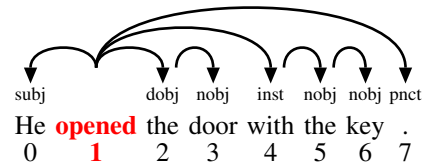
[158] Confusion¹⁵_{33.3%/80%/40%:} man46.7% accom40% other6.7% pobj6.7% .



inst *Instrument adverbial*. Instrument/means

isa man Related types: man.

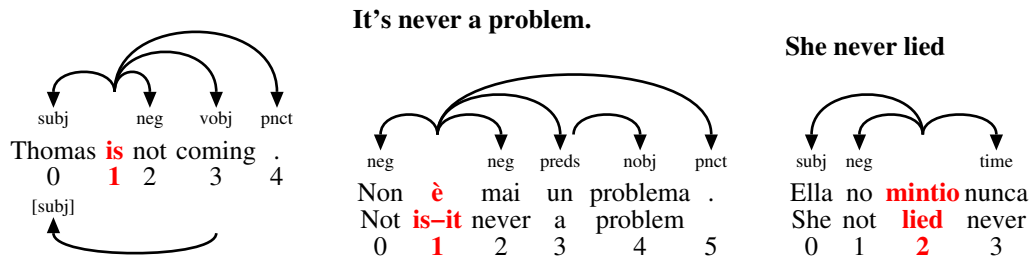
[159] Confusion²⁵_{36%/88%/40%:} inst40% man12% loc12% pred8% pobj8% concom4% scene4% preds4% attr4% cons4% .



neg *Negation adverbial*. Negation of a verbal

isa ADVERB Confusion¹⁰⁵_{94.3%/98.1%/96.2%:} neg96.2% add1% time1% coord1% eval1% .

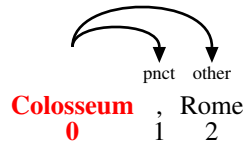
[171]



other *Other adverbial*. Unspecified adverbial relation.

isa ADVERB Confusion¹¹⁵_{22.6%/91.3%/22.6%:} other22.6% attr13.9% loc10.4% pobj9.6% add6.1% prg4.3% avobj3.5% quant3.5% man3.5%

[172] nobj2.6% focal2.6% epi1.7% source1.7% dir1.7% eval1.7% iter1.7% conc1.7% time0.9% contr0.9% correl0.9% part0.9% scene0.9% goal0.9% accom0.9% xpl0.9% .



prg *Pragmatic adverbial* (long: pragmatic). Sentence level.

isa ADVERB Subtypes: discmark epi eval focal scene.

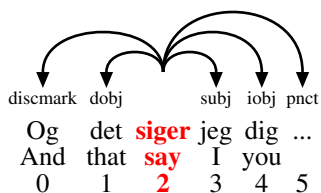
[142] Confusion²⁷_{14.8%/100%/14.8%:} eval25.9% other18.5% prg14.8% conc7.4% time7.4% quant7.4% add3.7% elab3.7% attr3.7% man3.7% contr3.7% .

discmark *Sentence-initial discourse marker* (long: discoursemarker). Discourse marker

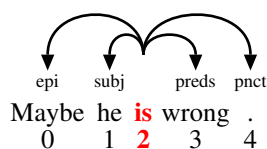
isa prg Related types: coord.

[147] Confusion³²_{15.6%/90.6%/15.6%:} coord56.3% discmark15.6% contr12.5% add9.4% qobj6.3% .

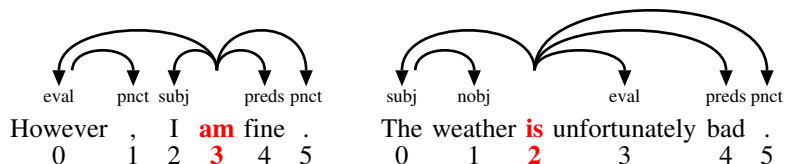
And I'm telling you...



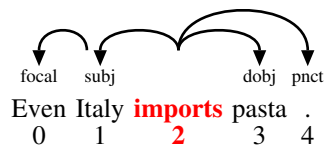
epi *Epistemic adverbial* (long: epistemic). Regarding the level of truth in the expression
isa prg Related types: eval.
[145] Confusion¹⁴_{50%/92.9%/57.1%%}: epi_{57.1%} man_{14.3%} other_{14.3%} eval_{14.3%} .



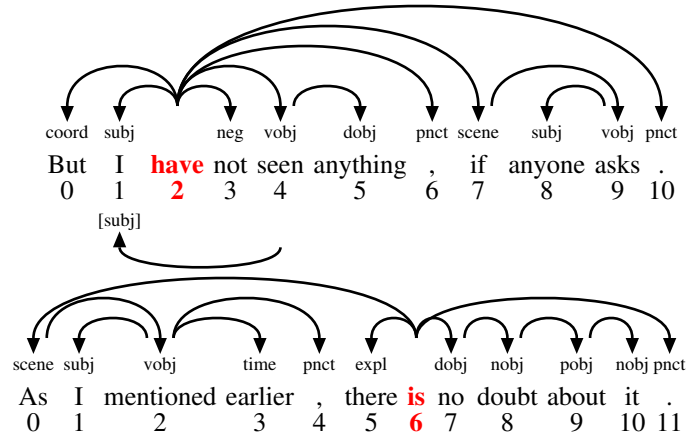
eval *Evaluation adverbial* (long: evaluation, deprecated evalatt). Evaluating and attitude adverbials
isa prg Related types: epi.
[146] Confusion⁴⁷_{57.4%/93.6%/59.6%%}: eval_{59.6%} prg_{14.9%} quant_{6.4%} epi_{4.3%} other_{4.3%} iter_{2.1%} time_{2.1%} focal_{2.1%} man_{2.1%} neg_{2.1%} .



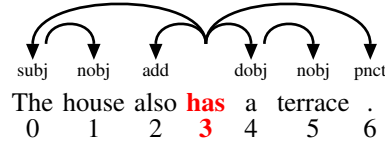
focal *Focalizer adverbial* (long: focalizator). Focalization of a noun
isa prg Related types: quant.
[143] Confusion³¹_{45.2%/64.5%/61.3%%}: focal_{61.3%} attr_{12.9%} other_{9.7%} loc_{6.5%} aobj_{3.2%} correl_{3.2%} eval_{3.2%} .



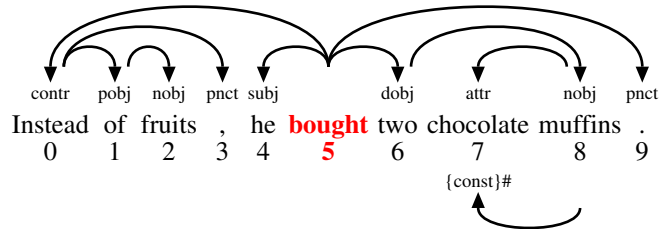
scene *Pragmatic condition and structural adverbial* (deprecated prgcondpcondbgstruct). Setting the
isa prg scene
[144] Subtypes: add contr elab.
Related types: cond.
Confusion³¹_{54.8%/93.5%/58.1%%}: scene_{58.1%} add_{6.5%} goal_{6.5%} contr_{6.5%} loc_{6.5%} time_{3.2%} attr_{3.2%} man_{3.2%} other_{3.2%} inst_{3.2%} .



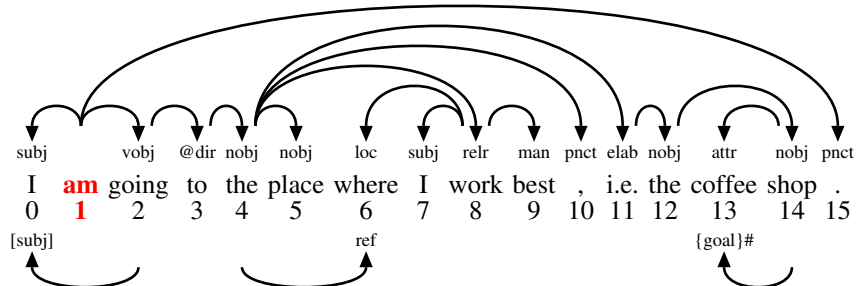
add *Additive adverbial* (long: additive). Additive information
 isa scene Confusion⁵⁹_{74.6%/100%/74.6%}: add74.6% other11.9% discmark5.1% scene3.4% prg1.7% correl1.7% neg1.7% .
 [150]



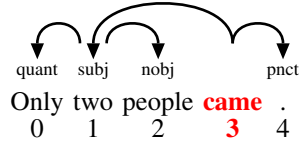
contr *Contrast adverbial* (long: contrast). Opposition
 isa scene Related types: struct.
 [148] Confusion²²_{40.9%/100%/40.9%}: contr40.9% discmark18.2% conc13.6% coord9.1% scene9.1% prg4.5% other4.5% .



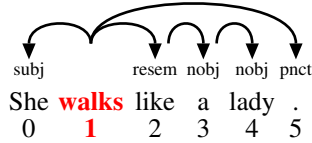
elab *Elaboration adverbial* (long: elaboration). More detailed description
 isa scene Confusion⁴_{50%/75%/50%}: elab50% prg25% quant25% .
 [149]



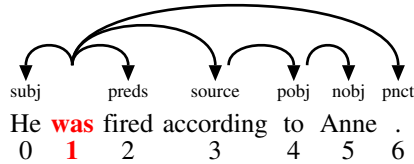
quant *Degree adverbial* (long: quantification, deprecated degr). Modifies the object or verbal by degree
 isa ADVERB Related types: focal.
 [169] Confusion¹⁵³_{80.4%/93.5%/82.4%}: quant82.4% attr3.3% man2.6% other2.6% eval2% prg1.3% time1.3% avobj1.3% degr1.3% nobj0.7% elab0.7% dobj0.7% .



resem *Comparison adverbial*. (deprecatd comparecomp). Comparison
isa ADVERB Confusion⁶_{33.3%/33.3%/66.7%%}: resem66.7% man16.7% preds16.7% .
[165]

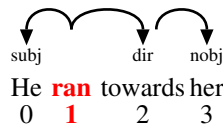


source *Source attribution adverbial*. Reference/source
isa ADVERB Confusion¹¹_{36.4%/100%/36.4%%}: source36.4% pobj27.3% other18.2% concom9.1% man9.1% .
[166]

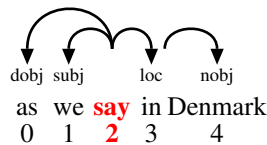


space *Space adverbial*. Space adverbials
isa ADVERB Subtypes: dir loc.
[153]

dir *Direction adverbial*. Movement from one place to another; direction
isa space Related types: loc.
[155] Confusion⁷⁴_{40.5%/95.9%/40.5%%}: dir40.5% loc39.2% pobj12.2% other2.7% man1.4% part1.4% attr1.4% dobj1.4% .

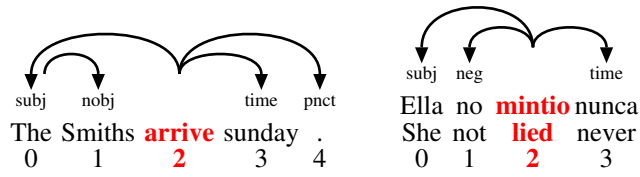


loc *Location adverbial*. Location
isa space Related types: dir.
[154] Confusion²¹⁸_{53.7%/92.7%/56.4%%}: loc56.4% dir13.3% attr9.2% preds5.5% other5.5% pobj3.2% inst1.4% nobj0.9% scene0.9% focal0.9% event0.9% fpred0.9% time0.5% avobj0.5% .

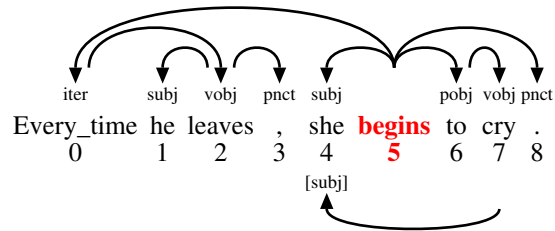


time *Time adverbial*. Time relating adverbials
isa ADVERB Subtypes: iter.
[151] Confusion²⁴⁵_{73.5%/89.8%/79.2%%}: time79.2% attr4.9% iter4.9% nobj2% preds1.2% cons1.2% man1.2% prg0.8% quant0.8% event0.8% cause0.4% neg0.4% eval0.4% cond0.4% scene0.4% loc0.4% other0.4% .

She never lied



iter *Habituality adverb* (deprecated hab). Habitual; repeated habit
 isa time Related types: dur ext.
 [152] Confusion²¹_{19%/81%/23.8%%}: time_{57.1%} iter_{23.8%} other_{9.5%} attr_{4.8%} eval_{4.8%} .



Chapter 4

Morphological relations: MORPH

MORPH: morphology level
MORPHCOMP: compositional semantic relations
MORPHDERIV: derivational semantic relations
RuleMorph: syntactic morphology relation

Figure 4.1: The relations matching MORPH-!CDT1-!MORPHCOMP-!MORPHDERIV-TOPIC.

MORPH *Morphology level* (long: MORPHOLOGY). The morphological level includes relations between two word segments within a single word, as well as lexical features associated with morphemes.
isa DIM:LEVEL [9]

Subtypes: MORPHCOMP MORPHDERIV RuleMorph.

MORPHCOMP *Compositional semantic relations*. A semantic relation is created between two (or more) elements which could potentially be used as stems. (A compound contains at least two roots.)
isa MORPH [273]

Subtypes: _ABOUT _AGENT:MC _CONST _DOBJ.patient _EVAL _FUNC _GOAL _LOC _OTHER _POSS _RESEM _SOURCE _TIME:MC.

MORPHDERIV *Derivational semantic relations*. A semantic relation is created between a base and an affix
isa MORPH [272]

Subtypes: PREFIX SUFFIX.

RuleMorph *Syntactic morphology relation* (long: "_"(PRIM)). A primary syntactic relation that has been used as a morphology relation for stylistic purposes.
isa MORPH RULE [372]

4.1 Compositional relations: MORPHCOMP

MORPHCOMP *Compositional semantic relations*. A semantic relation is created between two (or more) elements which could potentially be used as stems. (A compound contains at least two roots.)
isa MORPH [273]

Subtypes: _ABOUT _AGENT:MC _CONST _DOBJ.patient _EVAL _FUNC _GOAL _LOC _OTHER _POSS _RESEM _SOURCE _TIME:MC.

_ABOUT *Noun-noun compound (about)*. Non-head has an aboutness meaning wrt. head.
isa MORPHCOMP [359]

MORPHCOMP: compositional semantic relations

- _ABOUT: noun-noun compound (about)
- _AGENT:MC: noun-noun compound (agentive)
- _CONST: noun-noun compound (constitutive)
- _DOBJ.patient:
- _EVAL: noun-noun compound (evaluative)
- _FUNC: noun-noun compound (function)
- _GOAL: noun-noun compound (goal)
- _LOC: noun-noun compound (position)
- _OTHER: noun-noun compound (other)
- _POSS: noun-noun compound (possession)
- _RESEM: noun-noun compound (resemblance)
- _SOURCE: noun-noun compound (origin)
- _TIME:MC: noun-noun compound (time)

Figure 4.2: The relations matching MORPHCOMP-!CDT1-TOPIC.

(theme: skattelov 'tax law' = lov-[skat]te/ABOUT)
 0 1 2 3 4 5 6

_AGENT:MC Noun-noun compound (agentive). Non-head has an agentive meaning wrt. head.
 isa MORPHCOMP
 [350]

(agent: politikontrol 'police control' = kontrol-politi/AGENT)
 0 1 2 3 4 5 6

_CONST Noun-noun compound (constitutive). Non-head has a constitutive meaning wrt. head.
 isa MORPHCOMP
 [349]

(constitutive: træbord 'wooden table' = bord-træ/CONST)
 0 1 2 3 4 5 6

_DOBJ.patient .
 isa MORPHCOMP

_EVAL Noun-noun compound (evaluative). Non-head has an evaluative meaning wrt. head.
 isa MORPHCOMP
 [357]

coche de lujo 'luksusbil'
 0 1 2 3

_FUNC Noun-noun compound (function). Non-head has a functional/instrumental meaning wrt. head.
 isa MORPHCOMP
 [352]

(function: vindmølle 'wind mill' = mølle-vind/FUNC)
 0 1 2 3 4 5

_GOAL Noun-noun compound (goal).
 isa MORPHCOMP
 [353]

(goal: krigsskib 'war ship' = skib-[krig]s/GOAL)
 0 1 2 3 4 5 6

_LOC *Noun-noun compound (position).* Non-head has a locative meaning wrt. head.
 isa MORPHCOMP
 [355]

(position: loftlampe 'ceiling lamp' = lampe -loft/POS)
 0 1 2 3 4 5 6

_OTHER *Noun-noun compound (other).* If in doubt about the meaning relation between head and non-head.
 isa MORPHCOMP
 [360]

_POSS *Noun-noun compound (possession).* Non-head has a possessive meaning wrt. head.
 isa MORPHCOMP
 [354]

(possession: politibil = bil -politi/POSS)
 0 1 2 3 4

_RESEM *Noun-noun compound (resemblance).* Denotations of head and non-head resemble each other.
 isa MORPHCOMP
 [358]

silla de tijeras 'saksestol' [klapstol], válvula de mariposa 'sommerfugleventil'
 0 1 2 3 4 5 6 7 8

_SOURCE *Noun-noun compound (origin).* Non-head has a meaning of origin wrt. head.
 isa MORPHCOMP
 [351]

(origin: rørsukker 'cane sugar' = sukker -rør/ORIGIN)
 0 1 2 3 4 5 6

_TIME:MC *Noun-noun compound (time).* Non-head has a temporal meaning wrt. head.
 isa MORPHCOMP
 [356]

(time: oktoberregn 'October rain' = regn -oktober/TIME)
 0 1 2 3 4 5 6

4.2 Derivational relations: MORPHDERIV

MORPHDERIV: derivational semantic relations

PREFIX: semantic relations appearing with prefixes

SUFFIX: semantic relations appearing with suffixes

Figure 4.3: The relations matching MORPHDERIV-!CDT1-!PREFIX-!SUFFIX-TOPIC.

MORPHDERIV *Derivational semantic relations.* A semantic relation is created between a base and an affix
 isa MORPH
 Subtypes: PREFIX SUFFIX.
 [272]

PREFIX *Semantic relations appearing with prefixes.* A semantic relation is created between a base and a prefix.
 isa MORPHDERIV
 [275] Subtypes: _AGENT _ITER _MOD _NEG _PRE:other _SPACE _TELIC _TIME _TRANS.

SUFFIX *Semantic relations appearing with suffixes.* A semantic relation is created between a base and a suffix.
 isa MORPHDERIV
 [276] Subtypes: _AUG _DENUM _DER _DERan:qual _DERna _DERnn _DERv _DIMIN _PEJ.

PREFIX: semantic relations appearing with prefixes

- _AGENT: agentive
- _ITER: iteration
- _MOD: modification
 - _MOD:eval: evaluation
 - _MOD:qual: qualification
 - _MOD:quant: quantification
- _NEG: negation
 - _NEG:contr: contrast
 - _NEG:priv: privation
 - _NEG:rev: reversion
- _PRE:other: other prefix relation
- _SPACE: space
 - _SPACE:dir: direction
 - _SPACE:loc: location
 - _SPACE:source: source
- _TELIC: telic
- _TIME: time
 - _TIME:post: temporal succession
 - _TIME:pre: temporal precedence
- _TRANS: transitivity

Figure 4.4: The relations matching PREFIX-!CDT1-TOPIC.

4.2.1 Prefix relations: PREFIX

PREFIX *Semantic relations appearing with prefixes.* A semantic relation is created between a base and a prefix.

isa MORPHDERIV [275] Subtypes: _AGENT _ITER _MOD _NEG _PRE:other _SPACE _TELIC _TIME _TRANS.

_AGENT *Agentive* (deprecated ASPEC:cause+reflex). Prefix conveys agentive action.

isa PREFIX

[291]

(causative: acallar 'silence' = callar -a/AGENT)
 0 1 2 3 4 5

_ITER *Iteration* (deprecated ASPEC:iter). Prefix conveys iteration.

isa PREFIX

[290]

(iterative: redefine = define -re/ITER)
 0 1 2 3 4

_MOD *Modification.* Prefix conveys modification in a broad sense.

isa PREFIX

[294] Subtypes: _MOD:eval _MOD:qual _MOD:quant.

_MOD:eval *Evaluation* (deprecated MOD:man). Prefix conveys evaluation

isa _MOD

[296]

(manner: maleducado = educado -mal/MOD:eval)
 0 1 2 3 4

_MOD:qual *Qualification* (deprecated MOD:qual+MOD:rel+GRAD:qual). Prefix conveys qualification.

isa _MOD

[297]

(qualification: paleochristian = christian –paleo/MOD:qual)
0 1 2 3 4

_MOD:quant *Quantification* (deprecated MOD:cuant+GRAD:size). Prefix conveys quantification.
isa _MOD
[295]

(qualification: multicultural = cultural –multi/MOD:quant)
0 1 2 3 4

_NEG *Negation*. Prefix conveys negation in a broad sense.
isa PREFIX
Subtypes: _NEG:contr _NEG:priv _NEG:rev.
[286]

_NEG:contr *Contrast* (deprecated NEG:oppo). Prefix conveys contrast.
isa _NEG
[287]

(opposition: antihero = hero –anti/NEG:contr)
0 1 2 3 4

_NEG:priv *Privation*. Prefix conveys privation.
isa _NEG
[288]

(privation: desalt = salt –de/NEG:priv)
0 1 2 3 4

_NEG:rev *Reversion* (deprecated ASPEC:rev). Prefix conveys reversion.
isa _NEG
[289]

(reversion: deactivate = activate –de/NEG:rev)
0 1 2 3 4

_PRE:other *Other prefix relation*. If in doubt about the meaning conveyed by the prefix
isa PREFIX

_SPACE *Space* (deprecated LOC). Prefix expresses space in a broad sense.
isa PREFIX
Subtypes: _SPACE:dir _SPACE:loc _SPACE:source.
[278]

_SPACE:dir *Direction* (deprecated LOC:dir). Prefix expresses direction.
isa _SPACE
[280]

(direction/origin: deverbal = verbal –de/SPACE:dir)
0 1 2 3 4

_SPACE:loc *Location* (deprecated LOC:pos). Prefix expresses location.
isa _SPACE
[279]

(position: intramural = mural –intra/SPACE:pos)
0 1 2 3 4

_SPACE:source *Source* (deprecated LOC:proce). Prefix conveys source.
isa _SPACE
[281]

(origin: extraer: = traer –ex/SPACE:source)
0 1 2 3 4

_TELIC *Telic* (deprecated ASPEC:term+resul). Prefix conveys termination or result.
 isa PREFIX
 [292]

(terminative: oplåse 'open' = låse -op/TELIC)
 0 1 2 3 4 5

_TIME *Time*. Prefix conveys time in a broad sense.
 isa PREFIX
 [283]

_TIME:post *Temporal succession* (deprecated TIME:succ). Prefix conveys succession.
 isa _TIME
 [285]

(temporal succession: postmodernism = modernism -post/TIME:post)
 0 1 2 3 4 5

_TIME:pre *Temporal precedence* (deprecated TIME:prec). Prefix conveys precedence.
 isa _TIME
 [284]

(temporal precedence: prehistorical = historical -pre/TIME:pre)
 0 1 2 3 4 5

_TRANS *Transitivity*. Prefix conveys transitivity.
 isa PREFIX
 [293]

(transitivising: påsejle 'collide': sejle -på/TRANS)
 0 1 2 3 4

4.2.2 Suffix relations: SUFFIX

SUFFIX *Semantic relations appearing with suffixes*. A semantic relation is created between a base
 isa MORPHDERIV and a suffix.
 [276]

Subtypes: _AUG _DENUM _DER _DERan:qual _DERna _DERnn _DERv _DIMIN _PEJ.

_AUG *Augmentation*. Suffix conveys augmentation.
 isa SUFFIX
 [299]

(augmentative: perrazo 'big dog' = perro +azo/AUG)
 0 1 2 3 4 5 6

_DENUM *Adjective-numeral derivation*. Suffix creates denominal adjectives in a broad sense.
 isa SUFFIX
 [345]

Subtypes: _DENUM:apart _DENUM:ord _DENUM:quant.

_DENUM:apart *Adjective-partitive derivation* (deprecated DENUM:part). Suffix creates partitive numerals.
 isa _DENUM
 [347]

"kardinal=doce - partitiv=doceavo" 'tolv/tolvtedel'
 0 1 2 3

_DENUM:ord *Adjective-ordinal derivation*. Suffix creates ordinals.
 isa _DENUM
 [346]

SUFFIX: semantic relations appearing with suffixes

- _AUG: augmentation
- _DENUM: adjective-numeral derivation
 - _DENUM:apart: adjective-partitive derivation
 - _DENUM:ord: adjective-ordinal derivation
 - _DENUM:quant: adjective-multiplicative derivation
- _DER: verb derivation
 - _DERadvv: adverb-verb derivation
 - _DERav: adjective-verb derivation
 - _DERnv: noun-verb derivation
 - _DERva: verb-adjective derivation
 - _DERva:act: verb-adjective derivation (pure)
 - _DERva:act.disp: verb-adjective derivation (disposition)
 - _DERva:act.epi: verb-adjective derivation (potentiality)
 - _DERva:pas: verb-adjective derivation (passive)
 - _DERva:pas.deon: verb-adjective derivation (passive deontic)
 - _DERva:pas.epi: verb-adjective derivation (passive potentiality)
 - _DERva:pas.part: verb-adjective derivation (passive participles)
 - _DERvn: verb-noun derivation
 - _DERvn:agent: verb-noun derivation (agent)
 - _DERvn:core: verb-noun derivation (core)
 - _DERvn:exper: verb-noun derivation (experiencer)
 - _DERvn:loc: verb-noun derivation (location)
 - _DERvn:other: verb-noun derivation (other)
 - _DERvn:patient: verb-noun derivation (patient)
 - _DERvn:recip: verb-noun derivation (recipient)
 - _DERvv: verb-verb derivation
- _DERan:qual: adjective derivation
- _DERna: noun-adjective derivation
 - _DERna:deono: noun-adjective derivation (naming)
 - _DERna:deono.loc: noun-adjective derivation (naming places)
 - _DERna:deono.pers: noun-adjective derivation (naming persons)
 - _DERna:disp: noun-adjective derivation (disposition)
 - _DERna:other: noun-adjective derivation (other)
 - _DERna:poss: noun-adjective derivation (possession)
 - _DERna:rel: noun-adjective derivation (relational)
 - _DERna:resem: noun-adjective derivation (resemblance)
 - _DERna:telic: noun-adjective derivation (effect)
- _DERnn: noun-noun derivation
 - _DERnn:agent: noun-noun derivation (agent)
 - _DERnn:assoc: noun-noun derivation (association)
 - _DERnn:capac: noun-noun derivation (capacity)
 - _DERnn:cont: noun-noun derivation (container)
 - _DERnn:loc: noun-noun derivation (location)
 - _DERnn:other: noun-noun derivation (other)
 - _DERnn:quant: noun-noun derivation (quantification)
 - _DERnn:telic: noun-noun derivation (telic)
 - _DERnn:time: noun-noun derivation (time)
- _DERv:
- _DIMIN: diminution
- _PEJ: pejoration

Figure 4.5: The relations matching SUFFIX-!CDT1-TOPIC.

"kardinal=dos – ordinal=segundo" 'to/anden'
0 1 2 3

_DENUM:quant *Adjective-multiplicative derivation.* Suffix creates multiplicative numerals.

isa _DENUM
[348]

"kardinal=cinco – multiplikativ=quintuplo" 'fem/femdobbelte'
0 1 2 3

_DER *Verb derivation.* Suffix triggers a derivation

isa SUFFIX Subtypes: _DERadv _DERav _DERnv _DERva _DERvn _DERvv.
[302]

_DERadv *Adverb-verb derivation.* Suffix triggers a derivation from an adverb to a verb

isa _DER

_DERav *Adjective-verb derivation* (deprecated §DER:av). Suffix triggers a derivation from an adjective to a verb.
[304]

(adjective->verb derivation: darken = dark +en/§DERav)
0 1 2 3 4 5

_DERnv *Noun-verb derivation* (deprecated §DER:nvPRED). Suffix triggers a derivation from a noun to a verb.

isa _DER
[303]

(noun->verb derivation: salar 'to salt' = sal +ar/§DERnv)
0 1 2 3 4 5 6 7

_DERva *Verb-adjective derivation* (deprecated §DERV). Suffix creates deverbal adjectives in a broad sense.

isa _DER
[327] Subtypes: _DERva:act _DERva:pas.

_DERva:act *Verb-adjective derivation (pure)* (deprecated DEVERB:act.pure). Suffix creates active adjectives with the meaning aspect "pure".

[328] Subtypes: _DERva:act.disp _DERva:act.epi.

"que V" (conmovedor – "que conmueve" 'gribende/der griber')
0 1 2 3 4 5 6 7

_DERva:act.disp *Verb-adjective derivation (disposition)* (deprecated DEVERB:act.disp). Suffix creates active adjectives with the meaning aspect "disposition".

isa _DERva:act
[329]

"que suele V, que tiende a V" (adulón – "que suele adular, que tiende a adular" 'smigre/som plejer eller
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

har tendens til at være krybende
19 20 21 22 23 24

_DERva:act.epi *Verb-adjective derivation (potentiality)* (deprecated DEVERB:act.poten). Suffix creates active adjectives with the meaning aspect "potentiality".
 isa _DERva:act [330]

"que puede V" (móvil – que puede moverse 'bevægelig/der kan bevæge sig)
 0 1 2 3 4 5 6 7 8 9 10 11

_DERva:pas *Verb-adjective derivation (passive)* (deprecated DEVERB:pas). Suffix creates passive adjectives.
 isa _DERva Subtypes: _DERva:pas.deon _DERva:pas.epi _DERva:pas.part.
 [331]

_DERva:pas.deon *Verb-adjective derivation (passive deontic)* (deprecated DEVERB:pas.deon). Suffix creates passive adjectives with a deontic meaning.
 isa _DERva:pas [334]

"Que debe {ser PP/Vse} (abominable – "que debe ser abominado/que debe abominarse" áfskyelig/som må
 0 1 2 3 4 5 6 7 8 9 10 11 12 13

forkastes)
 14

_DERva:pas.epi *Verb-adjective derivation (passive potentiality)* (deprecated DEVERB:pas.poten). Suffix creates passive adjectives with the meaning aspect "potentiality".
 isa _DERva:pas [333]

"que puede {ser PP/Vse}" (transportable – "máquina que puede {ser transportada/transportarse}
 0 1 2 3 4 5 6 7 8 9 10

'transportabel/maskine som kan blive transporteret/transporteres
 11 12 13 14 15

_DERva:pas.part *Verb-adjective derivation (passive participles)* (deprecated DEVERB:pas.part). Suffix creates passive adjectives with the form of participles.
 isa _DERva:pas [332]

"que {ha sido/está/es} PP" (comprado – "hombre que {ha sido/está/es} comprado 'mand som er
 0 1 2 3 4 5 6 7 8 9 10 11 12 13

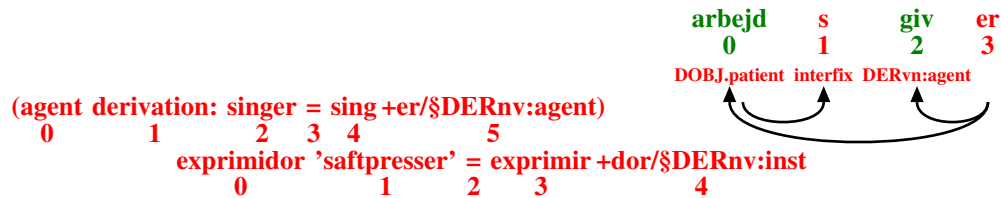
blevet/er/bliver købt"
 14 15

_DERvn *Verb-noun derivation* (deprecated PREDDEVERBN). Suffix creates deverbal nouns in a broad *isa _DER* sense.

[307] Subtypes: _DERvn:agent _DERvn:core _DERvn:exper _DERvn:loc _DERvn:other _DERvn:patient _DERvn:recip.

_DERvn:agent *Verb-noun derivation (agent)* (deprecated PRED:agentPRED:inst). Suffix creates deverbal nouns
 isa _DERvn absorbing the agent role.

[308]



_DERvn:core *Verb-noun derivation (core)* (deprecated PRED:core). Suffix creates deverbal nouns expressing a nominalized version of the situation denoted by the original verb.

[310]

(core derivation: exploitation = exploit@V + ation/\$DERnv:core)

_DERvn:exper *Verb-noun derivation (experiencer)* (deprecated PRED:exper). Suffix creates deverbal nouns absorbing the experiencer role.

[309]

(experiencer derivation: admirer = admire +r/\$DERnv:exper

_DERvn:loc *Verb-noun derivation (location)* (deprecated PRED:loc). Suffix creates deverbal nouns expressing the location related to the meaning of the original noun.

[313]

(locative derivation: comedor 'spisestue' = comer +dor/§DERnv:loc)

_DERvn:other *Verb-noun derivation (other)* (deprecated PRED:other). If in doubt about the meaning conveyed by the suffix

[314]

_DERvn:patient *Verb-noun derivation (patient)* (deprecated PRED:result). Suffix creates deverbal nouns absorbing the patient role.

[311]

(result derivation: hallazgo 'fund' = hallar+azgo/\$DERnv:result)

_DERvn:recip *Verb-noun derivation (recipient)* (deprecated PRED:recip). Suffix creates deverbal nouns absorbing the recipient role

[312]

(recipient derivation: **beneficiario** 'den begunstigede' = **beneficiar +ario**/§DERnv:recip)
0 1 2 3 4 5 6 7

_DERvv *Verb-verb derivation* (deprecated §DER:vv). Suffix triggers a derivation from a verb to another
isa **_DER** verb.
[305]

(verb->verb derivation: **adormecer** 'lull to sleep' = **dormir** --+[a][ecer]/§DERvv)
0 1 2 3 4 5 6 7 8

_DERan:qual *Adjective derivation* (deprecated QUAL). Suffix creates deadjectival nouns.
isa **SUFFIX**
[315]

(deadjectival noun: **bitterness** = **bitter** +**ness**/§DERan:qual)
0 1 2 3 4 5

_DERna *Noun-adjective derivation* (deprecated DENOM). Suffix creates denominal adjectives in a broad
isa **SUFFIX** sense.
[335] Subtypes: **_DERna:deono** **_DERna:disp** **_DERna:other** **_DERna:poss** **_DERna:rel** **_DERna:resem** **_DERna:telic**.

_DERna:deono *Noun-adjective derivation (naming)* (deprecated DENOM:rel.deono). Suffix creates relational ad-
isa **_DERna** jectives with the meaning of "naming".
[337] Subtypes: **_DERna:deono.loc** **_DERna:deono.pers**.

_DERna:deono.loc *Noun-adjective derivation (naming places)* (deprecated DENOM:rel.deono.place). Suffix creates
isa **_DERna:deono** relational adjectives with the meaning of "naming" of places.
[339]

Madrileño 'som har at gøre med/kommer fra Madrid'
0 1 2 3 4 5 6 7

_DERna:deono.pers *Noun-adjective derivation (naming persons)* (deprecated DENOM:rel.deono.pers). Suffix creates
isa **_DERna:deono** relational adjectives with the meaning of "naming" persons.
[338]

Cervantino 'som har at gøre med Cervantes'
0 1 2 3 4 5 6

_DERna:disp *Noun-adjective derivation (disposition)* (deprecated DENOM:disp). Suffix creates denominal ad-
isa **_DERna** jectives that express disposition.
[342]

"que tiene afición por N" (mujeriego – "que afición por las mujeres" 'kvindeglad/som er glad for kvinder')
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

_DERna:other *Noun-adjective derivation (other)* (deprecated DENOM:other). If in doubt about the meaning
isa **_DERna** conveyed by the suffix
[344]

_DERna:poss *Noun-adjective derivation (possession)* (deprecated DENOM:poss). Suffix creates denominal ad-
isa **_DERna** jectives that express possession.
[341]

"que posee/tiene/lleva N" (barbudo – "que lleva barba" 'skægget/som bærer skæg')

0 1 2 3 4 5 6 7 8 9 10

_DERna:rel *Noun-adjective derivation (relational)* (deprecated DENOM:rel). Suffix creates denominal adjectives with a relational meaning.
isa _DERna [336]

(denominal adjective: presidential = president +ial/DENOM:rel.norm)

0 1 2 3 4 5

_DERna:resem *Noun-adjective derivation (resemblance)* (deprecated DENOM:resem). Suffix creates denominal adjectives that express resemblance.
isa _DERna [340]

"que se parece a N" (sanchopancesco – "que se parece a Sancho Panza" 'sanchopanzask/som ligner

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14

Sancho Panza')

15 16

_DERna:telic *Noun-adjective derivation (effect)* (deprecated DENOM:eff). Suffix creates denominal adjectives that express an effect.
isa _DERna [343]

"que causa simpatía" (simpático – "que causa simpatía" 'sympatisk/som vækker sympati')

0 1 2 3 4 5 6 7 8 9 10

_DERnn *Noun-noun derivation* (deprecated NOPRED). Suffix creates non-predicative nouns (from other nouns) in a broad sense.
isa SUFFIX [316]
Subtypes: _DERnn:agent _DERnn:assoc _DERnn:capac _DERnn:cont _DERnn:loc _DERnn:other _DERnn:quant _DERnn:telic _DERnn:time.

_DERnn:agent *Noun-noun derivation (agent)* (deprecated NOPRED:agent). Suffix creates non-predicative nouns expressing an agent role.
isa _DERnn [317]

(agent derivation: miller = mill +er/\$DERnn:agent)

0 1 2 3 4 5

_DERnn:assoc *Noun-noun derivation (association)* (deprecated NOPRED:script). Suffix creates non-predicative nouns expressing a script/notion related to the original noun.
isa _DERnn [324]

(script derivation: pontaje 'brobetaling' = puente +aje/\$DERnn:assoc)

0 1 2 3 4 5 6

_DERnn:capac *Noun-noun derivation (capacity)* (deprecated NOPRED:capac). Suffix creates non-predicative nouns expressing a capacity.
isa _DERnn [322]

(capacity derivation: cestada 'kurvfuld' = cesta +ada/\$DERnn:capac)
0 1 2 3 4 5 6

_DERnn:cont *Noun-noun derivation (container)* (deprecated NOPRED:cont). Suffix creates non-predicative nouns expressing a container.
isa _DERnn [319]

(container derivation: azucarero 'sugar bowl' = azucar +ero/\$DERnn:cont)
0 1 2 3 4 5 6 7

_DERnn:loc *Noun-noun derivation (location)* (deprecated NOPRED:loc). Suffix creates non-predicative nouns expressing a location.
isa _DERnn [323]

(locative derivation: arenal 'sandet strækning' = arena +al/\$DERnn:loc)
0 1 2 3 4 5 6 7

_DERnn:other *Noun-noun derivation (other)* (deprecated NOPRED:other). If in doubt about the meaning conveyed by the suffix
isa _DERnn [325]

_DERnn:quant *Noun-noun derivation (quantification)* (deprecated NOPRED:set). Suffix creates non-predicative nouns expressing a quantification.
isa _DERnn [321]

(set derivation: perrada 'hundekobbel' = perro +ada/\$DERnn:quant)
0 1 2 3 4 5 6

_DERnn:telic *Noun-noun derivation (telic)* (deprecated NOPRED:result). Suffix creates non-predicative nouns expressing a telic result.
isa _DERnn [318]

(result derivation: puñalada 'knivstik' = puñal +ada/\$DERnn:telic)
0 1 2 3 4 5 6

_DERnn:time *Noun-noun derivation (time)* (deprecated NOPRED:temp). Suffix creates non-predicative nouns expressing a temporal aspect.
isa _DERnn [320]

(temporal derivation: temporada 'tidsrum/sæson' = tiempo +ada/\$DERnn:time)
0 1 2 3 4 5 6

_DERv (deprecated DEVERB).

isa SUFFIX

_DIM *Diminution.* Suffix conveys diminution.

isa SUFFIX

[300]

(diminutive: viejecito 'little old man' = viejo +ecito/DIM)
0 1 2 3 4 5 6 7

_PEJ *Pejoration.* Suffix conveys a pejorative sense.

isa SUFFIX

[301]

(pejorative: vinacho 'bad vine' = vino +acho/PEJ)
0 1 2 3 4 5 6

Chapter 5

Discourse relations: DISC

DISC: discourse level
DISCOTHER: other discourse relations
JOINT: no clear relation
REP: repaired
SCENE: scene
DISCPRAG: pragmatic and illocutionary discourse relations
DISCSEM: semantic discourse relations
RuleDisc: syntactic discourse relation

Figure 5.1: The relations matching DISC-!CDT1-!DISCFUNC-!DISCSEM-TOPIC.

DISC *Discourse level* (long: DISCOURSE). The discourse level includes relations between segments in different sentences, as well as lexical features associated with discourse units.
isa DIM:LEVEL
[11] Subtypes: DISCOTHER DISCPRAG DISCSEM RuleDisc.

DISCOTHER *Other discourse relations*. In two cases, REP and SCENE, the relations concern the formal structure of the text. In the last case, JOINT, there is no clear relation between the segments in question.
isa ADJ DISC
[220] Subtypes: JOINT REP SCENE.

JOINT *No clear relation*. No evident discourse relation between the segments. The new text segment adds a completely new content without any clear discourse relation to the preceding segment.
isa DISCOTHER
[270] Confusion¹⁴_{21.4%/42.9%/35.7%%}: CONJ:add_{42.9%} JOINT_{35.7%} SCENE_{7.1%} CONJ_{7.1%} CONST:exem_{7.1%} .

REP *Repaired* (deprecated STRUCT:rep). A repaired text segment. The dependent text segment is interrupted and unfinished and "repaired" by the following and governing text segment that completes it.
isa DISCOTHER
[269]

Would you... (Would you marry me, Lisa?)
0 1 2 3 4 5 6

SCENE *Scene* (deprecated STRUCT:prepPREP). A scene or similar description. The dependent text segment describes the scene of the following and governing text.
isa DISCOTHER
[268] Confusion²⁶_{84.6%/84.6%/96.2%%}: SCENE_{96.2%} JOINT_{3.8%} .

DISCPRAG *Pragmatic and illocutionary discourse relations* (deprecated DISCFUNC). The dependent text segment expresses a change in speech act or pragmatic function (speaker's intention) wrt the governing segment; the label indicates the speech act or function of the dependent segment; regarding speaker's intentions and speech acts we consider the narrating asserting speech act as our default value.

Subtypes: ANSW CONSOL DIREC EXPR INTACT QUEST.

DISCSEM *Semantic discourse relations*. The relations hold between the propositions of the governing and dependent text segments and are defined in semantic terms;

RuleDisc *Syntactic discourse relation* (long: "_" (PRIM)). A primary syntactic relation that has been used as a discourse relation for stylistic purposes.

5.1 Functional relations: DISCFUNC

DISCPRAG: pragmatic and illocutionary discourse relations
 ANSW: answer
 CONSOL: consolidation
 CONSOL:inst: instrumental
 CONSOL:motiv: motivation
 CONSOL:source: source
 DIREC: directive act
 EXPR: expressive act
 INTACT: interaction signals
 INTACT:attn: attention
 INTACT:inter: interruption
 INTACT:start: start signal
 INTACT:stop: stop
 QUEST: question

Figure 5.2: The relations matching DISCFUNC-!CDT1-TOPIC.

DISCPRAG *Pragmatic and illocutionary discourse relations* (deprecated DISCFUNC). The dependent text segment expresses a change in speech act or pragmatic function (speaker's intention) wrt the governing segment; the label indicates the speech act or function of the dependent segment; regarding speaker's intentions and speech acts we consider the narrating asserting speech act as our default value.

Subtypes: ANSW CONSOL DIREC EXPR INTACT QUEST.

ANSW *Answer*. An answer relation. The dependent text segment contains an answer or solution to a question or problem contained in the governing text segment.

CONSOL *Consolidation* (deprecated SUPPORT?). The dependent text segment consolidates or strengthens the governing segment.

Subtypes: CONSOL:inst CONSOL:motiv CONSOL:source.

Confusion²_{0%/50%/0%%}: CONJ:elab_{100%} .

CONSOL:inst *Instrumental* (deprecated CONSOL:enabl). An instrumental or helpful text segment. The dependent text segment is instrumental in helping reader or recipient to carry out the action mentioned in the governing segment; frequent in directive texts.

For a free catalogue, call...
0 1 2 3 4

CONSOL:motiv *Motivation*. Motivation or encouragement. The dependent text segment motivates, stimulates or encourages reader or recipient to carry out the action mentioned in the governing segment.

Prices have never been so low.
0 1 2 3 4 5

CONSOL:source *Source* (deprecated JUSTCONSOL:just). A source or foundation. The dependent text segment expresses a source or foundation that justifies the governing segment wrt its content or the reason for mentioning it at this time and place, thereby strengthening it argumentatively.

Confusion⁵_{20%/60%/20%%}: AGENTIVE:sbj_{40%} CONJ_{20%} CONSOL:source_{20%} CONST:exem_{20%} .

Joe Johnson is an expert at teaching small children. (He says that...). The Rent Act clearly states it.
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

DIREC *Directive act*. A directive act. The dependent text segment contains a directive act (order, command or request) somehow linked to the governing segment.

[256] Confusion³_{0%/66.7%/0%%}: CONJ:elab_{66.7%} CONJ:seq_{33.3%} .

e.g. imperatives
0 1

EXPR *Expressive act*. An expressive act. The dependent text segment contains an expression of the speaker's attitudes or emotions, e.g. congratulations, excuses or thanks, somehow linked to the governing segment.

[en] I'm sorry! My condolences! Thank you so much!
0 1 2 3 4 5 6 7 8

INTACT *Interaction signals*. The dependent text segment contains an interaction signal, i.e. a signal used to start, sustain or end a conversation.

[258] Subtypes: INTACT:attn INTACT:inter INTACT:start INTACT:stop.

INTACT:attn *Attention*. An attention signal. The dependent text segment contains an attention signal.

isa INTACT
[260]

[en] Yeah?, Oh!, Really? [da] Ja; Nå; OK; [it] Sì; Beh
 0 1 2 3 4 5 6 7 8 9 10

INTACT:inter *Interruption.* An interruption signal. The dependent text segment contains an interruption
 isa INTACT
 [261] signal

[en] But... But, Just a moment!; [da] Jamen... Men..., Må jeg lige; [it] Ma; Un momento; Scusami
 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

INTACT:start *Start signal.* The dependent text segment contains a start signal.
 isa INTACT
 [259]

[en] Hello? All right! Well, Well you see, Excuse me; [da] Hallo? Altså, Nå men altså, Jamen, Hør lige her!
 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

Undskyld! Du Peter; [it] Pronto? Ciao, Ecco, Guarda, Scusami
 20 21 22 23 24 25 26 27 28

INTACT:stop *Stop.* The dependent text segment contains a conversation stop signal.
 isa INTACT
 [262]

[en] Goodbye; [da] Hej hej; [it] Ciao; Arrivederci
 0 1 2 3 4 5 6 7

QUEST *Question .* A question relation. The dependent text segment contains a question somehow
 linked to the governing segment. The following co-text may and may not contain an answer
 [254] to the question.
 Related types: answer.

5.2 Semantic relations: DISCSEM

DISCSEM *Semantic discourse relations.* The relations hold between the propositions of the governing
 isa ADJ DISC and dependent text segments and are defined in semantic terms;
 [218] Subtypes: AGENTIVE CONC COND CONJ CONST CONTR DISJ FORMAL TELIC TIME.

AGENTIVE *Cause relation (discourse).* The dependent segment expresses "bringing about" or cause in a
 isa DISCSEM broad sense
 [222] Subtypes: AGENTIVE:expl AGENTIVE:reas AGENTIVE:subj.
 Confusion_{0%}⁵/100%/0%: CONJ:elab_{40%} AGENTIVE:subj_{40%} AGENTIVE:expl_{20%} .

AGENTIVE:expl *Explanation relation in discourse.* An explanation relation. The dependent segment explains
 isa AGENTIVE the governing segment. The relation is more general and elaborating than "reason".
 [223]

DISCSEM: semantic discourse relations
 AGENTIVE: cause relation (discourse)
 AGENTIVE:expl: explanation relation in discourse
 AGENTIVE:reas: reason relation (discourse)
 AGENTIVE:sbj: subjective cause
 CONC: concession
 COND: condition
 CONJ: conjunction
 CONJ:add: conjunction, addition
 CONJ:elab: conjunction, elaboration
 CONJ:seq: conjunction, sequence
 CONST: constitutive elaboration relation
 CONST:apart: part of relation
 CONST:exem: exemplification
 CONST:rest: restatement
 CONTR: contrast
 CONTR:dir: direct contrast
 CONTR:sbj: subjective contrast
 DISJ: disjunction
 DISJ:dir: direct disjunction
 DISJ:sbj: subjective disjunction
 FORMAL: formal description
 FORMAL:descr: neutral description
 FORMAL:eval: positive/negative evaluation
 TELIC: consequence/result/conclusion/goal relation (discourse)
 TELIC:cons.dir: direct, physical consequence, result
 TELIC:cons.sbj: pragmatic/personal conclusion, deduction
 TELIC:goal: goal relation (discourse)
 TIME: temporal relation
 TIME:cont: contemporaneity
 TIME:post: temporal succession
 TIME:pre: temporal precedence

Figure 5.3: The relations matching DISCSEM-!CDT1-TOPIC.

Typical connectives: [en] In fact, Indeed; [da] Nemlig; [it] Infatti.

Related types: **reason**.

Confusion¹¹_{63.6%/100%/63.6%}: AGENTIVE:expl_{63.6%} CONTR_{9.1%} AGENTIVE_{9.1%} CONST:rest_{9.1%} AGENTIVE:sbj_{9.1%} .

AGENTIVE:reas *Reason relation (discourse)*. A reason relation. The dependent segment expresses a specific and concrete reason.

[224] Typical connectives: [en] Since, Because; [da] Fordi, Eftersom; [it] Perché, Dato che.

Confusion¹⁰_{20%/60%/20%}: AGENTIVE:sbj_{40%} AGENTIVE:reas_{20%} CONJ:elab_{20%} CONJ:add_{10%} TELIC:cons.dir_{10%} .

AGENTIVE:sbj *Subjective cause*. A subjective cause. The speaker uses the dependent segment as a subjective/personal argument to support a claim.

[225] Typical connectives: [en] Because, In fact, Indeed; [da] Fordi, Eftersom, Nemlig; [it] Perché, Dato che, Infatti.

Confusion¹⁶_{0%/75%/0%}: AGENTIVE:reas_{25%} CONJ:add_{18.8%} CONJ_{12.5%} CONJ:elab_{12.5%} AGENTIVE_{12.5%} CON-SOL:source_{12.5%} AGENTIVE:expl_{6.3%} .

- CONC** *Concession.* A concession relation. The dependent segment admits or acknowledges a fact wrt N, which may however not have the expected consequence or effect.
 isa DISCSEM
 [237] Typical connectives: [en] Though, Although, However; [da] Skønt; Selvom; [it] Anche se; Sebbene.
 Confusion²⁰_{40%/65%/40%}: CONC_{40%} CONJ:add_{25%} CONTR_{5%} FORMAL:eval_{5%} subj_{5%} CONTR:sbj_{5%} CONJ_{5%} CONST:exem_{5%} conj_{2.5%} CONTR:prg_{2.5%} .
- COND** *Condition.* A condition relation. The dependent segment expresses a condition for the realisation of the content of the governing segment.
 isa DISCSEM
 [238] Typical connectives: [en] If, On the condition; [da] Hvis; I det tilfælde at; [it] A condizione che/di; Se.
 Confusion¹_{0%/100%/0%}: CONJ:add_{100%} .
- CONJ** *Conjunction.* The dependent text segment elaborates and expands knowledge of the content of the governing text segment or adds a new subject somehow related to it
 isa DISCSEM
 [243] Subtypes: CONJ:add CONJ:elab CONJ:seq.
 Confusion⁴⁸_{10.4%/54.2%/18.8%}: CONJ:elab_{35.4%} CONJ:add_{25%} CONJ_{18.8%} AGENTIVE:sbj_{4.2%} TELIC:goal_{2.1%} TELIC:cons.sbj_{2.1%} FORMAL:eval_{2.1%} JOINT_{2.1%} CONSOL:source_{2.1%} TELIC:cons.dir_{2.1%} CONST:apart_{2.1%} CONC_{2.1%} .
- CONJ:add** *Conjunction, addition.* An addition relation. The dependent text segment adds a new subject somehow related to the governing text segment; in cases of uncertainty between add and elab we do not specify the subtype.
 isa CONJ
 [244] Typical connectives: [en] And, Moreover, In addition to that; [da] Endvidere, Desuden; [it] E, Oltre a ciò.
 Confusion¹³³_{37.2%/63.5%/47.2%}: CONJ:add_{47.2%} CONJ:elab_{13.5%} CONJ_{9%} JOINT_{4.5%} conj_{4.4%} CONC_{3.8%} TELIC:cons.sbj_{2.3%} AGENTIVE:sbj_{2.3%} CONJ:seq_{1.5%} CONST:exem_{1.5%} CONST:apart_{1.5%} CONTR_{0.8%} TIME:pre_{0.8%} CONTR:prg_{0.8%} CONTR:sbj_{0.8%} COND_{0.8%} qobj_{0.8%} TELIC_{0.8%} TELIC:cons.dir_{0.8%} AGENTIVE:reas_{0.8%} DISJ:dir_{0.8%} vobj_{0.8%} CONTR:dir_{0.3%} .
- CONJ:elab** *Conjunction, elaboration* (deprecated ELAB:spec, ELAB:exp, CONST:elab). An elaboration relation.
 isa CONJ
 [245] The dependent text segment elaborates and expands knowledge of the content of the governing text segment; in cases of uncertainty between add and elab we do not specify the subtype
 Confusion¹_{0%/100%/0%}: CONJ:elab_{100%} .
- CONJ:seq** *Conjunction, sequence.* A sequence relation. The dependent text segment is part of list or sequence linked to the governing text segment as e.g. in recipes, sport results etc.
 isa CONJ
 [246] Confusion¹³_{61.5%/92.3%/69.2%}: CONJ:seq_{69.2%} CONJ:add_{15.4%} CONJ:elab_{7.7%} DIREC_{7.7%} .
- CONST** *Constitutive elaboration relation.* The dependent segment adds more details regarding the constitution of the governing segments or part(s) of it.
 isa DISCSEM
 [230] Subtypes: CONST:apart CONST:exem CONST:rest.
- CONST:apart** *Part of relation.* A part-of relation. The dependent segment expresses a part of the governing segment or vice versa.
 isa CONST
 [232] Typical connectives: [en] Including, Herein; [da] Herunder, Heri; [it] Incluso, Tra cui.
 Confusion¹²_{16.7%/58.3%/25%}: CONJ:elab_{25%} CONST:apart_{25%} CONJ:add_{16.7%} CONST:exem_{16.7%} CONJ_{8.3%} nobj_{8.3%} .
- CONST:exem** *Exemplification.* A constitutive exemplification relation. The dependent segment gives examples of elements or phenomena regarding the governing segment.
 isa CONST
 [231] Typical connectives: [en] For example; [da] For eksempel; [it] Per esempio.
 Confusion¹⁷_{29.4%/70.6%/47.1%}: CONST:exem_{47.1%} CONJ:add_{11.8%} CONST:apart_{11.8%} CONJ:elab_{5.9%} JOINT_{5.9%} CONST:rest_{5.9%} CONSOL:source_{5.9%} CONC_{5.9%} .

CONST:rest *Restatement*. A restatement relation. The dependent segment states the governing segment again in a different way

- [233] Typical connectives: [en] In other words, Or; [da] Dvs., Sagt på en anden måde; [it] Ossia, In altre parole, Cioè.
Confusion¹¹_{22.7%/59.1%/25.8%}: CONJ:elab_{27.3%} CONST:rest_{25.8%} TELIC:cons.sbj_{9.1%} TELIC:cons.dir_{9.1%} CONST:exem_{9.1%}
AGENTIVE:expl_{9.1%} conj_{6.1%} qobj_{4.5%} .

CONTR *Contrast*. The dependent text segment expresses a contrast wrt the governing text segment.
isa DISCSEM Subtypes: CONTR:dir CONTR:subj.

- [247] Confusion⁴_{0%/100%/0%}: CONJ:add_{25%} AGENTIVE:expl_{25%} CONTR:dir_{25%} CONC_{25%} .

CONTR:dir *Direct contrast*. A direct contrast relation. The contrast lies between the governing and dependent text segment.
isa CONTR

- [248] Typical connectives: [en] But, However; [da] Men, Derimod; [it] Ma, Invece.
Confusion¹⁴_{16.7%/31%/31%}: CONTR:dir_{31%} conj_{20.2%} CONTR:prg_{10.7%} CONTR_{7.1%} CONJ:elab_{7.1%} TELIC:cons.sbj_{7.1%}
TELIC:cons.dir_{7.1%} CONTR:subj_{7.1%} CONJ:add_{2.4%} .

CONTR:subj *Subjective contrast* (deprecated CONTR:prg). A subjective contrast relation. The contrast lies between an explicit and a subjectively inferred text segment.
isa CONTR

- [249] Typical connectives: [en] But, However; [da] Men, Derimod; [it] Ma, Invece.
Confusion¹²_{19.4%/48.6%/31.9%}: CONTR:subj_{31.9%} conj_{13.9%} CONJ:elab_{8.3%} CONTR:prg_{8.3%} CONJ:add_{8.3%} qobj_{8.3%}
CONTR:dir_{8.3%} CONC_{8.3%} TELIC:cons.dir_{4.2%} .

DISJ *Disjunction*. There is a disjunction relation between the governing and dependent text segment.
isa DISCSEM

- [250] Subtypes: DISJ:dir DISJ:subj.

DISJ:dir *Direct disjunction*. A direct disjunction relation. The disjunction lies between the governing and dependent text segment.
isa DISJ

- [251] Typical connectives: [en] Or, Or else, Otherwise; [da] Eller, Ellers; [it] Oppure, Altrimenti.
Confusion²_{0%/50%/50%}: CONJ:add_{50%} DISJ:dir_{50%} .

DISJ:subj *Subjective disjunction* (deprecated DISJ:prg). An indirect or subjective disjunction relation. The disjunction lies between the dependent and a subjectively inferred text segment.
isa DISJ

- [252] Typical connectives: [en] Or, Or else, Otherwise; [da] Eller, Ellers; [it] Oppure, Altrimenti.

FORMAL *Formal description*. The dependent segment describes the governing segment wrt its formal quale (form, dimension, colour, etc.). The governing segment may be a first-order or second-order entity.
isa DISCSEM

- [234] Subtypes: FORMAL:descr FORMAL:eval.

FORMAL:descr *Neutral description* (deprecated DESCR:qual). An objective and neutral description relation. The dependent segment expresses an objective and/or neutral description of the governing segment.
isa FORMAL

- [235] Confusion⁵_{20%/40%/20%}: CONJ:elab_{60%} conj_{20%} FORMAL:descr_{20%} .

FORMAL:eval *Positive/negative evaluation* (deprecated DESCR:eval). A personal and subjective description relation. The dependent segment expresses a personal and/or subjective description of the governing segment.
isa FORMAL

- [236] Confusion¹⁰_{20%/40%/30%}: CONJ:elab_{50%} FORMAL:eval_{30%} CONJ_{10%} CONC_{10%} .

TELIC *Consequence/result/conclusion/goal relation (discourse)*. The dependent segment expresses consequence, result, purpose, conclusion or goal wrt the governing segment.

[226] Subtypes: TELIC:cons.dir TELIC:cons.sbj TELIC:goal.

Confusion¹_{0%/100%/0%}: CONJ:add100% .

TELIC:cons.dir *Direct, physical consequence, result* (deprecated TELIC:dir). A consequence or result relation. The dependent segment expresses a physical and/or objectively observed consequence or result wrt the governing segment.

Typical connectives: [en] Therefore, For this reason; [da] Derfor, Af den grund; [it] Perciò, Quindi.

Confusion¹⁷_{29.4%/58.8%/41.2%}: TELIC:cons.dir_{41.2%} TELIC:cons.sbj_{11.8%} CONJ:elab_{8.8%} CONST:rest_{5.9%} CONJ_{5.9%} CONJ:add_{5.9%} AGENTIVE:reas_{5.9%} CONTR:dir_{5.9%} conj_{2.9%} CONTR:sbj_{2.9%} qobj_{2.9%} .

TELIC:cons.sbj *Pragmatic/personal conclusion, deduction* (deprecated TELIC:sbj). A personal conclusion or deduction relation. The dependent segment expresses a subjective conclusion or deduction on behalf of the speaker.

Typical connectives: [en] Therefore, For this reason; [da] Derfor, Af den grund; [it] Perciò, Quindi.

Confusion¹⁴_{21.4%/64.3%/28.6%}: TELIC:cons.sbj_{28.6%} CONJ:add_{21.4%} CONJ:elab_{14.3%} TELIC:cons.dir_{14.3%} CONJ_{7.1%} CONST:rest_{7.1%} CONTR:dir_{7.1%} .

TELIC:goal *Goal relation (discourse)*. A goal relation. The dependent segment expresses goal, purpose, aim or the like wrt the governing segment.

[227] Confusion¹_{0%/100%/0%}: CONJ_{100%} .

TIME *Temporal relation* (deprecated CIRCUM). There is a clear temporal relation between the contents of the two text segments.

[239] Subtypes: TIME:cont TIME:post TIME:pre.

TIME:cont *Contemporaneity* (deprecated nowincludesabolishedTIME:dur). A contemporaneity relation. The events of the two text segments occur simultaneously.

[240] Typical connectives: [en] At the same time, Meanwhile; [da] Samtidig, Mens, Så længe, Da; [it] Contemporaneamente.

TIME:post *Temporal succession* (deprecated TIME:succ). A succession relation. The event described in the dependent text segment succeeds the one described in the governing segment.

[242] Typical connectives: [en] Later, Some time afterwards; [da] Senere, Nogen tid efter; [it] Dopo, Poco tempo dopo.

TIME:pre *Temporal precedence* (deprecated TIME:prec). A precedence relation. The event described in the dependent text segment precedes the one described in the governing segment.

[241] Typical connectives: [en] Earlier, Some days before; [da] Før det, Forinden; [it] Prima, Tre giorni prima.

Confusion¹_{0%/100%/0%}: CONJ:add100% .

Chapter 6

Anaphor relations: ANA

ANA: anaphor level
 ANAREL: anaphor-antecedent relation
 anaphor:
 assoc: associative anaphor
 coref: coreference

Figure 6.1: The relations matching ANA-!CDT1-!coref-!assoc-TOPIC.

ANA *Anaphor level* (long: ANAPHORA). The anaphor level includes relations between anaphors and their antecedents, as well as lexical features associated with anaphora.
 isa DIM:LEVEL
 [14] Subtypes: ANAREL anaphor.

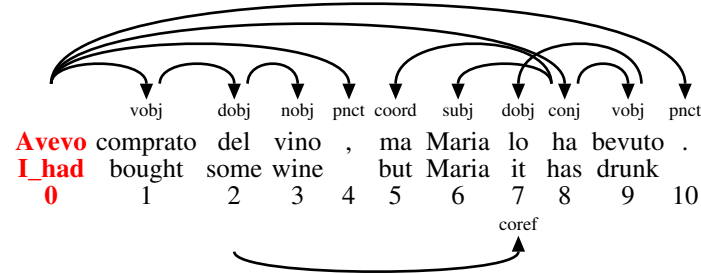
ANAREL *Anaphor-antecedent relation*. An anaphor-antecedent relation, i.e. a relation between an anaphor (pronoun, definite description, etc.) and an antecedent. The anaphor may be either coreferential, i.e. it designates the same discourse referent as the antecedent, or associative. In the latter case, the anaphor designates a non-previously mentioned referent that is associable with the antecedent either wrt the antecedent's qualia structure or wrt some other semantic relation. The relation arrow goes from antecedent to anaphor.
 isa ANA REL
 [28]

anaphor . This section concerns anaphors as well as cataphors. Cataphors may by and large express the same relations with their postcedents as anaphors with their antecedents; the relations are therefore labelled identically and will be distinguished solely by the arrow direction: from left to right (anaphors) or from right to left (cataphors). Because of their much higher frequency, we shall limit ourselves to examples of anaphors.
 isa ANA
 [183] Subtypes: assoc coref.

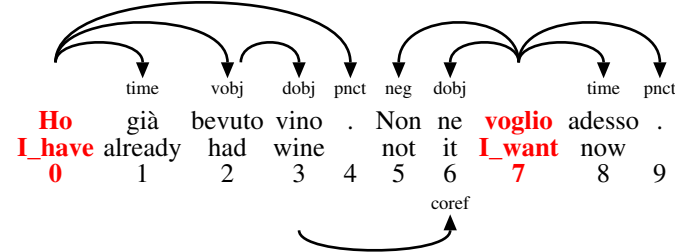
assoc *Associative anaphor*. The anaphor designates an entity which is associated with the antecedent
 isa anaphor
 [193] Subtypes: assoc-OTHER assoc-QUALIA assoc-SEMROLE.
 Confusion⁶_{33.3%/83.3%/33.3%}: assoc-const_{66.7%} assoc_{33.3%} .

coref *Coreference*. The anaphor designates the same entity as the antecedent; all coreferential pronouns are labelled this way
 isa anaphor
 [186] Subtypes: coref-evol coref-iden coref-res coref-var ref.
 Confusion²²⁹_{63%/66.2%/89.1%}: coref_{89.1%} coref-var_{6.6%} ref_{1.3%} coref-res_{1.3%} assoc-const_{0.7%} coref-iden_{0.6%} assoc-agentive.agent_{0.4%} .

I had bought some wine but Maria has drunk it all.



I've already had wine. I don't want anymore right now.



6.1 Coreference relations: coref

coref: coreference

coref-evol: evolving anaphor

coref-iden: coreferential NP with lexical identity

coref-res: resumptive anaphor

coref-res.prg: pragmatic resumptive anaphor

coref-var: coreferential NP with lexical variety

ref: syntactically determined coreference

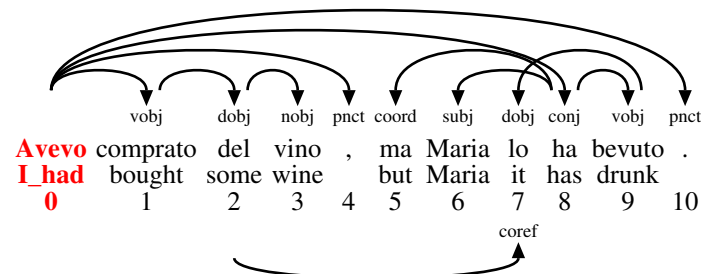
Figure 6.2: The relations matching coref-!CDT1-TOPIC.

coref *Coreference*. The anaphor designates the same entity as the antecedent; all coreferential pronouns are labelled this way

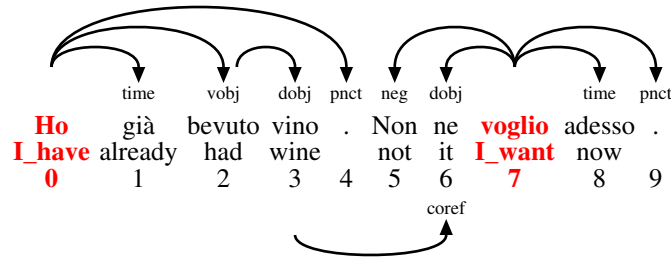
[186] Subtypes: coref-evol coref-iden coref-res coref-var ref.

Confusion²²⁹_{63%/66.2%/89.1%:} coref_{89.1%} coref-var_{6.6%} ref_{1.3%} coref-res_{1.3%} assoc-const_{0.7%} coref-iden_{0.6%} assoc-agentive.agent_{0.4%} .

I had bought some wine but Maria has drunk it all.

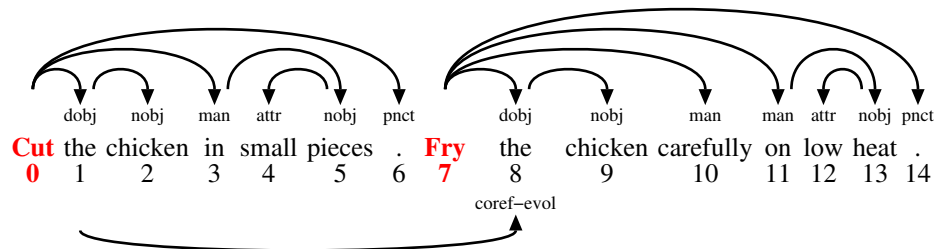
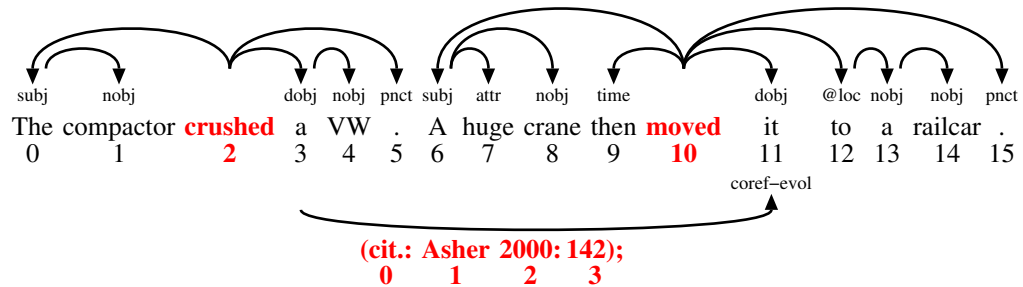


I've already had wine. I don't want anymore right now.



coref-evol *Evolving anaphor*. The anaphor refers to the same discourse referent as the antecedent, but after it has undergone radical changes in its ontological status

[191] Confusion¹_{0%/100%/0%}: coref-var_{100%} .

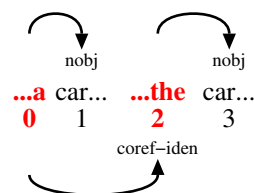


coref-iden *Coreferential NP with lexical identity* (deprecated coref-id). The anaphor designates the same entity as the antecedent and the lexical noun is identical to that of the antecedent; if the

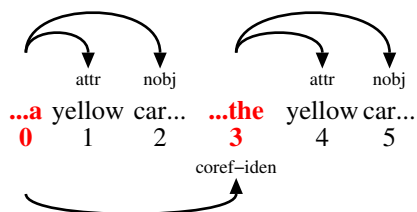
[187] antecedent NP contains attributives or other modifiers, these too must be identical in the anaphor NP. In cases such as example 3., the apposition functions as antecedent:

Confusion⁶²_{72.6%/81.2%/77.4%}: coref-iden_{77.4%} coref-var_{16.7%} coref_{2.7%} assoc-telic_{1.6%} assoc-const_{1.6%} .

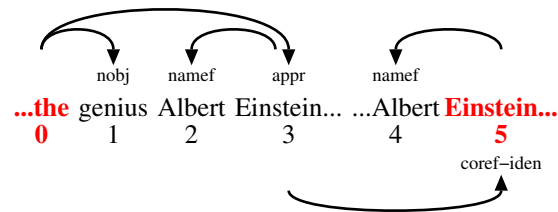
1.



2.



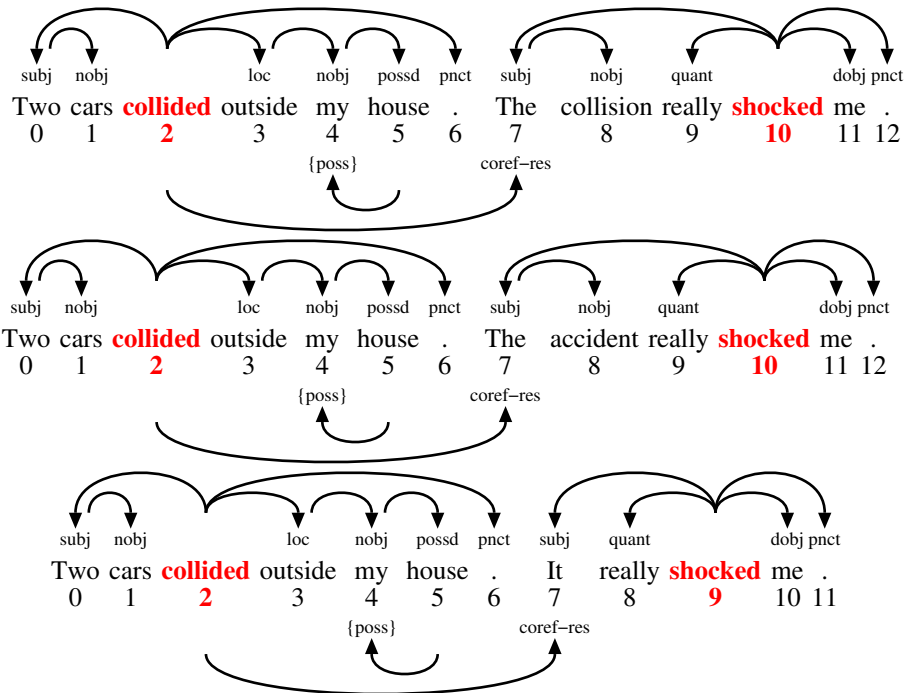
3.



coref-res *Resumptive anaphor* (deprecatd nowincludescoref-res.cause). The anaphor summarises a sentence, clause or predicate

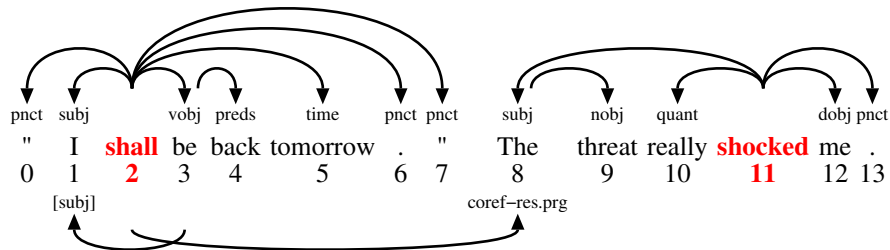
[189] Subtypes: coref-res.prg.

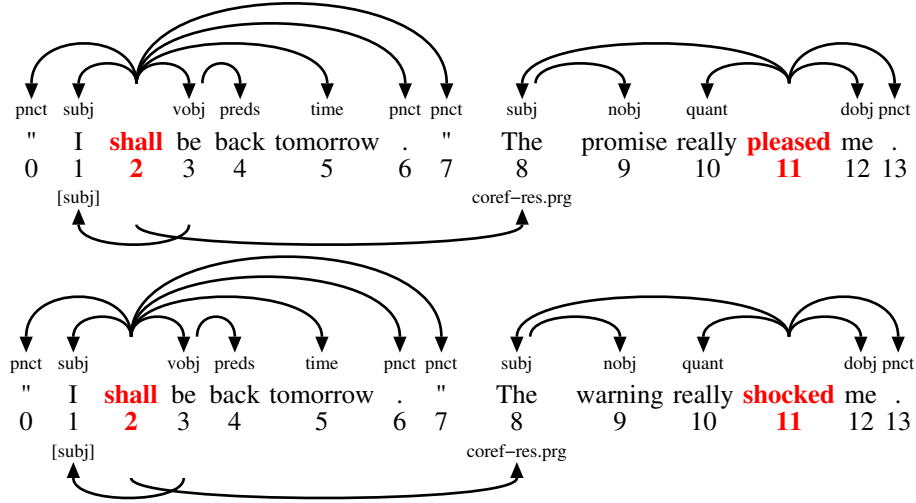
Confusion³⁵_{63.4%/69.1%/74.3%}: coref-res_{74.3%} coref-var_{11.4%} coref_{8.6%} assoc-telic_{2.9%} ref_{2.9%}.



coref-res.prg *Pragmatic resumptive anaphor*. The anaphor summarises a sentence, clause or predicate and evaluates it with respect to speech act

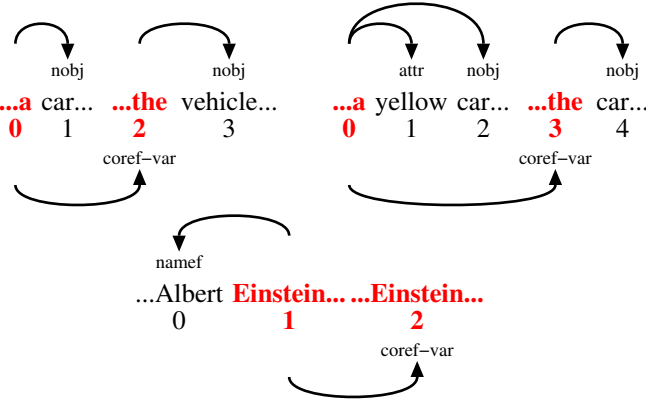
[190]





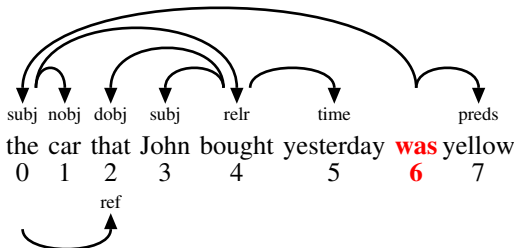
coref-var *Coreferential NP with lexical variety.* The anaphor designates the same entity as the antecedent; the lexical noun and/or attributives or other modifiers are different from those of the antecedent [188]

Confusion¹⁴⁴_{59.5%/72.5%/73.7%:} coref-var73.7% coref10.8% coref-iden7.2% assoc-const4.2% coref-res2.8% coref-evol0.7% assoc-agentive0.7% .



ref *Syntactically determined coreference* (long: $_$). Syntactically determined coreference (e.g. relative pronouns, external topics). In the DG theory, "ref" is a shorthand for the label "[fobj]" with reversed direction of the arc, ie, a secondary filler object. It is typically used in relative clauses with a relative pronoun, in which the relative pronoun "consumes" the filler for the relativized noun generated by the relative verb. [184]

Confusion⁷⁰_{90%/91.4%/94.3%:} ref94.3% coref4.3% coref-res1.4% .



6.2 Associative anaphor relations: assoc

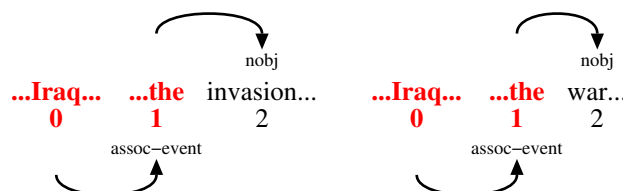
assoc: associative anaphor
 assoc-OTHER: other anaphoric relations
 assoc-event: associative anaphor (event)
 assoc-loc: associative anaphor (location)
 assoc-time: associative anaphor (time)
 assoc-QUALIA: associative anaphor wrt. qualia
 assoc-agentive: associative anaphor (agentive)
 assoc-agentive.agent: associative anaphor (agentive-agent)
 assoc-agentive.inst: associative anaphor (agentive-inst)
 assoc-const: associative anaphor (constitutive)
 assoc-formal: associative anaphor (formal)
 assoc-telic: associative anaphor (telic)
 assoc-telic.agent: associative anaphor (telic-agent)
 assoc-telic.exper: associative anaphor (telic-experiencer)
 assoc-telic.inst: associative anaphor (telic-instrument)
 assoc-telic.patient: associative anaphor (telic-patient)
 assoc-telic.rec: associative anaphor (telic-recipient)
 assoc-SEMROLE: associative anaphor wrt. semantic role
 assoc-agent: associative anaphor (agent)
 assoc-exper: associative anaphor (experiencer)
 assoc-inst: associative anaphor (instrument)
 assoc-patient: associative anaphor (patient)
 assoc-rec: associative anaphor (recipient)

Figure 6.3: The relations matching assoc-!CDT1-TOPIC.

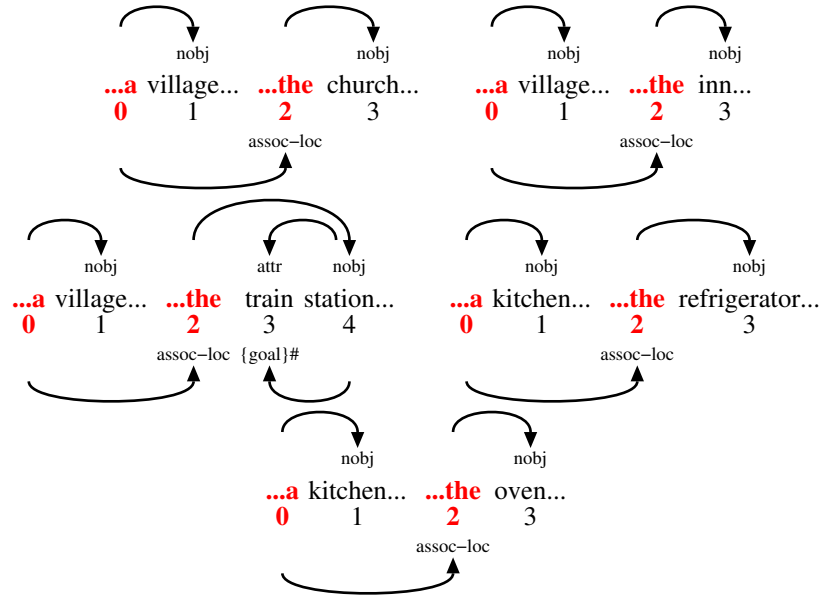
assoc *Associative anaphor*. The anaphor designates an entity which is associated with the antecedent
 isa anaphor
 [193] Subtypes: assoc-OTHER assoc-QUALIA assoc-SEMROLE.
 Confusion⁶_{33.3%/83.3%/33.3%}: assoc-const_{66.7%} assoc_{33.3%} .

assoc-OTHER *Other anaphoric relations*. These cases include for example locative relations (the anaphor is located in the antecedent), time relations (the anaphor expresses a point in time linked to the antecedent), and event relations (the anaphor designates an event in which the antecedent plays a part).
 isa assoc
 [212]
 Subtypes: assoc-event assoc-loc assoc-time.

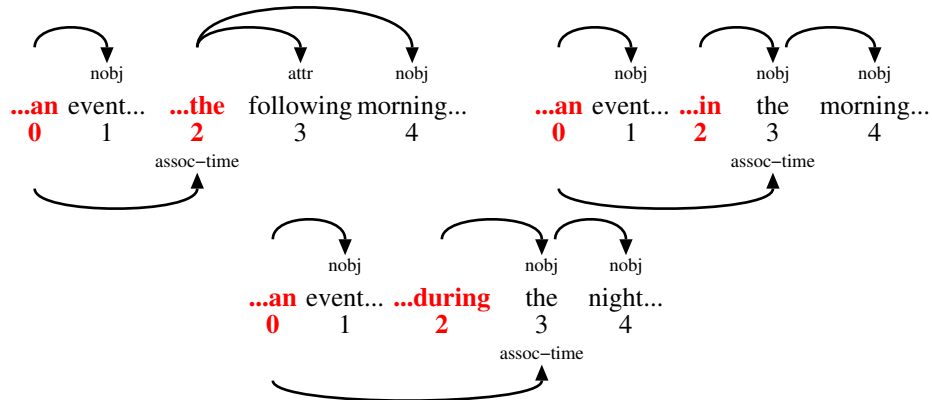
assoc-event *Associative anaphor (event)*. The anaphor is a predicate noun or similar which expresses an event that can be associated with the antecedent or in which the antecedent plays a part
 isa assoc-OTHER
 [215] Confusion²_{100%/100%/100%}: assoc-event_{100%} .



assoc-loc *Associative anaphor (location)*. The anaphor is located in the antecedent
 isa assoc-OTHER Confusion_{0%/100%/0%}: assoc-const_{100%} .
 [213]

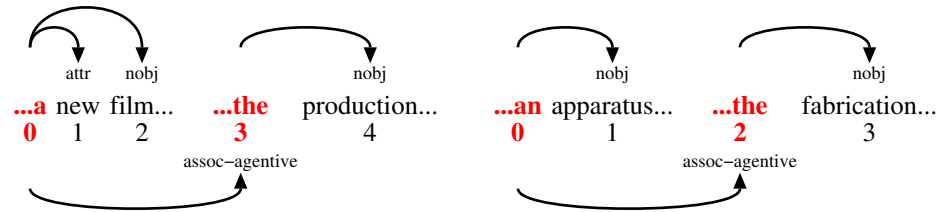


assoc-time *Associative anaphor (time)*. The antecedent is a predicate or predicative noun, a time indication or a more general narrative frame, the anaphor expresses a point in time linked to it
 isa assoc-OTHER [214]

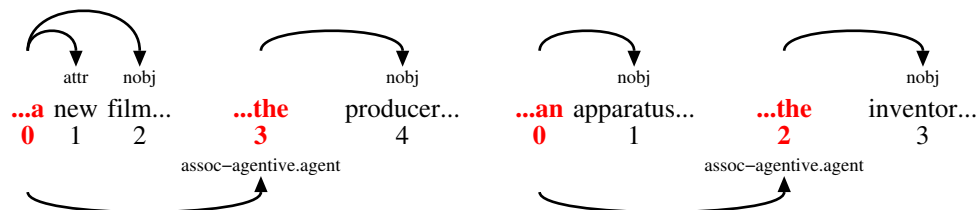


assoc-QUALIA *Associative anaphor wrt. qualia*. The anaphor denotes an entity which is associated with the antecedent with regard to the antecedent's qualia structure
 isa assoc [194] Subtypes: assoc-agentive assoc-const assoc-formal assoc-telic.

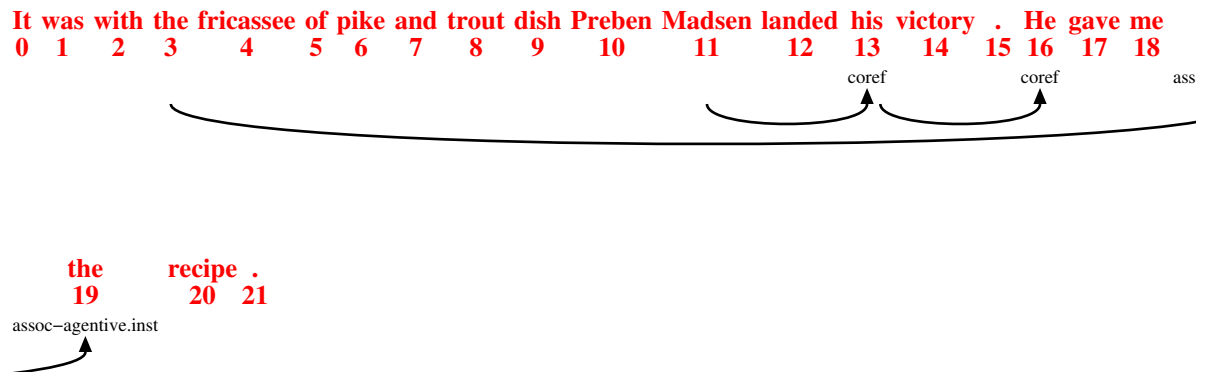
assoc-agentive *Associative anaphor (agentive)* (deprecated assoc-agent?). The anaphor is associated with the antecedent wrt its agentive quale (the "bringing about" of the antecedent)
 isa assoc-QUALIA [197] Subtypes: assoc-agentive.agent assoc-agentive.inst.
 Confusion_{50%/100%/50%}: coref-var_{50%} assoc-agentive_{50%} .



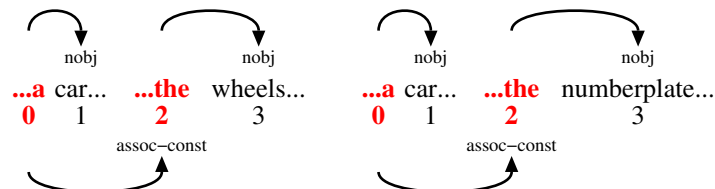
assoc-agentive.agent *Associative anaphor (agentive-agent)*. The anaphor plays the semantic role of agent wrt the
 isa assoc-agentive "bringing about" of the antecedent
 [198] Related types: assoc-agentive.inst.
 Confusion³_{0%/66.7%/0%³}: assoc-telic_{66.7%} coref_{33.3%} .

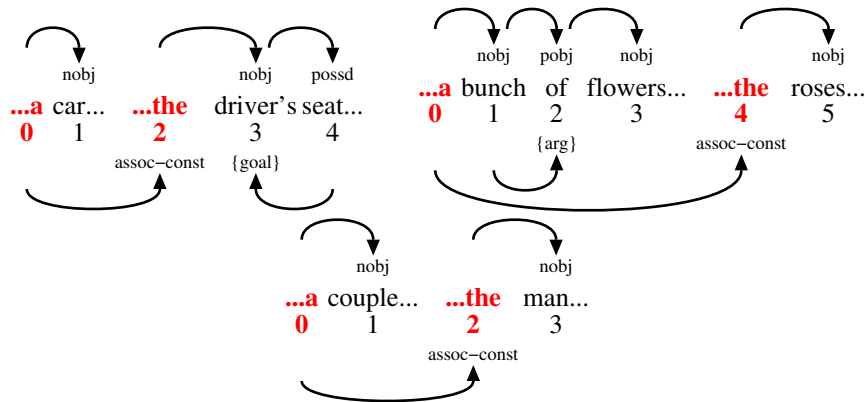


assoc-agentive.inst *Associative anaphor (agentive-inst)*. The anaphor plays the semantic role of instrument wrt
 isa assoc-agentive the "bringing about" of the antecedent
 [199] Related types: assoc-agentive.agent.

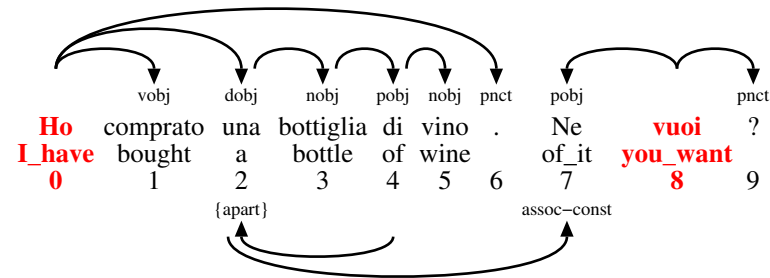


assoc-const *Associative anaphor (constitutive)*. The anaphor is associated with the antecedent wrt its
 isa assoc-QUALIA constitutive quale (parts, elements, material, etc.)
 [195] Confusion⁴¹_{48.8%/73.2%/58.5%⁴¹}: assoc-const_{58.5%} coref-var_{14.6%} assoc_{9.8%} assoc-telic_{4.9%} coref_{4.9%} assoc-loc_{4.9%} coref-
 iden_{2.4%} .

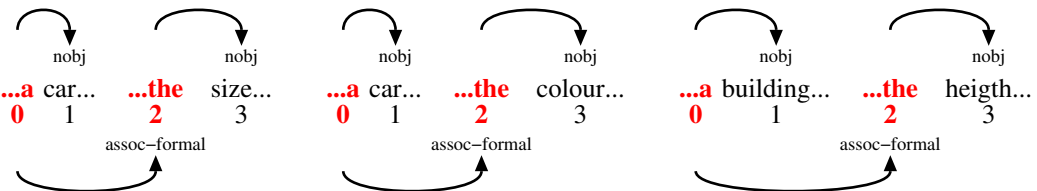




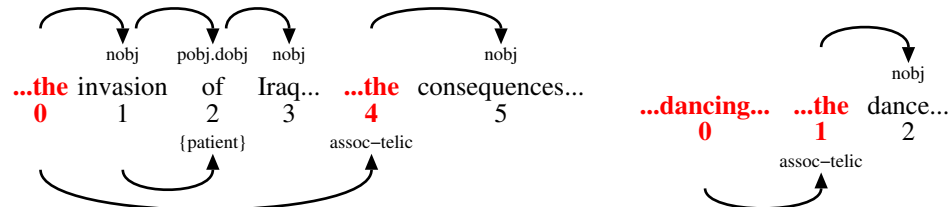
I have bought a bottle of wine. Do you want some of it?



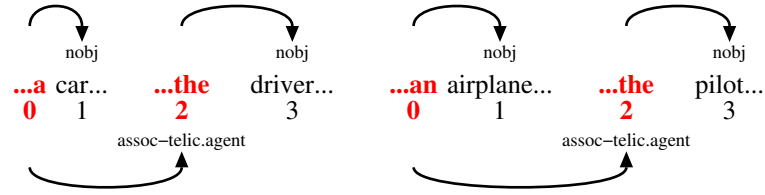
assoc-formal *Associative anaphor (formal)*. The anaphor is associated with the antecedent wrt its formal quale (shape, dimension, colour, etc.)
 isa assoc-QUALIA
 [196] Confusion¹_{100%/100%/100%}: assoc-formal_{100%} .



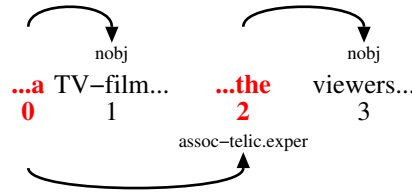
assoc-telic *Associative anaphor (telic)* (deprecated assoc-scope?). The anaphor is associated with antecedent wrt its telic quale (purpose, function, result, consequence etc.)
 isa assoc-QUALIA
 [200] Subtypes: assoc-telic.agent assoc-telic.exper assoc-telic.inst assoc-telic.patient assoc-telic.rec.
 Confusion²⁵_{40%/76%/56%}: assoc-telic_{56%} assoc-agentive.agent_{8%} assoc-telic.patient_{8%} assoc-const_{8%} assoc-telic.agent_{8%} coref-iden_{4%} assoc-telic.inst_{4%} coref-res_{4%} .



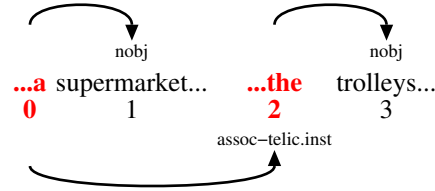
assoc-telic.agent *Associative anaphor (telic-agent)*. The anaphor plays the semantic role of agent wrt the telic quale of the antecedent (NB: the precise analysis of the semantic role will depend on the inferred predicate)
 isa assoc-telic
 [201] Confusion²_{0%/100%/0%}: assoc-telic_{100%} .



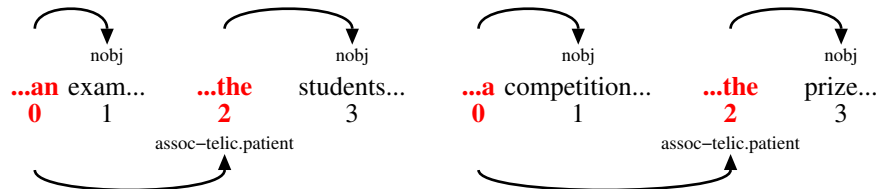
assoc-telic.exper *Associative anaphor (telic-experiencer)*. The anaphor plays the semantic role of experiencer wrt the telic quale of the antecedent (NB: the precise analysis of the semantic role will depend on the inferred predicate) [204]



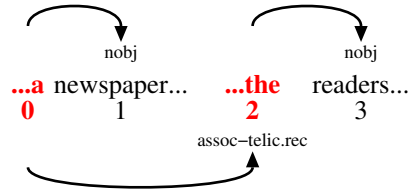
assoc-telic.inst *Associative anaphor (telic-instrument)*. The anaphor plays the semantic role of instrument wrt the telic quale of the antecedent (NB: the precise analysis of the semantic role will depend on the inferred predicate) [205]
Confusion¹_{0%/100%/0%}: assoc-telic_{100%} .



assoc-telic.patient *Associative anaphor (telic-patient)*. The anaphor plays the semantic role of patient wrt the telic quale of the antecedent (NB: the precise analysis of the semantic role will depend on the inferred predicate) [202]
Confusion²_{0%/100%/0%}: assoc-telic_{100%} .



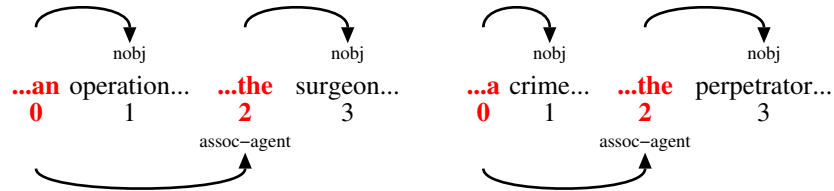
assoc-telic.rec *Associative anaphor (telic-recipient)*. The anaphor plays the semantic role of recipient wrt the telic quale of the antecedent (NB: the precise analysis of the semantic role will depend on the inferred predicate) [203]



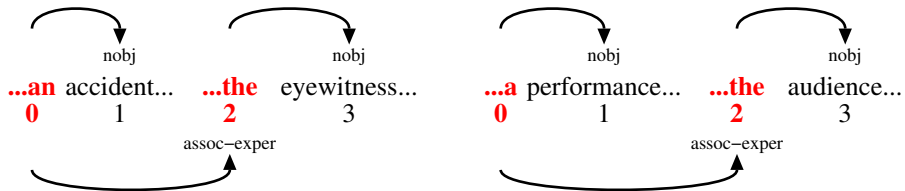
assoc-SEMROLE *Associative anaphor wrt. semantic role.* The antecedent is a predicate or predicative noun, and the anaphor designates an entity or individual that plays a semantic role wrt the antecedent predication
 isa assoc [206]

Subtypes: assoc-agent assoc-exper assoc-inst assoc-patient assoc-rec.

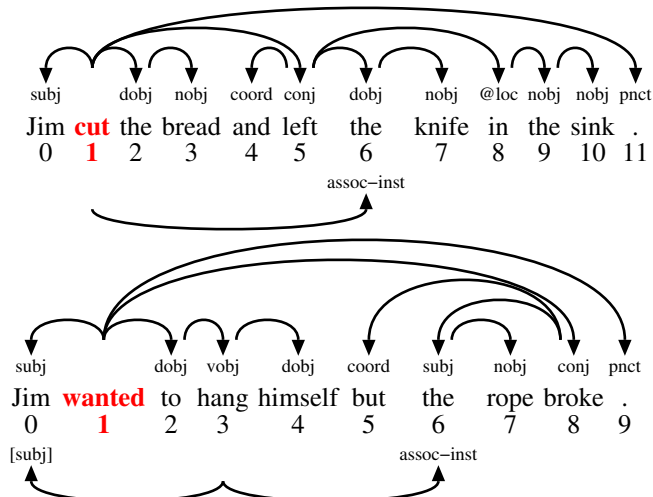
assoc-agent *Associative anaphor (agent).* The antecedent is a predicate or predicative noun, and the anaphor is the semantic agent
 isa assoc-SEMROLE [207]



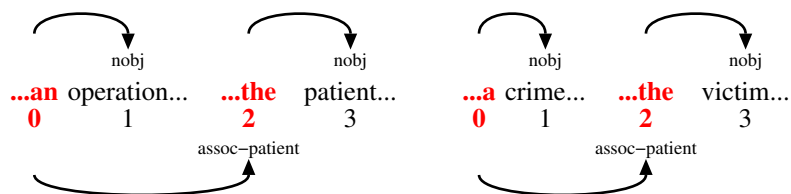
assoc-exper *Associative anaphor (experiencer).* The antecedent is a predicate or predicative noun, and the anaphor is the semantic experiencer
 isa assoc-SEMROLE [210]



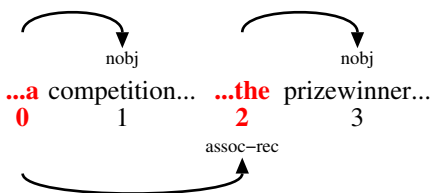
assoc-inst *Associative anaphor (instrument).* The antecedent is a predicate or predicative noun, and the anaphor is the semantic instrument.
 isa assoc-SEMROLE [211]



assoc-patient *Associative anaphor (patient).* The antecedent is a predicate or predicative noun, and the
 isa assoc-SEMROLE anaphor is the semantic patient
 [208]



assoc-rec *Associative anaphor (recipient).* The antecedent is a predicate or predicative noun, and the
 isa assoc-SEMROLE anaphor is the semantic recipient
 [209]



Chapter 7

Semantic relations: SEM

SEM: semantic level
SEMREL: semantic role
QUALIA: qualia role
{about}:
{agent}: An object or a person that performs an action
{apart}:
{arg}:
{cause}:
{class}:
{const}:
{elab}:
{eval}:
{event}:
{experiencer}: The receiver of an emotion or a physical impact
{form}:
{func}:
{goal}:
{iden}:
{location}: The location where something is situated or happens
{loc}:
{other}: No specific semantic role
{patient}: An object or a person that is the subject of the action or the one who
is located somewhere
{poss}:
{quant}:
{recipient}: The receiver of something
{resem}:
{source}:
{time}:

Figure 7.1: The relations matching SEM-!CDT1-!QUALIA-!SEMROLE-TOPIC.

SEM *Semantic level* (long: SEMANTICS). The semantic level includes relations between lexical elements construed as functors, arguments, and modifiers, as well as lexical features associated with semantic units.

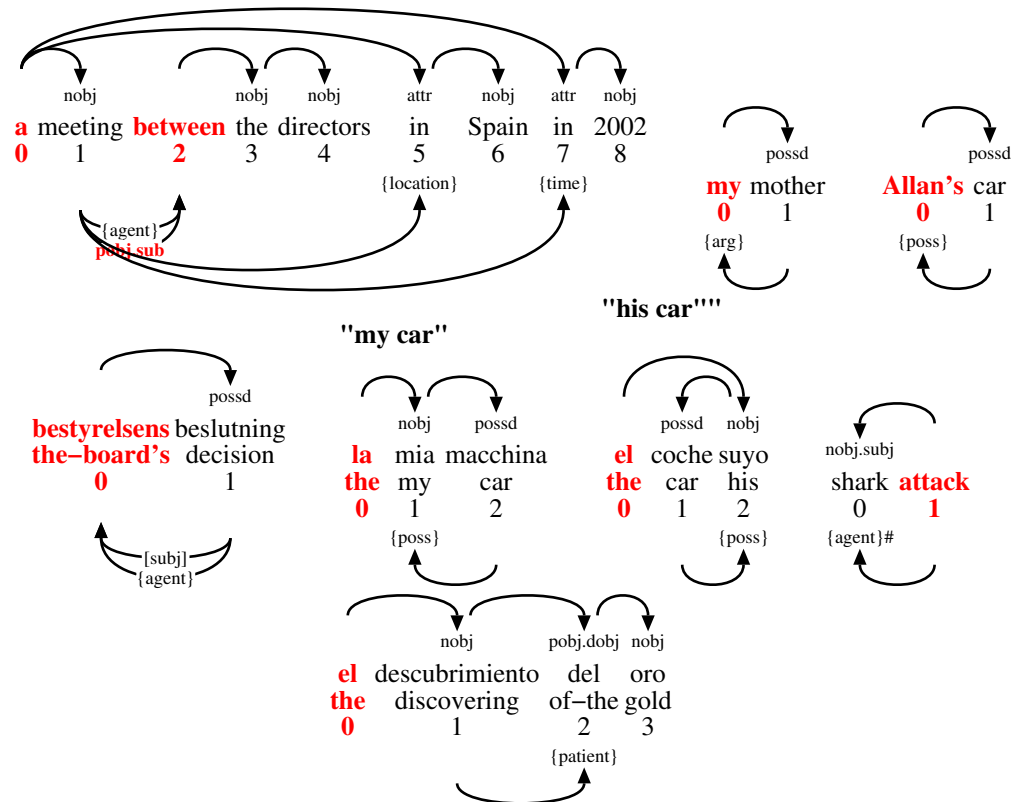
Subtypes: SEMREL.

SEMREL *Semantic role*. A semantic relation. The semantic relation specifies the argument role that

the child node fills with the parent node as its functor in the functor-argument structure, and encodes the semantic head in phrases headed by a function word without independent semantic meaning. In the DTAG visualization, semantic roles are drawn below the words. Semantic relations are always specified in parallel with a syntactic relation, whose type is determined by the word class of the involved lexical elements.

The DTAG annotation tool automatically replaces a relation with label "PRIM{SEMREL}" with two relations, one with label "PRIM" and one with label "{SEMREL}", so that relations of this form are drawn as two arrows. Relation names of this form are not strictly relation labels in their own right, merely shorthands in DTAG.

Subtypes: QUALIA {about} {agent} {apart} {arg} {cause} {class} {const} {elab} {eval} {event} {experiencer} {form} {func} {goal} {iden} {location} {loc} {other} {patient} {poss} {quant} {recipient} {resem} {source} {time}.



QUALIA *Qualia role*. A qualia role. Ie, a semantic relation that links a lexeme to a qualia role associated with that lexeme. Eg, "music" to the act of "composing" (agentive), "listening" (telic), etc.

[30] Subtypes: agentive const formal resemblance telic.

{about} . Used in noun phrases where the modifier indicates the content or genre of the head, which typically denotes a semiotic artefact.

[62] Confusion³⁰_{43.3%/96.7%/43.3%}: {about}43.3% {arg}20% {patient}20% {goal}6.7% {func}6.7% {loc}3.3% .



{agent} *An object or a person that performs an action.* Used in noun phrases where the modifier is the object or the person that performs the volitional action indicated by the head.

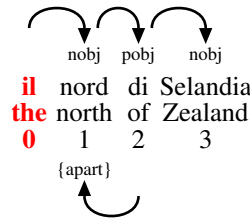
isa SEMREL [50] Confusion⁶⁵_{58.5%/95.4%/60%:} {agent}60% {arg}26.2% {patient}4.6% {experiencer}4.6% {loc}1.5% {goal}1.5% {source}1.5% .



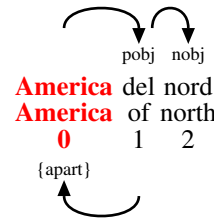
{apart} . Used in noun phrases where the modifier specifies an arbitrary part of the head. Please note that the semantic relation goes from the modifier to the head in opposition to the main part [63] of the other semantic roles.

Confusion¹⁹_{42.1%/100%/42.1%:} {quant}47.4% {apart}42.1% {loc}5.3% {const}5.3% .

Northern Zealand



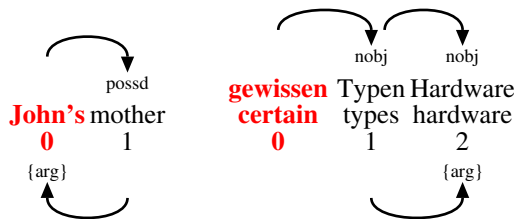
North America



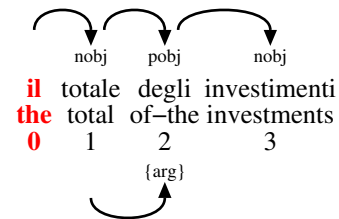
{arg} . Used in noun phrases with relational nouns.

isa SEMREL Confusion¹⁸⁹_{55%/94.7%/56.6%:} {arg}56.6% {agent}9% {patient}5.3% {const}4.8% {func}4.2% {goal}4.2% {loc}3.7% {source}3.7% [68] {about}3.2% {poss}2.6% {other}1.6% {quant}0.5% {time}0.5% .

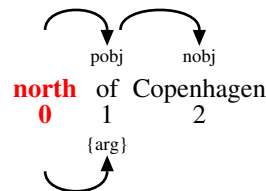
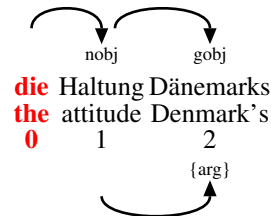
certain types of hardware



the overall investment

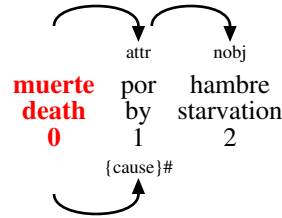


Denmark's attitude



{cause} . Used in noun phrases where the modifier is the person or object that performs the non-volitional action indicated by the head.

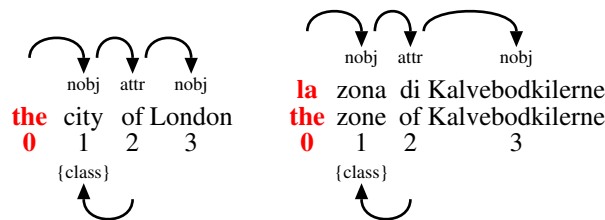
isa SEMREL [53] Confusion¹_{0%/100%/0%:} {goal}100% .



{class} . Used in noun phrases where the modifier indicates the super type or classification of the head. Please note that the modifier is the semantic head of the NP in opposition to the main part of the other semantic roles.

Related types: {iden}.

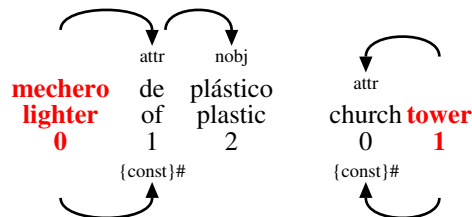
Confusion_{40%/100%/40%}: {class}40% {other}40% {const}20% .



{const} . Used in noun phrases that expresses a part-whole or whole-part relation between the modifier and the head or where the modifier denotes the material of or an essential constituent of the head.

Confusion_{55.1%/95.9%/57.1%}: {const}57.1% {arg}18.4% {source}6.1% {form}4.1% {poss}4.1% {apart}2% {loc}2% {class}2% {goal}2% {func}2% .

plastic lighter



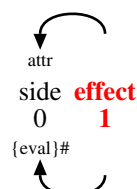
{elab} .

Related types: modp.

Confusion_{71.4%/85.7%/85.7%}: {elab}85.7% {loc}14.3% .

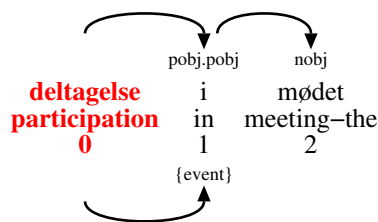
{eval} . Used in noun phrases where there is a descriptive or evaluative relation between the modifier and the head.

Confusion_{100%/100%/100%}: {eval}100% .



{event} . Used in noun phrases where the modifier denotes an event rather than a location or temporal relation. Often used in connection with predicative head nouns.

[59] Related types: {loc} {time}.



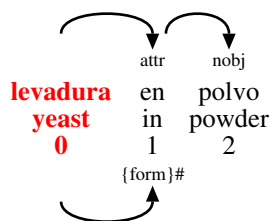
{experiencer} *The receiver of an emotion or a physical impact.* Used in noun phrases with a predicative head. Most often the modifier functions as the logical direct object of the predicate and semantically as the experiencer of an emotion or physical impact.

Confusion⁷_{42.9%/100%/42.9%}: {experiencer}42.9% {agent}42.9% {patient}14.3% .

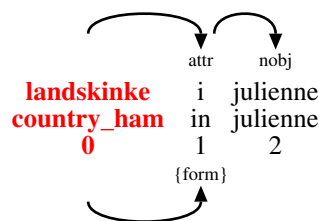
{form} . Used in noun phrases where the satellite indicates the shape or form of the nucleus.

Confusion⁶_{50%/100%/50%}: {form}50% {const}33.3% {loc}16.7% .

baking powder

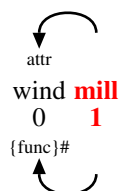


country ham in julienne strips



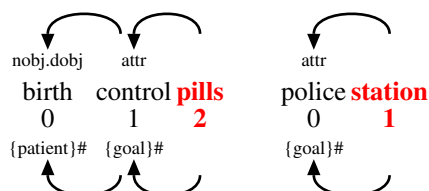
{func} . Used in noun phrases where the satellite determinates the instrumental function of the nucleus.

[55] Confusion⁴⁵_{51.1%/100%/51.1%}: {func}51.1% {arg}17.8% {goal}11.1% {loc}6.7% {about}4.4% {const}2.2% {iden}2.2% {patient}2.2% {other}2.2% .



{goal} . Used in noun phrases where the satellite determinates the goal or the intention for which the nucleus is destined.

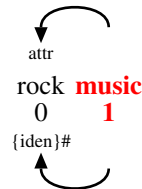
[54] Confusion⁷¹_{64.8%/98.6%/66.2%}: {goal}66.2% {arg}11.3% {func}7% {loc}2.8% {about}2.8% {cause}1.4% {const}1.4% {resem}1.4% {agent}1.4% {recipient}1.4% {patient}1.4% {other}1.4% .



{iden} . Used in noun phrases where the satellite indicates the identity of the nucleus. In this case it is also possible to equate the satellite to the nucleus i.e. that the nucleus represents the super type of the satellite.

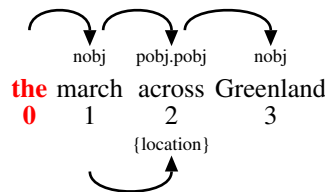
Related types: {class}.

Confusion¹_{0%/100%/0%}: {func}100% .



{location} *The location where something is situated or happens.* Used in noun phrases where there is a deverbal relation between the nucleus and the satellite. Often realized as a prepositional object

Confusion²_{50%/100%/50%}: {loc}50% {location}50% .



{loc} (deprecated {pos}). Used in noun phrases where the satellite indicates the location of the position or the location of nucleus.

Related types: {event}.

Confusion⁸²_{51.2%/86.6%/59.8%}: {loc}59.8% {arg}8.5% {source}8.5% {func}3.7% {goal}2.4% {patient}2.4% {poss}2.4% {other}2.4% {const}1.2% {agent}1.2% {form}1.2% {location}1.2% {elab}1.2% {apart}1.2% {recipient}1.2% {about}1.2% .



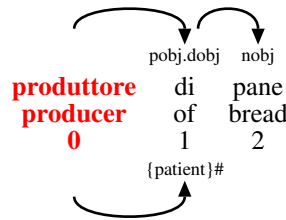
{other} *No specific semantic role.* Used when none of the other semantic roles are suitable or when in doubt.

Confusion²²_{36.4%/95.5%/36.4%}: {other}36.4% {arg}13.6% {poss}13.6% {loc}9.1% {class}9.1% {quant}4.5% {func}4.5% {time}4.5% {goal}4.5% .

{patient} *An object or a person that is the subject of the action or the one who is located somewhere.* Used in noun phrases where there is a deverbal relation between the nucleus and the satellite. Often realized as a direct object

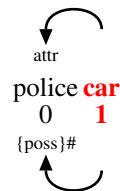
Confusion⁷¹_{57.7%/88.7%/63.4%}: {patient}63.4% {arg}14.1% {about}8.5% {agent}4.2% {loc}2.8% {func}1.4% {experiencer}1.4% {recipient}1.4% {goal}1.4% {poss}1.4% .

bread producer



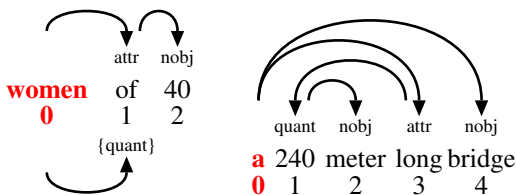
{poss} . Used in noun phrases where there is a possession relation between the nucleus and the satellite. Often the satellite is the owner or possessor of the nucleus.

[56] Confusion²⁷_{44.4%/88.9%/48.1%}: {poss}48.1% {arg}18.5% {other}11.1% {loc}7.4% {const}7.4% {patient}3.7% {source}3.7% .



{quant} . Used in noun phrases where the satellite indicates the quantity in numbers or another countable unit of the nucleus.

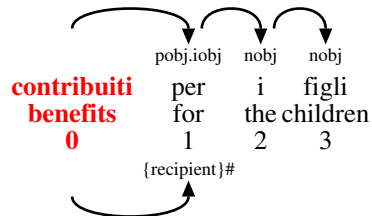
[65] Confusion²¹_{47.6%/95.2%/47.6%}: {quant}47.6% {apart}42.9% {arg}4.8% {other}4.8% .



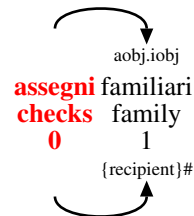
{recipient} *The receiver of something.* Used in noun phrases where there is a deverbal relation between the nucleus and the satellite. Often realized as an indirect object

[72] Confusion⁷_{57.1%/100%/57.1%}: {recipient}57.1% {loc}14.3% {patient}14.3% {goal}14.3% .

child benefits



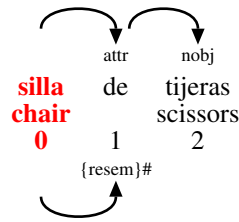
child maintenance



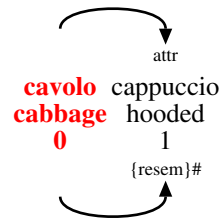
{resem} . Used in noun phrases where there is a resemblance between the nucleus and the satellite.

[61] Confusion²_{50%/100%/50%}: {resem}50% {goal}50% .

folding chair

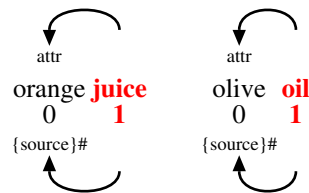


spring cabbage



{source} (deprecated {origin}). Used in noun phrases where the satellite is the source from which the nucleus derives or is deduced.

[52] Confusion⁴⁴_{47.7%/88.6%/50.0%}: {source}50% {loc}15.9% {arg}15.9% {const}6.8% {time}6.8% {agent}2.3% {poss}2.3% .



{time} . Used in noun phrases where the satellite indicates some kind of temporal aspect of the nucleus.

[58] Related types: {event}.

Confusion²⁸_{64.3%/78.6%/82.1%}: {time}82.1% {source}10.7% {arg}3.6% {other}3.6% .



7.1 Qualia relations: QUALIA

QUALIA: qualia role

agentive: agentive qualia

const: constitutive qualia

formal: formal qualia

location: location qualia

resemblance: resemblance wrt. qualia role

””QUALIA: resemblance wrt. \$qualia relation

telic: telic qualia

about: about qualia

Figure 7.2: The relations matching QUALIA-!CDT1.

QUALIA *Qualia role*. A qualia role. Ie, a semantic relation that links a lexeme to a qualia role associated with that lexeme. Eg, ”music” to the act of ”composing” (agentive), ”listening” (telic), etc.

[30]

Subtypes: agentive const formal resemblance telic.

agentive *Agentive qualia*. A relation which describes the origin of an object. E.g., its creator, artifact, natural kind, causal chain (cf. Pustejovsky 1995).
isa QUALIA [41]

const *Constitutive qualia* (long: constitutive). A relation between an object and its constituents or proper parts. E.g., material, weight, parts and component elements (cf. Pustejovsky 1995).
isa QUALIA [38]

formal *Formal qualia*. A property that distinguishes the object within a larger domain. E.g., its orientation, magnitude, shape, dimensionality, color, position (cf. Pustejovsky 1995).
isa QUALIA [39]
Subtypes: location.

location *Location qualia*. A qualia role that relates a lexeme to its location qualia.
isa formal [42]
resemblance *Resemblance wrt. qualia role*. Resemblance wrt. some qualia role
isa QUALIA [44]
Subtypes: ""QUALIA.

""QUALIA *Resemblance wrt. \$qualia relation*.
isa RULE resemblance

telic *Telic qualia*. A relation which describes the purpose and function of the object. E.g., the purpose of performing an act, the intended use of an artifact (cf. Pustejovsky 1995).
isa QUALIA [40]
Subtypes: about.

about *About qualia*. Relates to hyponym (subtype)
isa telic [43]

7.2 Thematic role relations: SEMROLE

Figure 7.3: The relations matching SEMROLE-!CDT1.

Chapter 8

Word alignment relations: ALIGN

ALIGN: alignment level
ALIGNREL: alignment relation
"": unlabeled word alignment
f: fuzzy word alignment

Figure 8.1: The relations matching ALIGN-!CDT1-TOPIC.

ALIGN *Alignment level* (long: ALIGNMENT). The alignment level includes alignment relations as well as lexical features associated with alignments.

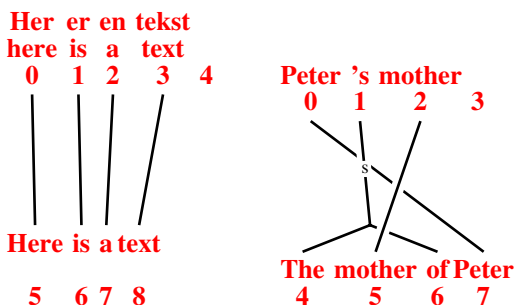
[15] Subtypes: ALIGNREL.

ALIGNREL *Alignment relation*. An alignment relation. An alignment relation encodes a translational equivalence between two sets of words (and their associated phrases), either in terms of form or meaning. Null alignments - ie, a set of words in one text which does not correspond to any set of words in the other text - are encoded as a set of words that is aligned to itself.

Subtypes: "" f.

"" *Unlabeled word alignment* (long: align). An unlabeled word alignment is represented as a word alignment where the label is an empty string. It is used to represent the default word alignment, where there is full translational equivalence between the two sets of words.

[389]



f *Fuzzy word alignment* (long: fuzzy). A semantically fuzzy word alignment.

isa ALIGNREL
[390]

Here is a car
0 1 2 3 4
| | | |
| | | f
Here is a vehicle
5 6 7 8

Chapter 9

Rule schemata for complex relations: RULE

RULE: generative type specification rule
""QUALIA: resemblance wrt. \$qualia relation
RuleAnd: conjunctive both-and type
RuleAttr: attribution
RuleAttrD: down-dependent in attribution
RuleAttrH: down-head in attribution
RuleDisc: syntactic discourse relation
RuleExpConn: explicit connector
RuleGap: gapping dependent
RuleIdiom: idiomatic relation pattern
RuleImpConn: implicit connector
RuleMorph: syntactic morphology relation
RuleOblAdv: valency-bound adverbial
RuleOr: disjunctive either-or type
RulePar: disambiguated type
RuleSec: secondary relation pattern

Figure 9.1: The relations matching RULE-!CDT1-TOPIC.

RULE *Generative type specification rule.* Generative type specification rules specify how type names are created generatively using rules. A rule consists of a sequence of null-separated items which are either character sequences enclosed in double quotes or type names; parts of a rule may be enclosed in parentheses and followed by an optional repetition operator: "" (0 or more times), "+" (1 or more times), or "?" (0 or 1 times). When specifying the super types for a generated type, \$1 refers to the part of the type name matched within the first pair of parentheses, \$2 the part within the second pairs of parentheses, etc. Generated types may be used as super types.

For example, the rule "<"PRIM">" generates all relation names formed by enclosing any relation name from the "PRIM" hierarchy in angle brackets. "<"PRIM"."PRIM")"">" generates all relation names formed by enclosing a "."-separated sequence of "PRIM" relation names in angle brackets.

Subtypes: ""QUALIA RuleAnd RuleAttr RuleAttrD RuleAttrH RuleDisc RuleExpConn RuleGap RuleIdiom RuleImpConn RuleMorph RuleOblAdv RuleOr RulePar RuleSec.

""QUALIA *Resemblance wrt. \$qualia relation.*

isa RULE resemblance

[45]

RuleAnd *Conjunctive both-and type* (long: (REL)"&"(REL)). Conjunctive both-and relation types can be formed as "&"-separated lists of relation types. Conjunctive relation types are used by the annotators when two or more relation types seem to hold simultaneously. They may be removed from later versions of the CDT treebanks.

RuleAttr *Attribution* (long: (PRIM)"/ATTR"INTEGER). Specifies the person to whom the utterance is attributed (ATTR or ATTR1, ATTR2, ... when there is more than one person)

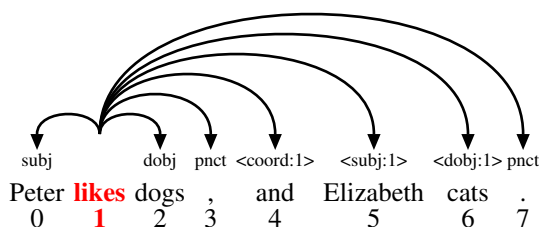
RuleAttrD *Down-dependent in attribution* (long: DISC"*"). The dependent in the relation is one step further down in the attribution chain

RuleAttrH *Down-head in attribution* (long: "*"DISC). The head in the relation is one step further down in the attribution chain

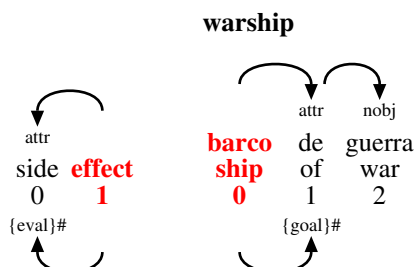
RuleDisc *Syntactic discourse relation* (long: "_"(PRIM)). A primary syntactic relation that has been used as a discourse relation for stylistic purposes.

RuleExpConn *Explicit connector* (long: PRIM"/"CONNECTOR). The discourse relation has explicit connector

RuleGap *Gapping dependent* (long: "<"PRIM(":"PRIM)*":"INTEGER">"). A gapping dependency relation is formed by using angled brackets to enclose a colon-separated list of primary relations followed by an integer that indicates the number of the gapped conjunct, starting with 1. The list of primary relations describes the path from the head of the gapped conjunct to the gapping dependent within the gapped conjunct, viewed as a copy of the tree structure within the first conjunct.



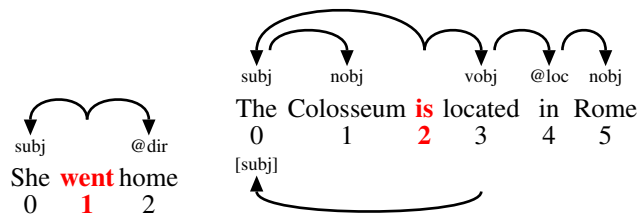
RuleIdiom *Idiomatic relation pattern* (long: (SEMREL)"#"). A semantic relation can be marked as idiomatic by putting a trailing "#" after the semantic relation name. The idiom marker is only used with semantic relations, not with syntactic relations.



RuleImpConn *Implicit connector* (long: PRIM"/("CONNECTOR)"). The discourse relation has implicit connector \$CONNECTOR
isa RULE [380]

RuleMorph *Syntactic morphology relation* (long: "_"(PRIM)). A primary syntactic relation that has been used as a morphology relation for stylistic purposes.
isa MORPH RULE [372]

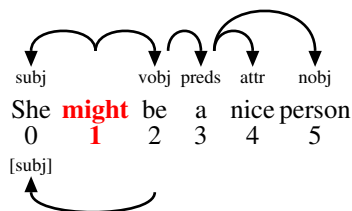
RuleOblAdv *Valency-bound adverbial* (long: "@"(ADVERB)). An adverbial relation can be marked as obligatory by putting "@" in front of the relation name.
isa COMP RULE [370] Related types: cont dir dur ext hab loc prec succ time.



RuleOr *Disjunctive either-or type* (long: (REL)"|"(REL)). Disjunctive either-or relation types can be formed as "|" separated lists of relation types. Disjunctive relations types are used by the annotators when one of the relation types in the disjunction seems to provide the right label for the relation, but it is difficult to decide which one of them is most appropriate. They may be removed from later versions of the CDT treebanks.
isa RULE [365]

RulePar *Disambiguated type* (long: "(" (REL) ")"). Relation types can be disambiguated by enclosing them in parentheses. The need for disambiguation normally only arises when specifying conjunctive or disjunctive types.
isa RULE [366]

RuleSec *Secondary relation pattern* (long: "[" PRIM "]"). A secondary relation name is formed by enclosing a primary relation name in square brackets.
isa RULE SEC [368] Related types: SEC.



Chapter 10

Ontological relations: ONTO

ONTO: ontology level
ONTOCLASS: ontological class
 _top: ontological entity
 _abstract: abstract entity
 _concrete: concrete entity

Figure 10.1: The relations matching ONTO-!CDT1-TOPIC.

ONTO *Ontology level* (long: ONTOLOGY). The ontological level includes relations between lexical elements construed as ontological units, as well as lexical features associated with ontological units.
isa DIM:LEVEL [13]

Subtypes: ONTOCLASS.

ONTOCLASS *Ontological class*. A class in the ontology. The ontology encodes a classification of all lexical elements with respect to their natural kind.
isa FEAT ONTO [459]
Subtypes: _top.

_top *Ontological entity*.
isa ONTOCLASS Subtypes: _abstract _concrete.
[460]

_abstract *Abstract entity*.
isa _top [461]

_concrete *Concrete entity*.
isa _top [462]

Chapter 11

Deprecated relations from DDT: CDT1

CDT1: Deprecated CDT1 relations
CDT1ADJ: Deprecated CDT1 adjunct relations
err: Deprecated error relation.
list: Deprecated list element.
mod: modifier/adverbial
 modo: object-oriented modifier
 modp: parenthetic modifier
 modr: restrictive modifier
mods:
obl:
rep:
CDT1COMP: Deprecated CDT1 complement relations
lobj: Deprecated locative object.
tobj: Deprecated temporal object.
CDT1GAP: Deprecated CDT1 gap relations
 <avobj>:
 <dobj>:
 <lobj>:
 <mod>:
 <nobj>:
 <pobj:nobj>:
 <pobj>:
 <possd>:
 <pred>:
 <qobj>:
 <subj:pobj>:
 <subj>:
 <vobj>:
 <xpl>:

Figure 11.1: The relations matching CDT1.

CDT1 *Deprecated CDT1 relations.* Deprecated relations from the CDT1+2 treebanks.

isa ANY Subtypes: CDT1ADJ CDT1COMP CDT1GAP.
[394]

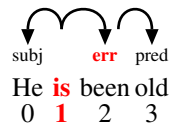
CDT1ADJ *Deprecated CDT1 adjunct relations.* Deprecated adjunct relations from the CDT1+2 tree-

isa CDT1 SYNADJ
[396]

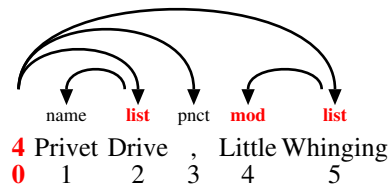
banks.

Subtypes: err list mod mods obl rep.

err *Deprecated error relation..* Deprecated error relation. Used when connecting two phrases
isa CDT1ADJ that do not fit together, often because of errors in the text.
[401]



list *Deprecated list element..* Deprecated list element. Used when two or more phrases form
isa CDT1ADJ a unit, but the internal structure is hard to analyze with the existing set of relations (eg,
[400] addresses, phone numbers, etc). The secondary elements are analyzed as list adjuncts of the
first element.



mod *Modifier/adverbial.* Deprecated name for adverbials
isa CDT1ADJ Subtypes: modo modp modr.
[420]

modo *Object-oriented modifier.* Deprecated name for object-oriented modifiers

isa mod

[423]

modp *Parenthetic modifier.* Deprecated name for parenthetic modifiers

isa mod

[422]

modr *Restrictive modifier.* Deprecated name for restrictive modifiers

isa mod

[421]

mods .

isa CDT1ADJ

[401]

isa CDT1ADJ

[403]

isa CDT1ADJ

CDT1COMP *Deprecated CDT1 complement relations.* Deprecated complement relations from the CDT1+2
treebanks.

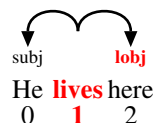
[395]

Subtypes: lobj tobj.

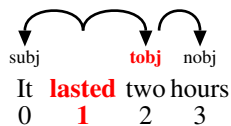
lobj *Deprecated locative object..* Deprecated locative object.

isa CDT1COMP

[398]



tobj *Deprecated temporal object..* Deprecated temporal object.
 isa CDT1COMP
 [399]



CDT1GAP *Deprecated CDT1 gap relations.* Deprecated gapping relations from the CDT1+2 treebanks.
 isa CDT1 gapd
 [397] Subtypes: <avobj> <dobj> <lobj> <mod> <nobj> <pobj:nobj> <pobj> <possd> <pred> <qobj> <subj:pobj> <subj>
 <vobj> <xpl>.

<avobj> .
 isa CDT1GAP
 [413]
<dobj> .
 isa CDT1GAP
 [1607]
<lobj> .
 isa CDT1GAP
 [611]
<mod> .
 isa CDT1GAP
 [405]
<nobj> .
 isa CDT1GAP
 [409]
<pobj:nobj> .
 isa CDT1GAP
 [417]
<pobj> .
 isa CDT1GAP
 [441]
<possd> .
 isa CDT1GAP
 [418]
<pred> .
 isa CDT1GAP
 [409]
<qobj> .
 isa CDT1GAP
 [417]
<subj:pobj> .
 isa CDT1GAP
 [417]
<subj> .
 isa CDT1GAP
 [408]
<vobj> .
 isa CDT1GAP
 [418]
<xpl> .
 isa CDT1GAP
 [415]

Chapter 12

Relations misplaced outside the ANY hierarchy

MISPLACED: misplaced relation
_interfix:

Figure 12.1: The relations matching -ANY.

MISPLACED *Misplaced relation.* A misplaced relation. A relation is misplaced if it fails to have "ANY" [6] as a transitive super type. This should never happen, and the problem must be corrected if a misplaced relation shows up in the misplaced relations table.

_interfix .
[277]

Chapter 13

Annotation topics:: TOPIC

TOPIC: annotation topic

- %ALIGN: Alignment constructions
- %DISC: Discourse constructions
 - %DISC:ANAPHORA:
- %MORPH: Morphological constructions
- %SEM: Semantic constructions
- %SYN: Syntactic constructions
 - %SYN:FPRED: Free Predicates
 - %SYN:NP: Complex NP constructions
 - %SYN:NP:CP: Compounds
 - %SYN:NP:GEN: Genitive NP constructions
 - %SYN:NP:MOD: NP-modifiers
 - %SYN:NP:MOD:ADJ: Adjectives modifying a NP construction
 - %SYN:NP:MOD:ADV: Adverbial modifying a NP construction
 - %SYN:NP:RELN: NP constructions with relational nouns
 - %SYN:NP:VRN: NP constructions with verb-related nouns
 - %SYN:PP: PP constructions
 - %SYN:VP: VP constructions
 - %SYN:VP:PRED: VP constructions with subject predicative
 - %SYN:VP:VOBJ: VP constructions with a verbal object

Figure 13.1: The relations matching TOPIC-DIM.

TOPIC *Annotation topic.* A topic in the annotation guidelines. A topic describes how a particular linguistic construction is annotated in the treebanks, as an aid for the annotators and human users of the CDT treebanks. If a linguistic relation is very closely associated to one or more topics (eg, "gobj" for genitive constructions), the topics should be added as super types for the relation, so that the relations and the topics are properly linked in the annotation manual.

Subtypes: %ALIGN %DISC %MORPH %SEM %SYN.

%ALIGN *Alignment constructions* (long: %alignment).

isa TOPIC

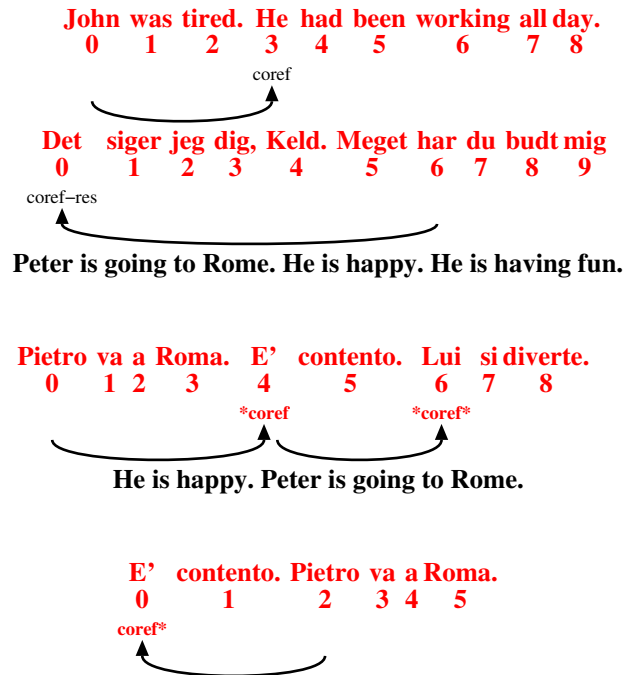
%DISC *Discourse constructions* (long: %discourse).

isa TOPIC Subtypes: %DISC:ANAPHORA.

[434]

%DISC:ANAPHORA (long: %anaphora). In the annotation of anaphors, the anaphor is dependent on the antecedent (see example). In the annotation of cataphors, the cataphor is dependent on the postcedent (see example). Cataphors are annotated with the same relations as anaphors.

In the Romance languages it is common to have finite verbs without any subjects. Secondary subject relations are added a "*" in front of the "[subj]" relation. The implicit subject in the finite verb is annotated as "*"coref" when the subject is the antecedent, "*"coref*" when the subject is the anaphor, and "coref*" when the subject is a cataphor. "\$*coref" is used when no subject is explicited neither before nor after, i.e. when the finite verb refers to the reader/writer (Volvemos al debate sobre...)



%MORPH *Morphological constructions* (long: %morphology). Some of the results of the meeting held on
 isa TOPIC 17.06.10. These are the new principles of how to annotate complex compounds and words
 [433] containing interfixes or another nuclearity change

sommerhuskøbsaftale|cottage deed

aftal +e/DERvn:patient -[køb@V /DERvn:core [hus -sommer/TIME]/DOBJ.patient]s/ABOUT
 0 1 2 3 4 5
 aftaler disappeared

aftal +e/DERvn:core ~r
 0 1 2
 drab|kill

aftal +e/DERvn:core ~n
 0 1 2

appear -dis/NEG:rev ~ed
 0 1 2
 blegne|fade

dræb !!ab/DERvn:core
 0 1

foreslå !!!!slag/DERvn:core ~et
 0 1 2
 compral|purchase

bleg +ne/DERav
 0 1

comprar !! +a/DERvn:core
 0 1 2

salud ^a +ble/DERna:epi -title=saludable // iraq ^u +i/DERna:deono.loc
 healthy
 0 1 2 3 4 5 6 7
 X (!*)(interfix)?(suffix)?
 0 1

%SEM *Semantic constructions* (long: %semantics).

isa TOPIC

%SYN *Syntactic constructions* (long: %syntax).

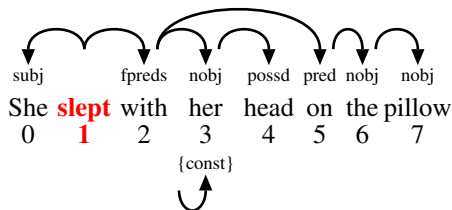
isa TOPIC Subtypes: %SYN:FPRED %SYN:NP %SYN:PP %SYN:VP.

[432]

%SYN:FPRED *Free Predicatives* (long: %freepredicatives).

isa %SYN

[452]



%SYN:NP *Complex NP constructions* (long: %np). A detailed description of how different complex NP constructions are annotated. En general, all complex NP constructions have a syntactic as well a semantic annotation.

[437]

Subtypes: %SYN:NP:CP %SYN:NP:GEN %SYN:NP:MOD %SYN:NP:RELN %SYN:NP:VRN.

example1 example2
 0 0

%SYN:NP:CP *Compounds* (long: %np_compounds).

isa %SYN:NP

%SYN:NP:GEN *Genitive NP constructions* (long: %genitives). In genitive constructions (X's Y) the dependent (Y) is always annotated as "possd" in the syntactic annotation. In the semantic annotation X is analysed as the dependent and the semantic relation annotated depends on the type

[444]

of noun or entity represented by Y. The "s" functions as a determiner, thus attributives are annotated as dependents to the X, with the exception of compounds of the type [Adj. ø N]# (Lotte's green card) Genitive constructions with verb-related nouns: Genitive constructions with relational nouns: Other genitive constructions:

%SYN:NP:MOD *NP-modifiers* (long: %np_modifiers).

isa %SYN:NP Subtypes: %SYN:NP:MOD:ADJ %SYN:NP:MOD:ADV aobj attr.

[438]

%SYN:NP:MOD:ADJ *Adjectives modifying a NP construction* (long: %np_adjectives). Adjectives modifying a NP construction are annotated using the syntactic label "attr" when the adjective functions as a syntactic adjunct, or "aobj" when the adjective modifies a verb-related or relational noun. In

[439]

the analysis of Germanic languages, the adjective is analysed as a dependent of the pronoun where it is present, and as a dependent of the noun otherwise, whereas in the analysis of Romanic languages the adjective is always analysed as a dependent of the noun. However, when forming part of a compound of the type [Adj. ø N#] (e.g. "high school") the adjective is always analysed as dependent on the noun. In the case of relational adjectives, the semantic

relation between the noun and adjective is also annotated. In the semantic annotation, the adjective is always analysed as a dependent of the noun.

%SYN:NP:MOD:ADV *Adverbial modifying a NP construction* (long: %np_adverbials).

isa %SYN:NP:MOD

%SYN:NP:REL *NP constructions with relational nouns* (long: %np_relational).

isa %SYN:NP

%SYN:NP:VRN *NP constructions with verb-related nouns* (long: %np_deverbal).

isa %SYN:NP

%SYN:PP *PP constructions* (long: %pp). When the complement in a PP consists of a noun or a pronoun

the complement is annotated as "nobj". In the Romance languages, when an infinit verb

[450] functions as the complement of a preposition, the infinite is annotated as "vobj". In English, where the preposition can take an "ing-form" of the verb as it's complement, the verb is annotated as "nobj". In Danish, a preposition can take an infinitive with an infinitive marker as is complement. In these constructions the infinitive marker "at" is annotated as "nobj" (complement) to the preposition and the infinitive as "vobj" to the infinitive marker.

%SYN:VP *VP constructions* (long: %vp).

isa %SYN Subtypes: %SYN:VP:PREDS %SYN:VP:VOBJ.

[447]

%SYN:VP:PREDS *VP constructions with subject predicative* (long: %subjectpredicatives). Passive sentences

the participle in passive sentences (e.g. The book is printed in Copenhagen) is always annotated

isa %SYN:VP as "preds". In Danish passive sentences with compound tense (er/var blevet) "blevet" is an-

[448] notated as vobj to the finite verb and the participle as preds to "blevet" (example 2). Note that the Danish verb "være" can also be used in passive sentences with transitive verbs, probably as a variant of "være +blevet" (example 3: Bogen er (blevet) trykt i København). In this case the participle is annotated as preds according to the annotation of participles in passive sentences with the verb "blive". In italian passive sentences with compound tense, "stata/stato" is annotated as vobj to the finite verb in spite of it's concord inflection, whereas the participle following "stata/stato" is annotated as preds (example 4) This annotation of the passive sentences allows direct and indirect complements as well as adjuncts (e.g. "agent"-adverbs) to be analysed as dependent on the subject predicative.

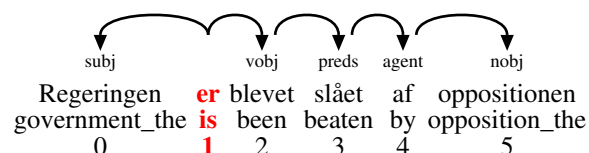
Special constructions with free predicatives (example) (Hun skjulte med en rødmen i kinderne ansigtet i sin hænder; Han arbejdede med hænderne i lommen)

Related types: %SYN:VP:VOBJ.

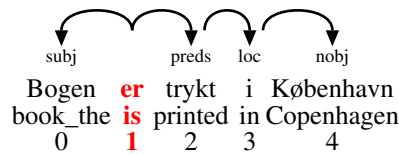
1. The Government was beaten by the Opposition



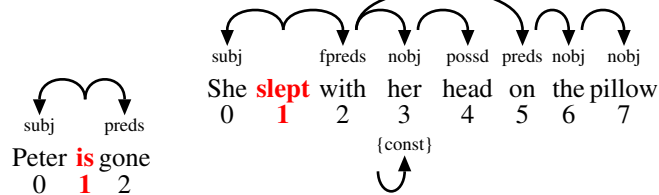
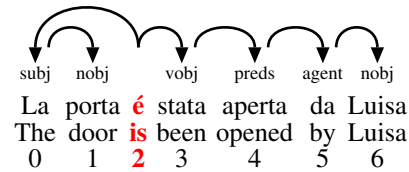
2. The Government has been beaten by the Opposition



3. The book is printed in Copenhagen



4. The door has been opened by Luisa

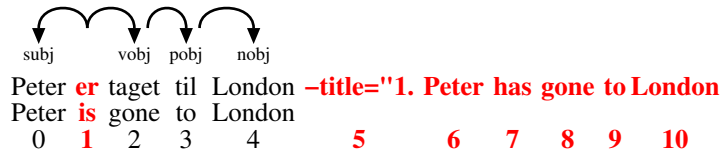


%SYN:VP:VOBJ *VP constructions with a verbal object* (long: %verbalobjects). In compound tenses the infinite verb(s) are annotated as vobj. Note that in Danish, both the verb "have" and "være" are used as an auxiliary verb in the compound tenses. The verb "være" is used as an auxiliary verb in constructions with intransitive verbs of movement. Normally the verb "være" takes a subject complement or predicative, but when used as an auxiliary verb, the participle is annotated as vobj and not preds (example 1). In Italian passive sentences with compound tense, "stata/stato" is annotated as vobj to the finite verb in spite of its concord inflection, whereas the participle following "stata/stato" is annotated as preds (example 2) (see also %SYN:VP:PREDs)

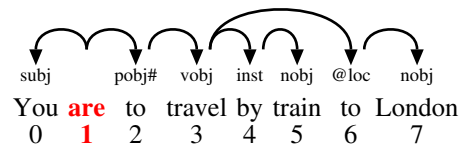
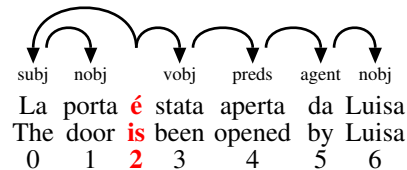
In verbal periphrases with copula verbs (e.g. English: be +x-ing; Spanish: estar +gerund) the infinite verb is annotated as vobj to the finite verb.

Special constructions (see examples) English: obligation/future: "you are to..." (see example) "#" marks the periphrastic nature of the verbal. (0152: Now muscles were to be used)

Related types: %SYN:VP:PREDs.



2. The door has been opened by Luisa



Appendix A

Overview tables

The tables in this section lists all the relations in the Copenhagen Dependency Treebanks, repeated from the preceding sections.

ANY: formal top node
CDT1: Deprecated CDT1 relations
DIM: dimension
DIM:LEVEL: dimension: linguistic level
DIM:TYPE: dimension: annotation type
RULE: generative type specification rule
TOPIC: annotation topic

The relations matching ANY-!DIM:LEVEL-!DIM:TYPE-!RULE-!TOPIC-!CDT1.

DIM:LEVEL: dimension: linguistic level
ALIGN: alignment level
ANA: anaphor level
DISC: discourse level
MORPH: morphology level
ONTO: ontology level
SEM: semantic level
SYN: syntax level

The relations matching
DIM:LEVEL-!SYNTAX-!MORPH-!DISC-!ANA-!SEM-!ALIGN-!ONTO-!RULE-!TOPIC-!CDT1.

DIM:TYPE: dimension: annotation type
FEAT: lexical feature
REL: directed bilexical relation
IDIDM: idiomatic relation
RuleIdiom: idiomatic relation pattern
LAND: landing relation
fill: licensed filler
land: landed lexical element
PRIM: primary dependency relation
+: segment concatenation
ADJ: adjunct relation
COMP: complement relation
RuleOblAdv: valency-bound adverbial
SEC: secondary dependency relation
RuleSec: secondary relation pattern
repl: replacement in gapping coordination

The relations matching

DIM:TYPE-!SYNTAX-!MORPH-!DISC-!ANA-!SEM-!ALIGN-!ONTO-!TOPIC-!CDT1.

SYN: syntax level
SYNADJ: syntactic adjunct
SYNCOMP: syntactic complement

The relations matching SYNTAX-!SYNCOMP-!SYNADJ-!CDT1-TOPIC.

SYNCOMP: syntactic complement
 @space: valency-bound location/direction adverbial
 @time: valency-bound time adverbial
 avobj: adverbial object
 dobj: direct object
 fobj: filler object
 gobj: genitive object
 iobj: indirect object
 nobj: nominal object
 numa: additive numeral complement
 numm: multiplicative numeral complement
 part: verbal particle
 pobj: prepositional object
 possd: possessed complement
 possr: possessor complement
 pred: predicative
 predo: object predicative
 preds: subject predicative
 qobj: quotational object
 robj: reflexive object
 subj: subject
 expl: expletive subject
 vobj: verbal object

The relations matching SYNCOMP-!CDT1-TOPIC.

SYNADJ: syntactic adjunct
 ADVERB: adverbial
 app: apposition
 appa: parenthetical apposition (comma)
 xpl: explication
 appr: restrictive apposition (no comma)
 attrg: genitive attributive
 conj: conjunct relation
 coord: coordinator relation
 correl: correlative coordinator relation
 fpred: free predicative
 fpredo: free direct-object predicative
 fpreds: free subject predicative
 gapd: gapping dependent
 RuleGap: gapping dependent
 name: part of name
 namef: first name
 namel: last name
 title: person title
 pnct: punctuation
 rel: relative clause
 relelab: elaborating relative clause
 relpa: parenthetical relative clause
 relr: restrictive relative clause
 voc: vocative
 xtop: external topic with resuming pronoun

The relations matching SYNADJ-!CDT1-!ADVERB-TOPIC.

ADVERB: adverbial
agent: agent adverbial
cause: causation adverbial
goal: goal adverbial
conc: concession adverbial
concom:
cond: condition adverbial
cons: consequence adverbial
event: Adverbial expressing an event
exem: example adverbial
man: manner adverbial
accom: companionship adverbial
inst: instrument adverbial
neg: negation adverbial
other: other adverbial
prg: pragmatic adverbial
discmark: sentence-initial discourse marker
epi: epistemic adverbial
eval: evaluation adverbial
focal: focalizer adverbial
scene: pragmatic condition and structural adverbial
add: additive adverbial
contr: contrast adverbial
elab: elaboration adverbial
quant: degree adverbial
resem: comparison adverbial
source: source attribution adverbial
space: space adverbial
dir: direction adverbial
loc: location adverbial
time: time adverbial
iter: habituality adverb

The relations matching ADVERB-!CDT1-TOPIC.

MORPH: morphology level
MORPHCOMP: compositional semantic relations
MORPHDERIV: derivational semantic relations
RuleMorph: syntactic morphology relation

The relations matching MORPH-!CDT1-!MORPHCOMP-!MORPHDERIV-TOPIC.

MORPHCOMP: compositional semantic relations

- _ABOUT: noun-noun compound (about)
- _AGENT:MC: noun-noun compound (agentive)
- _CONST: noun-noun compound (constitutive)
- _DOBJ.patient:
- _EVAL: noun-noun compound (evaluative)
- _FUNC: noun-noun compound (function)
- _GOAL: noun-noun compound (goal)
- _LOC: noun-noun compound (position)
- _OTHER: noun-noun compound (other)
- _POSS: noun-noun compound (possession)
- _RESEM: noun-noun compound (resemblance)
- _SOURCE: noun-noun compound (origin)
- _TIME:MC: noun-noun compound (time)

The relations matching MORPHCOMP-!CDT1-TOPIC.

MORPHDERIV: derivational semantic relations

- PREFIX: semantic relations appearing with prefixes
- SUFFIX: semantic relations appearing with suffixes

The relations matching MORPHDERIV-!CDT1-!PREFIX-!SUFFIX-TOPIC.

PREFIX: semantic relations appearing with prefixes

- _AGENT: agentive
- _ITER: iteration
- _MOD: modification
 - _MOD:eval: evaluation
 - _MOD:qual: qualification
 - _MOD:quant: quantification
- _NEG: negation
 - _NEG:contr: contrast
 - _NEG:priv: privation
 - _NEG:rev: reversion
- _PRE:other: other prefix relation
- _SPACE: space
 - _SPACE:dir: direction
 - _SPACE:loc: location
 - _SPACE:source: source
- _TELIC: telic
- _TIME: time
 - _TIME:post: temporal succession
 - _TIME:pre: temporal precedence
- _TRANS: transitivity

The relations matching PREFIX-!CDT1-TOPIC.

SUFFIX: semantic relations appearing with suffixes

- _AUG: augmentation
- _DENUM: adjective-numeral derivation
 - _DENUM:apart: adjective-partitive derivation
 - _DENUM:ord: adjective-ordinal derivation
 - _DENUM:quant: adjective-multiplicative derivation
- _DER: verb derivation
 - _DERadvv: adverb-verb derivation
 - _DERav: adjective-verb derivation
 - _DERnv: noun-verb derivation
 - _DERva: verb-adjective derivation
 - _DERva:act: verb-adjective derivation (pure)
 - _DERva:act.disp: verb-adjective derivation (disposition)
 - _DERva:act.epi: verb-adjective derivation (potentiality)
 - _DERva:pas: verb-adjective derivation (passive)
 - _DERva:pas.deon: verb-adjective derivation (passive deontic)
 - _DERva:pas.epi: verb-adjective derivation (passive potentiality)
 - _DERva:pas.part: verb-adjective derivation (passive participles)
 - _DERvn: verb-noun derivation
 - _DERvn:agent: verb-noun derivation (agent)
 - _DERvn:core: verb-noun derivation (core)
 - _DERvn:exper: verb-noun derivation (experiencer)
 - _DERvn:loc: verb-noun derivation (location)
 - _DERvn:other: verb-noun derivation (other)
 - _DERvn:patient: verb-noun derivation (patient)
 - _DERvn:recip: verb-noun derivation (recipient)
 - _DERvv: verb-verb derivation
- _DERan:qual: adjective derivation
- _DERna: noun-adjective derivation
 - _DERna:deono: noun-adjective derivation (naming)
 - _DERna:deono.loc: noun-adjective derivation (naming places)
 - _DERna:deono.pers: noun-adjective derivation (naming persons)
 - _DERna:disp: noun-adjective derivation (disposition)
 - _DERna:other: noun-adjective derivation (other)
 - _DERna:poss: noun-adjective derivation (possession)
 - _DERna:rel: noun-adjective derivation (relational)
 - _DERna:resem: noun-adjective derivation (resemblance)
 - _DERna:telic: noun-adjective derivation (effect)
- _DERnn: noun-noun derivation
 - _DERnn:agent: noun-noun derivation (agent)
 - _DERnn:assoc: noun-noun derivation (association)
 - _DERnn:capac: noun-noun derivation (capacity)
 - _DERnn:cont: noun-noun derivation (container)
 - _DERnn:loc: noun-noun derivation (location)
 - _DERnn:other: noun-noun derivation (other)
 - _DERnn:quant: noun-noun derivation (quantification)
 - _DERnn:telic: noun-noun derivation (telic)
 - _DERnn:time: noun-noun derivation (time)
- _DERv:
- _DIMIN: diminution
- _PEJ: pejoration

The relations matching SUFFIX-!CDT1-TOPIC.

DISC: discourse level
DISCOTHER: other discourse relations
JOINT: no clear relation
REP: repaired
SCENE: scene
DISCPRAG: pragmatic and illocutionary discourse relations
DISCSEM: semantic discourse relations
RuleDisc: syntactic discourse relation

The relations matching DISC-!CDT1-!DISCFUNC-!DISCSEM-TOPIC.

DISCPRAG: pragmatic and illocutionary discourse relations
ANSW: answer
CONSOL: consolidation
CONSOL:inst: instrumental
CONSOL:motiv: motivation
CONSOL:source: source
DIREC: directive act
EXPR: expressive act
INTACT: interaction signals
INTACT:attn: attention
INTACT:inter: interruption
INTACT:start: start signal
INTACT:stop: stop
QUEST: question

The relations matching DISCFUNC-!CDT1-TOPIC.

DISCSEM: semantic discourse relations
 AGENTIVE: cause relation (discourse)
 AGENTIVE:expl: explanation relation in discourse
 AGENTIVE:reas: reason relation (discourse)
 AGENTIVE:subj: subjective cause
 CONC: concession
 COND: condition
 CONJ: conjunction
 CONJ:add: conjunction, addition
 CONJ:elab: conjunction, elaboration
 CONJ:seq: conjunction, sequence
 CONST: constitutive elaboration relation
 CONST:apart: part of relation
 CONST:exem: exemplification
 CONST:rest: restatement
 CONTR: contrast
 CONTR:dir: direct contrast
 CONTR:subj: subjective contrast
 DISJ: disjunction
 DISJ:dir: direct disjunction
 DISJ:subj: subjective disjunction
 FORMAL: formal description
 FORMAL:descr: neutral description
 FORMAL:eval: positive/negative evaluation
 TELIC: consequence/result/conclusion/goal relation (discourse)
 TELIC:cons.dir: direct, physical consequence, result
 TELIC:cons.sbj: pragmatic/personal conclusion, deduction
 TELIC:goal: goal relation (discourse)
 TIME: temporal relation
 TIME:cont: contemporaneity
 TIME:post: temporal succession
 TIME:pre: temporal precedence

The relations matching DISCSEM-!CDT1-TOPIC.

ANA: anaphor level
 ANAREL: anaphor-antecedent relation
 anaphor:
 assoc: associative anaphor
 coref: coreference

The relations matching ANA-!CDT1-!coref-!assoc-TOPIC.

coref: coreference
coref-evol: evolving anaphor
coref-iden: coreferential NP with lexical identity
coref-res: resumptive anaphor
 coref-res.prg: pragmatic resumptive anaphor
coref-var: coreferential NP with lexical variety
ref: syntactically determined coreference

The relations matching coref-!CDT1-TOPIC.

assoc: associative anaphor
 assoc-OTHER: other anaphoric relations
 assoc-event: associative anaphor (event)
 assoc-loc: associative anaphor (location)
 assoc-time: associative anaphor (time)
 assoc-QUALIA: associative anaphor wrt. qualia
 assoc-agentive: associative anaphor (agentive)
 assoc-agentive.agent: associative anaphor (agentive-agent)
 assoc-agentive.inst: associative anaphor (agentive-inst)
 assoc-const: associative anaphor (constitutive)
 assoc-formal: associative anaphor (formal)
 assoc-telic: associative anaphor (telic)
 assoc-telic.agent: associative anaphor (telic-agent)
 assoc-telic.exper: associative anaphor (telic-experiencer)
 assoc-telic.inst: associative anaphor (telic-instrument)
 assoc-telic.patient: associative anaphor (telic-patient)
 assoc-telic.rec: associative anaphor (telic-recipient)
 assoc-SEMROLE: associative anaphor wrt. semantic role
 assoc-agent: associative anaphor (agent)
 assoc-exper: associative anaphor (experiencer)
 assoc-inst: associative anaphor (instrument)
 assoc-patient: associative anaphor (patient)
 assoc-rec: associative anaphor (recipient)

The relations matching assoc-!CDT1-TOPIC.

SEM: semantic level
 SEMREL: semantic role
 QUALIA: qualia role
 {about}:
 {agent}: An object or a person that performs an action
 {apart}:
 {arg}:
 {cause}:
 {class}:
 {const}:
 {elab}:
 {eval}:
 {event}:
 {experiencer}: The receiver of an emotion or a physical impact
 {form}:
 {func}:
 {goal}:
 {iden}:
 {location}: The location where something is situated or happens
 {loc}:
 {other}: No specific semantic role
 {patient}: An object or a person that is the subject of the action or the one who is located somewhere
 {poss}:
 {quant}:
 {recipient}: The receiver of something
 {resem}:
 {source}:
 {time}:

The relations matching SEM-!CDT1-!QUALIA-!SEMROLE-TOPIC.

QUALIA: qualia role
 agentive: agentive qualia
 const: constitutive qualia
 formal: formal qualia
 location: location qualia
 resemblance: resemblance wrt. qualia role
 """QUALIA: resemblance wrt. \$qualia relation
 telic: telic qualia
 about: about qualia

The relations matching QUALIA-!CDT1.

The relations matching SEMROLE-!CDT1.

ALIGN: alignment level
ALIGNREL: alignment relation
"": unlabeled word alignment
f: fuzzy word alignment

The relations matching ALIGN-!CDT1-TOPIC.

RULE: generative type specification rule
""QUALIA: resemblance wrt. \$qualia relation
RuleAnd: conjunctive both-and type
RuleAttr: attribution
RuleAttrD: down-dependent in attribution
RuleAttrH: down-head in attribution
RuleDisc: syntactic discourse relation
RuleExpConn: explicit connector
RuleGap: gapping dependent
RuleIdiom: idiomatic relation pattern
RuleImpConn: implicit connector
RuleMorph: syntactic morphology relation
RuleOblAdv: valency-bound adverbial
RuleOr: disjunctive either-or type
RulePar: disambiguated type
RuleSec: secondary relation pattern

The relations matching RULE-!CDT1-TOPIC.

ONTO: ontology level
ONTOCLASS: ontological class
_top: ontological entity
_abstract: abstract entity
_concrete: concrete entity

The relations matching ONTO-!CDT1-TOPIC.

CDT1: Deprecated CDT1 relations
 CDT1ADJ: Deprecated CDT1 adjunct relations
 err: Deprecated error relation.
 list: Deprecated list element.
 mod: modifier/adverbial
 modo: object-oriented modifier
 modp: parenthetic modifier
 modr: restrictive modifier
 mods:
 obl:
 rep:
 CDT1COMP: Deprecated CDT1 complement relations
 lobj: Deprecated locative object.
 tobj: Deprecated temporal object.
 CDT1GAP: Deprecated CDT1 gap relations
 <avobj>:
 <dobj>:
 <lobj>:
 <mod>:
 <nobj>:
 <pobj:nobj>:
 <pobj>:
 <possd>:
 <pred>:
 <qobj>:
 <subj:pobj>:
 <subj>:
 <vobj>:
 <xpl>:

The relations matching CDT1.

MISPLACED: misplaced relation
 _interfix:

The relations matching -ANY.

Appendix B

Agreement and confusion tables

In the following tables, the columns are interpreted as follows:

- *Relation name R* : the name of the relation.
- *Full labeled agreement A* : the probability that another annotator assigns the same label and out-node to the relation.
- *Unlabeled agreement A_U* : the probability that another annotator assigns the same out-node (but not necessarily label) to the relation.
- *Label agreement A_L* : the probability that another annotator assigns the same label (but not necessarily out-node) to the relation.
- *Relation count N* : the number of distinct multiply annotated tokens in the corpus that were annotated with the relation by at least one annotator.
- *Confusion table*: the relations that other annotators used, with a percentage that indicates the probability that each relation was used by the other annotator instead of R .

Agreement is computed differently for morphology than for the other linguistic levels (by comparing label sequences), and the scores for morphology are therefore used differently: in particular, $A = A_L$ always denotes the probability that the other annotator selects the same label in the sequence of labels (but no claim about outnode), and $A_U = 100\%$ always because out-nodes cannot be compared.

B.1 Confusion table: syntax

R	N	A/ A_U / A_L	Confusion list
att	1	100/100/100%	att _{100%}
namel	8	100/100/100%	namel _{100%}
numm	12	100/100/100%	numm _{100%}
voc	3	100/100/100%	voc _{100%}
xtop	4	100/100/100%	xtop _{100%}
subj	1172	98/99/99%	subj _{99%} nobj _{0%} expl _{0%} preds _{0%} attr _{0%} appr _{0%} correl _{0%} CONJ:elab _{0%}
namef	146	98/98/100%	namef _{100%}
possd	240	96/97/98%	possd _{98%} nobj _{1%} attr _{0%} pnct _{0%}

nobj	2782	95/98/96%	nobj96% attr1% dobj0% aobj0% vobj0% preds0% name0% time0% subj0% pobj0% conj0% pnct0% possd0% other0% title0% loc0% numa0% quant0% cond0% appr0%
neg	105	94/98/96%	neg96% add1% time1% coord1% eval1%
dobj	726	94/98/95%	dobj95% nobj2% pobj1% robj1% iobj1% preds0% goal0% pnct0% predo0% dir0% quant0% vobj0%
pnct	1799	93/93/99%	pnct99% nobj0% vobj0% dobj0% conj0% attr0% possd0% appr0%
conj	552	92/93/95%	conj95% CONJ:add1% qobj1% nobj1% attr1% CONTR:sbj0% CONTR:dir0% CONST:rest0% TELIC:cons.dir0% coord0% cause0% vobj0% xpl0% pnct0%
coord	400	92/97/93%	coord93% discmark5% qobj1% contr1% conj0% neg0%
expl	60	92/100/92%	expl92% subj8%
vobj	893	92/99/93%	vobj93% preds5% nobj1% pnct0% relr0% predo0% rel0% conj0% dobj0% fpreds0%
appa	27	89/89/100%	appa100%
appr	36	89/94/89%	appr89% nobj3% pnct3% title3% subj3%
xpl	18	89/100/89%	xpl89% conj6% other6%
title	30	87/90/87%	title87% nobj10% appr3%
cond	30	83/90/90%	cond90% nobj3% man3% time3%
quant	153	80/94/82%	quant82% attr3% man3% other3% eval2% prg1% time1% avobj1% degr1% nobj1% elab1% dobj1%
numa	5	80/100/80%	numa80% nobj20%
cause	48	79/88/88%	cause88% attr4% conj2% time2% cons2% pobj2%
part	19	79/100/79%	part79% avobj11% other5% dir5%
preds	430	79/99/79%	preds79% vobj11% predo3% loc3% nobj1% time1% dobj1% subj1% aobj1% pobj1% fpredo0% inst0% resem0%
pobj	588	79/94/79%	pobj79% attr8% goal2% other2% dir2% agent1% dobj1% loc1% nobj1% source1% preds0% inst0% avobj0% man0% cause0% accom0%
attr	987	78/90/82%	attr82% pobj5% nobj4% loc2% other2% time1% aobj1% quant1% focal0% goal0% man0% conj0% cause0% prg0% relr0% predo0% dir0% pnct0% iter0% conc0% name0% scene0% subj0% possd0% inst0% agent0%
qobj	70	76/76/76%	qobj76% conj7% coord7% discmark3% CONJ:add2% CONJ:elab1% CONST:rest1% AGENTIVE:reas1%
add	59	75/100/75%	add75% other12% discmark5% scene3% prg2% correl2% neg2%
time	245	74/90/79%	time79% attr5% iter5% nobj2% preds1% cons1% man1% prg1% quant1% event1% cause0% neg0% eval0% cond0% scene0% loc0% other0%
exem	14	71/79/93%	exem93% ex7%
iobj	24	71/100/71%	iobj71% dobj21% robj8%
name	27	70/78/74%	name74% nobj22% attr4%
avobj	34	68/97/68%	avobj68% other12% part6% quant6% aobj3% loc3% pobj3%
eval	47	57/94/60%	eval60% prg15% quant6% epi4% other4% iter2% time2% focal2% man2% neg2%
man	106	56/89/61%	man61% accom7% attr4% quant4% other4% time3% inst3% epi2% fpreds2% source1% prg1% dir1% aobj1% eval1% cond1% concom1% scene1% fpredo1% goal1% resem1% pobj1%

correl	9	56/78/56%	correl _{56%} add _{11%} other _{11%} focal _{11%} subj _{11%}
scene	31	55/94/58%	scene _{58%} add _{7%} goal _{7%} contr _{7%} loc _{7%} time _{3%} attr _{3%} man _{3%} other _{3%} inst _{3%}
loc	218	54/93/56%	loc _{56%} dir _{13%} attr _{9%} preds _{6%} other _{6%} pobj _{3%} inst _{1%} nobj _{1%} scene _{1%} focal _{1%} event _{1%} fpredo _{1%} time _{1%} avobj _{1%}
cons	14	50/86/64%	cons _{64%} time _{21%} inst _{7%} cause _{7%}
elab	4	50/75/50%	elab _{50%} prg _{25%} quant _{25%}
epi	14	50/93/57%	epi _{57%} man _{14%} other _{14%} eval _{14%}
focal	31	45/65/61%	focal _{61%} attr _{13%} other _{10%} loc _{7%} aobj _{3%} correl _{3%} eval _{3%}
contr	22	41/100/41%	contr _{41%} discmark _{18%} conc _{14%} coord _{9%} scene _{9%} prg _{5%} other _{5%}
dir	74	41/96/41%	dir _{41%} loc _{39%} pobj _{12%} other _{3%} man _{1%} part _{1%} attr _{1%} dobj _{1%}
agent	15	40/100/40%	pobj _{53%} agent _{40%} attr _{7%}
aobj	31	39/71/39%	aobj _{39%} nobj _{23%} attr _{23%} preds _{7%} man _{3%} avobj _{3%} focal _{3%}
conc	13	39/92/39%	conc _{39%} contr _{23%} prg _{15%} other _{15%} attr _{8%}
relr	145	37/94/41%	rel _{48%} relr _{41%} relpa _{8%} relelab _{1%} vobj _{1%} attr _{1%}
source	11	36/100/36%	source _{36%} pobj _{27%} other _{18%} concom _{9%} man _{9%}
inst	25	36/88/40%	inst _{40%} man _{12%} loc _{12%} predo _{8%} pobj _{8%} concom _{4%} scene _{4%} preds _{4%} attr _{4%} cons _{4%}
goal	43	35/86/42%	goal _{42%} pobj _{33%} attr _{9%} scene _{5%} dobj _{5%} man _{2%} other _{2%} fpredo _{2%}
accom	15	33/80/40%	man _{47%} accom _{40%} other _{7%} pobj _{7%}
resem	6	33/33/67%	resem _{67%} man _{17%} preds _{17%}
relpa	17	29/100/29%	relr _{65%} relpa _{29%} rel _{6%}
concom	4	25/100/25%	source _{25%} concom _{25%} man _{25%} inst _{25%}
other	115	23/91/23%	other _{23%} attr _{14%} loc _{10%} pobj _{10%} add _{6%} prg _{4%} avobj _{4%} quant _{4%} man _{4%} nobj _{3%} focal _{3%} epi _{2%} source _{2%} dir _{2%} eval _{2%} iter _{2%} conc _{2%} time _{1%} contr _{1%} correl _{1%} part _{1%} scene _{1%} goal _{1%} accom _{1%} xpl _{1%}
iter	21	19/81/24%	time _{57%} iter _{24%} other _{10%} attr _{5%} eval _{5%}
discmark	32	16/91/16%	coord _{56%} discmark _{16%} contr _{13%} add _{9%} qobj _{6%}
prg	27	15/100/15%	eval _{26%} other _{19%} prg _{15%} conc _{7%} time _{7%} quant _{7%} add _{4%} elab _{4%} attr _{4%} man _{4%} contr _{4%}
robj	9	11/100/11%	dobj _{67%} iobj _{22%} robj _{11%}
predo	21	10/86/10%	preds _{57%} inst _{10%} predo _{10%} vobj _{10%} attr _{5%} fpredo _{5%} dobj _{5%}
rel	79	4/95/4%	relr _{89%} relelab _{5%} rel _{4%} relpa _{1%} vobj _{1%}
degr	2	0/50/0%	quant _{100%}
event	4	0/75/0%	time _{50%} loc _{50%}
ex	1	0/100/0%	exem _{100%}
fpredo	6	0/67/0%	loc _{33%} goal _{17%} man _{17%} preds _{17%} predo _{17%}
fpreds	3	0/100/0%	man _{67%} vobj _{33%}
relelab	6	0/100/0%	rel _{67%} relr _{33%}

TOTAL 12968 85/95/88%

B.2 Confusion table: semantics

R	N	A/A _U /A _L	Confusion list
eval	1	100/100/100%	eval _{100%}
elab	7	71/86/86%	elab _{86%} loc _{14%}
goal	71	65/99/66%	goal _{66%} arg _{11%} func _{7%} loc _{3%} about _{3%} cause _{1%} const _{1%} resem _{1%} agent _{1%} recipient _{1%} patient _{1%} other _{1%}
time	28	64/79/82%	times _{82%} source _{11%} arg _{4%} other _{4%}
agent	65	59/95/60%	agent _{60%} arg _{26%} patient _{5%} experiencer _{5%} loc _{2%} goal _{2%} source _{2%}
patient	71	58/89/63%	patient _{63%} arg _{14%} about _{9%} agent _{4%} loc _{3%} func _{1%} ex- periencer _{1%} recipient _{1%} goal _{1%} poss _{1%}
recipient	7	57/100/57%	recipient _{57%} loc _{14%} patient _{14%} goal _{14%}
const	49	55/96/57%	const _{57%} arg _{18%} source _{6%} form _{4%} poss _{4%} apart _{2%} loc _{2%} class _{2%} goal _{2%} func _{2%}
arg	189	55/95/57%	arg _{57%} agent _{9%} patient _{5%} const _{5%} func _{4%} goal _{4%} loc _{4%} source _{4%} about _{3%} poss _{3%} other _{2%} quant _{1%} time _{1%}
loc	82	51/87/60%	loc _{60%} arg _{9%} source _{9%} func _{4%} goal _{2%} patient _{2%} poss _{2%} other _{2%} const _{1%} agent _{1%} form _{1%} location _{1%} elab _{1%} apart _{1%} recipient _{1%} about _{1%}
func	45	51/100/51%	func _{51%} arg _{18%} goal _{11%} loc _{7%} about _{4%} const _{2%} iden _{2%} patient _{2%} other _{2%}
form	6	50/100/50%	form _{50%} const _{33%} loc _{17%}
location	2	50/100/50%	loc _{50%} location _{50%}
resem	2	50/100/50%	resem _{50%} goal _{50%}
source	44	48/89/50%	source _{50%} loc _{16%} arg _{16%} const _{7%} time _{7%} agent _{2%} poss _{2%}
quant	21	48/95/48%	quant _{48%} apart _{43%} arg _{5%} other _{5%}
poss	27	44/89/48%	poss _{48%} arg _{19%} other _{11%} loc _{7%} const _{7%} patient _{4%} source _{4%}
about	30	43/97/43%	about _{43%} arg _{20%} patient _{20%} goal _{7%} func _{7%} loc _{3%}
experiencer	7	43/100/43%	experiencer _{43%} agent _{43%} patient _{14%}
apart	19	42/100/42%	quant _{47%} apart _{42%} loc _{5%} const _{5%}
class	5	40/100/40%	class _{40%} other _{40%} const _{20%}
other	22	36/96/36%	other _{36%} arg _{14%} poss _{14%} loc _{9%} class _{9%} quant _{5%} func _{5%} time _{5%} goal _{5%}
cause	1	0/100/0%	goal _{100%}
iden	1	0/100/0%	func _{100%}
TOTAL	802	54/93/57%	

B.3 Confusion table: discourse

R	N	A/A _U /A _L	Confusion list
ANSW	1	100/100/100%	ANSW _{100%}
SCENE	26	85/85/96%	SCENE _{96%} JOINT _{4%}
AGENTIVE:expl	11	64/100/64%	AGENTIVE:expl _{64%} CONTR _{9%} AGENTIVE _{9%} CONST:rest _{9%} AGENTIVE:subj _{9%}
CONJ:seq	13	62/92/69%	CONJ:seq _{69%} CONJ:add _{15%} CONJ:elab _{8%} DIREC _{8%}
CONC	20	40/65/40%	CONC _{40%} CONJ:add _{25%} CONTR _{5%} FORMAL:eval _{5%} subj _{5%} CONTR:subj _{5%} CONJ _{5%} CONST:exem _{5%} conj _{3%} CONTR:prg _{3%}

CONJ:add	133	37/64/47%	CONJ:add _{47%} CONJ:elab _{14%} CONJ _{9%} JOINT _{5%} conj _{4%} CONC _{4%} TELIC:cons.sbj _{2%} AGENTIVE:subj _{2%} CONJ:seq _{2%} CONST:exem _{2%} CONST:apart _{2%} CONTR _{1%} TIME:pre _{1%} CONTR:prg _{1%} CONTR:subj _{1%} COND _{1%} qobj _{1%} TELIC _{1%} TELIC:cons.dir _{1%} AGENTIVE:reas _{1%} DISJ:dir _{1%} vobj _{1%} CONTR:dir _{0%}
CONST:exem	17	29/71/47%	CONST:exem _{47%} CONJ:add _{12%} CONST:apart _{12%} CONJ:elab _{6%} JOINT _{6%} CONST:rest _{6%} CONSOL:source _{6%} CONC _{6%}
TELIC:cons.dir	17	29/59/41%	TELIC:cons.dir _{41%} TELIC:cons.sbj _{12%} CONJ:elab _{9%} CONST:rest _{6%} CONJ _{6%} CONJ:add _{6%} AGENTIVE:reas _{6%} CONTR:dir _{6%} conj _{3%} CONTR:subj _{3%} qobj _{3%}
CONJ:elab	110	23/53/34%	CONJ:elab _{34%} CONJ:add _{16%} CONJ _{16%} FORMAL:eval _{5%} FORMAL:descr _{3%} CONST:rest _{3%} CONST:apart _{3%} qobj _{2%} TELIC:cons.sbj _{2%} AGENTIVE _{2%} AGENTIVE:subj _{2%} subj _{2%} AGENTIVE:reas _{2%} DIREC _{2%} CONSOL _{2%} TELIC:cons.dir _{1%} CONJ:seq _{1%} CONTR:subj _{1%} CONTR:prg _{1%} CONST:exem _{1%} CONTR:dir _{1%} CONST:elab _{1%}
CONST:rest	11	23/59/26%	CONJ:elab _{27%} CONST:rest _{26%} TELIC:cons.sbj _{9%} TELIC:cons.dir _{9%} CONST:exem _{9%} AGENTIVE:expl _{9%} conj _{6%} qobj _{5%}
JOINT	14	21/43/36%	CONJ:add _{43%} JOINT _{36%} SCENE _{7%} CONJ _{7%} CONST:exem _{7%}
TELIC:cons.sbj	14	21/64/29%	TELIC:cons.sbj _{29%} CONJ:add _{21%} CONJ:elab _{14%} TELIC:cons.dir _{14%} CONJ _{7%} CONST:rest _{7%} CONTR:dir _{7%}
AGENTIVE:reas	10	20/60/20%	AGENTIVE:subj _{40%} AGENTIVE:reas _{20%} CONJ:elab _{20%} CONJ:add _{10%} TELIC:cons.dir _{10%}
CONSOL:source	5	20/60/20%	AGENTIVE:subj _{40%} CONJ _{20%} CONSOL:source _{20%} CONST:exem _{20%}
FORMAL:descr	5	20/40/20%	CONJ:elab _{60%} conj _{20%} FORMAL:descr _{20%}
FORMAL:eval	10	20/40/30%	CONJ:elab _{50%} FORMAL:eval _{30%} CONJ _{10%} CONC _{10%}
CONTR:subj	12	19/49/32%	CONTR:subj _{32%} conj _{14%} CONJ:elab _{8%} CONTR:prg _{8%} CONJ:add _{8%} qobj _{8%} CONTR:dir _{8%} CONC _{8%} TELIC:cons.dir _{4%}
CONST:apart	12	17/58/25%	CONJ:elab _{25%} CONST:apart _{25%} CONJ:add _{17%} CONST:exem _{17%} CONJ _{8%} nobj _{8%}
CONTR:dir	14	17/31/31%	CONTR:dir _{31%} conj _{20%} CONTR:prg _{11%} CONTR _{7%} CONJ:elab _{7%} TELIC:cons.sbj _{7%} TELIC:cons.dir _{7%} CONTR:subj _{7%} CONJ:add _{2%}
CONJ	48	10/54/19%	CONJ:elab _{35%} CONJ:add _{25%} CONJ _{19%} AGENTIVE:subj _{4%} TELIC:goal _{2%} TELIC:cons.sbj _{2%} FORMAL:eval _{2%} JOINT _{2%} CONSOL:source _{2%} TELIC:cons.dir _{2%} CONST:apart _{2%} CONC _{2%}
AGENTIVE	5	0/100/0%	CONJ:elab _{40%} AGENTIVE:subj _{40%} AGENTIVE:expl _{20%}
AGENTIVE:subj	16	0/75/0%	AGENTIVE:reas _{25%} CONJ:add _{19%} CONJ _{13%} CONJ:elab _{13%} AGENTIVE _{13%} CONSOL:source _{13%} AGENTIVE:expl _{6%}
COND	1	0/100/0%	CONJ:add _{100%}
CONSOL	2	0/50/0%	CONJ:elab _{100%}
CONST:elab	1	0/100/0%	CONJ:elab _{100%}

CONTR	4	0/100/0%	CONJ:add _{25%} AGENTIVE:expl _{25%} CONTR:dir _{25%} CONC _{25%}
CONTR:prg	7	0/14/0%	conj _{29%} CONTR:dir _{21%} CONTR:subj _{14%} CONJ:add _{14%} CONJ:elab _{14%} CONC _{7%}
DIREC	3	0/67/0%	CONJ:elab _{67%} CONJ:seq _{33%}
DISJ:dir	2	0/50/50%	CONJ:add _{50%} DISJ:dir _{50%}
TELIC	1	0/100/0%	CONJ:add _{100%}
TELIC:goal	1	0/100/0%	CONJ _{100%}
TIME:pre	1	0/100/0%	CONJ:add _{100%}
<hr/>			
TOTAL	547	29/61/37%	

B.4 Confusion table: anaphora

R	N	A/A _U /A _L	Confusion list
assoc-event	2	100/100/100%	assoc-event _{100%}
assoc-formal	1	100/100/100%	assoc-formal _{100%}
ref	70	90/91/94%	ref _{94%} coref _{4%} coref-res _{1%}
coref-iden	62	73/81/77%	coref-iden _{77%} coref-var _{17%} coref _{3%} assoc-telic _{2%} assoc-const _{2%}
coref-res	35	63/69/74%	coref-res _{74%} coref-var _{11%} coref _{9%} assoc-telic _{3%} ref _{3%}
coref	229	63/66/89%	coref _{89%} coref-var _{7%} ref _{1%} coref-res _{1%} assoc-const _{1%} coref-iden _{1%} assoc-agentive.agent _{0%}
coref-var	144	60/73/74%	coref-var _{74%} coref _{11%} coref-iden _{7%} assoc-const _{4%} coref-res _{3%} coref-evol _{1%} assoc-agentive _{1%}
assoc-agentive	2	50/100/50%	coref-var _{50%} assoc-agentive _{50%}
assoc-const	41	49/73/59%	assoc-const _{59%} coref-var _{15%} assoc _{10%} assoc-telic _{5%} coref _{5%} assoc-loc _{5%} coref-iden _{2%}
assoc-telic	25	40/76/56%	assoc-telic _{56%} assoc-agentive.agent _{8%} assoc-telic.patient _{8%} assoc-const _{8%} assoc-telic.agent _{8%} coref-iden _{4%} assoc-telic.inst _{4%} coref-res _{4%}
assoc	6	33/83/33%	assoc-const _{67%} assoc _{33%}
assoc-agentive.agent	3	0/67/0%	assoc-telic _{67%} coref _{33%}
assoc-loc	2	0/100/0%	assoc-const _{100%}
assoc-telic.agent	2	0/100/0%	assoc-telic _{100%}
assoc-telic.inst	1	0/100/0%	assoc-telic _{100%}
assoc-telic.patient	2	0/100/0%	assoc-telic _{100%}
coref-evol	1	0/100/0%	coref-var _{100%}
<hr/>			
TOTAL	628	63/74/79%	

B.5 Confusion table: morphology

R	N	A/A _U /A _L	Confusion list
TOTAL	0	0/0/0%	

B.6 Confusion table: morphology-no-null

R	N	A/A _U /A _L	Confusion list
TOTAL	0	0/0/0%	

B.7 Confusion table: alignment

R	N	A/A _U /A _L	Confusion list
TOTAL	0	0/0/0%	

Appendix C

Annotation status

C.1 All texts

	alignment	discourse	morphology	postag	status	syntax
none	950	1789	2157			911
auto				1774		65
outdated-final	536					372
first	45	43	102	1	1	131
discussed	132	86	1			89
final	112	403	60	536		755

C.2 da texts

	discourse	morphology	postag	syntax
none	282	462		
auto				
outdated-final				1
first	7	56	1	7
discussed	12	1		3
final	236	17	535	525

C.3 de texts

	discourse	morphology	postag	syntax
none	405	412		326
auto			413	
outdated-final				
first	9	1		56
discussed				8
final				23

C.4 en texts

	discourse	morphology	postag	syntax
none	445	535		
auto			536	65
outdated-final				371

first	22		30
discussed			1
final	72	1	69

C.5 es texts

	discourse	morphology	postag	syntax
none	341	337		341
auto			413	
outdated-final				
first	2	34		
discussed				
final	72	42		72

C.6 it texts

	discourse	morphology	postag	syntax
none	316	411		244
auto			412	
outdated-final				
first		5		38
discussed	74			77
final	23		1	57

C.7 da-de texts

	alignment	morphology	syntax
none	368		
auto			
outdated-final			
first	45	2	
discussed			
final			4

C.8 da-en texts

	alignment	discourse	morphology	syntax
none				
auto				
outdated-final	536			
first		1	1	
discussed				
final				1

C.9 da-es texts

	alignment	discourse	morphology	syntax
none	331			

auto				
outdated-final				
first		1	2	
discussed	39			
final	43			2

C.10 da-it texts

	alignment	discourse	morphology	status	syntax
	none	251			
	auto				
outdated-final					
first			1	1	1
discussed		93			
final		69			2

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