0. Preface

This document describes the grammatical relations and their semantic and morpho-syntactic features appearing in the treebank TUT. The syntactic structure of the sentence is represented as a dependency tree where each node represents a single word and each edge represents a syntactic relation between a head word and a dependent word (non-terminal nodes are not allowed). Since the grammatical relations can include three kinds of information, they can be seen as feature structures where there are an obligatory information (the name of a functional syntactic relation) and two optional features (morpho-syntactic and semantic). The name of each relation can be read on the basis of the following syntax:

\[ \text{Morphfeat} - \text{Frel} - \text{Semfeat} \]

where \text{Morphfeat} is a morpho-syntactic feature (optional), \text{Frel} is a functional syntactic relation (obligatory), \text{Semfeat} is a semantic feature (optional) and hyphens (\(-\)) are hyphens. Each feature and relation can be simple (including a primary name only) or composed by two or more labels separated by + (one primary name and one or more secondary names). Since this annotation system can be applied at different degrees of specification, we will show examples annotated only with \text{Frel} (section 1) or with \text{Frel} and both \text{Morphfeat} and \text{Semfeat} (section 3).

In the first section we describe the functional syntactic relations, in the second we present the list of morpho-syntactic features and finally, in the third, we will show the semantic features.

In the following examples "H" indicates the head of the described relation, whilst "D" indicates the dependent. In order to represent the Italian syntactic form, the English translations are 'literal' and sometimes not correct English expressions.

1. List of functional syntactic relations

The functional syntactic relations are grammatical relations or syntactic roles well known in literature. They are hierarchically organized so that each relation inherits all the definitional properties of their ancestors (criteria used to distinguish different relations are indicated below). In the following hierarchically organized list we put both the primary and the secondary names (this latter preceded by "+"), which can be added to some relation in order to further specify it.
1. DEPENDENT
2. FUNCTION
3. ARG
4. SUBJ
   + IMPERS
5. OBJ
6. INDCOMPL
7. INDOBJ
8. PREDCOMPL
   + SUBJ
   + OBJ
9. EXTRAOBJ
10. MODIFIER
11. RMOD
   + RELCL (+REDUC)
12. RMODPRED
   + SUBJ
   + OBJ
13. APPPOSITION
14. NOFUNCTION
15. AUX
   + PASSIVE
   + PROGRESSIVE
   + TENSE
16. COORDINATOR
17. COORD
   + ADVERS
   + BASE
   + CORRELAT
   + COMPAR
   + COND
   + ESPLIC
   + RANGE
   + SYMMETRIC
18. COORD2ND
   + ADVERS
   + BASE
   + CORRELAT
   + COMPAR
   + COND
   + ESPLIC
   + RANGE
   + SYMMETRIC
19. COORDANTEC
   + CORRELAT
   + COMPAR
20. CONTIN
   + LOCUT
   + DENOM
   + PREP
21. EMTYCOMPL
22. INTERJECTION
23. SEPARATOR
24. END
25. OPEN
   + PARENTHETICAL
   + QUOTES
26. CLOSE
   + PARENTHETICAL
   + QUOTES
27. VISITOR
   + ROBJ
1. **DEPENDENT:**
   the most generic syntactic relation between a head and a dependent, the root of the grammatical relation hierarchy.

2. **FUNCTION:**
   kind of DEPENDENT corresponding to some semantic relation existing between the interpretations of the same head and dependent. All the relations which are subclass of FUNCTION can be extended with morpho-syntactic and semantic features (see section 3 for examples of relations with features).

3. **ARG:**
   kind of FUNCTION corresponding to some semantic relation licensed by the head lexical structure, with maximum and minimum number of occurrences fixed by the head, subcategorized in some way by the head. Examples: "[l']uomo [camminava]₃₅ " - "[the]₃₅man [walked]₇₈", "Mary mangiò il dolce [con]₃₈ [la]₇₈ crema " - "Mary ate the cake [with]₃₈[cream]₇₈".

4. **SUBJ:**

5. **OBJ:**

6. **INDOBJ:**

7. **INDCOMPL:**

8. **PREDCOMPL** +SUBJ +OBJ:
   kind of ARG with predicative role concerning a dependent of the head, occurring at least and most once, expressing the subcategorization of the predicative complement; with +SUBJ it indicates that its predication refers to the subject of its head; with +OBJ it indicates that its predication refers to the object of its head. Examples: +SUBJ in "Mary [è]₃₈ [carina]₇₈", +OBJ in "Mary [vide]₃₈ [John]₇₈ [felice]₇₈ " - "Mary [saw]₃₈[John]₇₈[glad]₇₈".

9. **EXTRAOBJ:**
   kind of ARG with the role of doubling the object, occurring at least and most once. Examples: "[Un]₇₈aquilone lo [vide]₃₈John " - "[One]₇₈kite John [saw]₇₈it".

10. **MODIFIER:**

11. **RMD** +RELCL(+REDUC):
    kind of MODIFIER restricting the meaning of the head; with RELCL in introduces a restricting relative clause, which can be reduced (without an introductory pronoun and with a non-finite verb) and marked by REDUC. Examples: "Lui [arriverà]₃₈[tardi]₇₈ " - "He [will arrive]₃₈[late]₇₈ ", +RELCL in "L'[uomo]₃₈ che
12. **RMODPRED +SUBJ +OBJ:**
kind of RMOD playing the role of (non-argumental) predicative of the head, with +SUBJ it indicates that its predication refers to the subject of its head; with +OBJ it indicates that its predication refers to the object of its head.
Examples: "Si [vide] [costretto] a correre" - "(He) did [saw] himself [forced] to run", +SUBJ in "[Tornò] a casa [spaventato]" - "(He) [came back] to home [scared]", +OBJ in "Io avevano [visto] [nascosto]" - "(They) [saw] him [hidden]."

13. **APPOSITION:**
kinds of MODIFIER not restricting the meaning of the head. Examples: "Questo è [John] [presidente della compagnia]" - "This is [John] of the company ".

14. **NOFUNCTION:**
kinds of DEPENDENT not corresponding to any semantic relation between the two heads and dependent (relations with atypical behaviour).

15. **AUX +PASSIVE +PROGRESSIVE +TENSE:**
kinds of NOFUNCTION with auxiliary role of verb, with +PASSIVE in passive constructions, with +PROGRESSIVE in progressive and +TENSE in passive and active constructions respectively. Examples: +PASSIVE in "Mary [fu] [uccisa] da lui" - "Mary [was] [killed] by him"; +PROGRESSIVE in "Io [sto] [andando] al negozio" - "I [am] [going] to the store"; +TENSE in "Io [ho] [rotto] la finestra" - "I [have] [broken] the window".

16. **COORDINATOR:**
kinds of NOFUNCTION occurring in coordinations (a coordination is a syntactic structure including at least two conjuncts, a conjunction and two occurrences of COORDINATOR linking them).

17. **COORD +BASE +ADVERS +COMPAR +COND +CORRELAT +ESPLIC+RANGE+SYMMETRIC:**
kinds of COORDINATOR linking the first conjunct with the conjunction in a coordination; with +BASE when COORD is in a conjunctive or disjunctive coordination (introduced by "e" - "and", "o" - "or", or comma); with +ADVERS when COORD is in an adversative coordination (an adversative coordination is a syntactic non-reversible coordination with at most two conjuncts); with +COMPAR when COORD is in comparative coordination (the comparative coordination is a coordination where the conjunction is comparative and has an antecedent comparative conjunction); with +COND when the coordination describes a sort of condition (introduced by "se" - "if"); with +CORRELAT when COORD is in a correlative coordination (the correlative coordination is a coordination where the conjunction is correlative and has an antecedent correlative conjunction); with +ESPLIC when COORD links the first conjunct with an explicative conjunction. Examples: +BASE "[Io] [e] Mary" - "[I] [and] Mary", "[Tu] [,] [John] [e] lei" - "[You] [,] [John] [and] her", +ADVERS in "Lei è [carina] [ma] stupid" - "She is [pretty] but stupid", +COMPAR in "Mary è più [carina] [che], stupida" - "Mary is more [pretty] than stupid", +COND in "Mary è [se] non bella [simpatica]", - "Mary is [if] not beautiful [nice]", +CORRELAT in "Mary non è nè [carina] [né], stupida" - "Mary is neither [pretty] [nor] stupid", +ESPLIC in "[il mio gatto] [cioè] quello nero, non mangia pesce" - "[my cat], namely the black one, doesn't eat fish", +RANGE in "strade tra [Tirana] [e] il porto" - "roads between [Tirana] and the harbour", +SYMMETRIC in "la rottura clamorosa tra [Krushcev] [e] il Kruschev" - "the clamorous breaking off between [Krushcev] and Kruschev".

18. **COORD2ND +BASE +ADVERS +COMPAR +COND +CORRELAT +ESPLIC:**
1. kind of COORDINATOR linking the conjunction with the second conjunct in a coordination; with +BASE when COORD is in a conjunctive or disjunctive coordination (introduced by “e” – “and”, “o” – “or”, or comma); with +ADVERS when COORD2ND is in adversative coordination; with +COMPAR when COORD2ND is in comparative coordination; +COND when the coordination describes a sort of condition (introduced by “se” – “if”); with +CORRELAT when COORD is in a correlative coordination; with +ESPLIC when COORD2ND links an explicative conjunction with the second conjunct. Examples: “Io [Mary] a [John] [and] tuo ([her]), – “I [and] Mary, John [and] your”. 

2. kind of NOFUNCTION with the punctuation marker opening a kind of SEPARATOR linking the head of a structure closed between two punctuation markers with the punctuation marker opening it; with +PARENTHETICAL OPEN plays...
the role of opening a parenthetical construction (between brackets or commas); with +QUOTES OPEN indicates the beginning of an expression between quotation marks. Examples: +PARENTHETICAL in "il mio gatto[,] non [mangia] pesce" - "my cat[,] namely the black one, doesn’t [eat] fish", +QUOTES in "Il mio gatto [“] è nero" - "My cat [“] is black".

26. CLOSE +PARENTHETICAL +QUOTES: kind of SEPARATOR linking the head of a structure closed between two punctuation markers with the punctuation marker closing it; with +PARENTHETICAL CLOSE plays the role of closing a parenthetical construction (between brackets or commas); with +QUOTES CLOSE indicates the end of an expression between quotation marks. Examples: +PARENTHETICAL in "il mio gatto, cioè quello nero[,] non [mangia] pesce" - "my cat, namely the black one[,] doesn’t [eat] fish", +QUOTES in "Il mio gatto [“] è nero" - "My cat [“] is black".


2. List of morpho-syntactic features

This kind of features indicate morpho-syntactic behaviours of the relation and mark the differences between structures where different morphological categories are involved. In particular they are useful in marking different morpho-syntactic variants of a same predicative structure, for instance, the fact that the head of a relation SUBJ is a NOUN instead of a VERB, which have several consequences on the syntactic structure: the various complements will be introduced all by prepositions, the relative order of complements and the head will be different.

Since in ARG relations is usually the head which determines the syntactic structure, while in MODIFIER relations is the dependent, we annotate in ARGS the morpho-syntactic feature coming from the head, and in MODIFIERS the morpho-syntactic feature coming from the dependent (see section 3 for the examples). As for the functional syntactic relations, the names of morpho-syntactic features can include secondary names.

1. ADJC: +COMPAR,+DEITT,+ORDIN,+POSS,+QUALIF(+SUPERLREL),+QUANTIF,+STRENG
2. ADVB: +ADVERS, +COMPAR, CONCESS, +INTERR, +QUANTIF
3. CONJ
4. DATE
5. DET: +DEF, +INDEF, INTERR, +QUANTIF
6. NOUN
7. NUM: +CARDIN
8. PDET: +QUANTIF
9. PREP: +COND, +SUPERLREL
10. PRON
11. VERB: +CAUS,+MODAL,+FIN,+INF,+CONCESS+COMPAR,+COND,+CONSEQ,+CORRELAT

3. List of semantic features

The semantic features are relations holding between the interpretations of the same head and dependent of the functional syntactic relation and belonging to the semantic or pragmatic conceptual area. Only semantic relations isomorphic to the syntactic ones are taken into account and annotated with the corresponding
FUNCTION relations, in fact the semantic features represent a sort of interface between semantics and syntax. In the list we put also the secondary names (preceded by "+") which can be added to some semantic relation in order to further specify it (its primary name). In the following examples we show the functional syntactic label and both its features (morpho-syntactic and semantic).

1. **ACTGOAL**
   It indicates the goal of the action described by the head.

2. **ADRESSEE**: +AGAINST, +BENEFICIARY
   It represents the addressee of the action described by the head, +AGAINST if the action is against him/her, +BENEFICIARY if the action is in favour of him/her.

3. **AGE**
   It indicates the age of the head.

4. **AGENT**
   It describes the agent of the action described by the head.

5. **AGTOBJ**
   It represents the object of which the head is agent.

6. **AHEAD**
   It indicates the thing in sight of which the head is done.

7. **AUTHOR**
   It describes the author of the head.

8. **CARRY**
   It represents what the head is carrying.

9. **COMPANY**
   It describes with who the head is.

10. **COMPARATIVE**
    It introduces a comparison with the head.
    Examples: PREP-RMOD-COMPARATIVE: “[Rispetto]$_D$ al passato sono stati [fatti]$_H$ passi avanti” – “[In comparison]$_D$ with the past has been [taken]$_H$ steps forward”
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| 11. | COMPOSEDOF | It represents the kinds of elements which compose the head. Examples: PREP-RMOD-COMPOSEDOF: “una [catasta]_{H} [di]_{D} legna” – “a [stack]_{H} [of]_{D} wood” |
| 12. | CONJTEXT | It represents something referring to the context and referring to the head. Examples: ADVB-RMOD-CONJTEXT: “I Sudisti [credevano]_{H} [infatti]_{D} nella propaganda abolizionista” – “The Confederates [believed]_{H} [in fact]_{D} in the abolitionist propaganda” |
| 13. | CONTAINS | It represents the content of the head. Examples: PREP-RMOD-CONTAINS: “[scaffali]_{H} [di]_{D} libri” – “[shelves]_{H} [of]_{D} books” |
| 14. | CONTRAST | It indicates something contrasting with the head. Examples: ADVB-RMOD-CONTRAST: “[Nonostante]_{D} la riforma fiscale la crisi [continuava]_{H}” – “[In spite of]_{D} the taxation reform the crisis [continued]_{H}” |
| 15. | DATIVE | It represents the receiver (in some form) of the action described by the head. Examples: NOUN-INCOMPL-DATIVE: “l’ [opposizione]_{H} [a]_{D}l governo” – “the [opposition]_{H} [to]_{D} the government” |
| 16. | DAY | It represents the number of a day (of the week) which is the head. Examples: NUM-RMOD-DAY: “venerdì [27] ottobre” – “[Friday]_{H} [27]_{D} October” |
| 17. | DENOM | It is a denomination of the head. Examples: NOUN-APPOSITION-DENOM: “La [compagnia]_{H} [Silva]_{D} ha raccolto i soldi per il finanziamento” – “The [company]_{H} [Silva]_{D} collected the money for financing” |
| 18. | DESCR | It indicates a description of the head. Examples: PREP-RMOD-DESCR: “La [condizione]_{H} [di]_{D} proiettività è rispettata nella maggior parte delle strutture” – “The [constrain]_{H} [of]_{D} projectivity is respected in the most of the structures” |
| 19. | DISTRIBUT | It describes among who/what the head is distributed. Examples: PREP-RMOD-DISTRIBUT: “[Alcuni]_{H} [tra]_{D} i più vecchi edifici” – “[Some]_{H} [of]_{D} the more ancient buildings” |
| 20. | DOUBT | It indicates the doubting aspect of the head. Examples: ADVB-RMOD-DOUBT: “Ma [forse]_{D} non [è]_{H} così” – “But [perhaps]_{D} (it) [is]_{H} not that way” |
| 22. | EVENT | It describes the event where the head happens. Examples: PREP-RMOD-EVENT: “[A]llla conferenza [parlò]_{H} raramente” – “[At]_{D} the conference (she/he) [talked]_{H} seldom” |
| 23. | GOAL |
It describes the goal of the head.

24. INCHARGE
It indicates of what the head is incharged.

25. LIMIT
It indicates some limit or lacking of the head.

26. LISTPOS
It represents the position of the head within a list of items.

27. LOC: +APPROX, +BEHIND, +BEYOND, +FROM, +IN, +METAPH, +ON, +ORIGIN, +TO, +UNDER, +WHOLEOBJ
It represents the location of the head in its various forms.

28. MAKER
It indicates the maker of the (material) head.

29. MATERIAL
It describes the material with which the head is made.

30. MEANSMANNER
It represents the instrument or manner used in order to make the head.
Examples: VERB+INF-RMOD-MEANSMANNER: “[Usando] questo metodo [ottenere] risultati più interessanti” – “[Using] this method (you) will obtain more interesting results”

31. MEASORIGIN
It indicates from where (in the time or in the space) it begins the.

32. MEASUREDBY
It indicates the fact that the dependent is measured by the unit of measurement described by the head.
33. MONTH
It represents the MONTH of a day which is the head.

34. NEG
Negation of the head.

35. ORGANIZATION
It indicates the organization to which the head belongs.

36. OWNER
It describes the owner of the head.

37. PARTOF
Indicates a part of the head.

38. PARTICIPANT
It represents who participates to the event described by the head.

39. PARTECTO
It indicates to which event the head participates.

40. PARTITIVE
It indicates a partition of the head set.

41. PERCENT
It indicates a percentage of the head.

42. PERSPECT
It describes a perspective about the head.

43. PRIVATIVE
It describes a lacking of the head.

44. PROGRESS
It indicates in what the head is developing.

45. PROPERTY
It represents a property of the head.

46. PROPERTYOWNER
It indicates the owner of a property described by the head.

47. RANGE
It indicates the range of the head.

48. REASONCAUSE
It describes the reason or cause of the head.
Examples: VERB+FIN-RMOD-REASONCAUSE: “[Ingrassa]ₜ [perchè]₄ mangia troppo” – “(She/he) [fatten]ₜ [because]₄ (she/he) eat too much”

49. RELATTO
It represents something to which the head is related.
Examples: PREP-RMOD-RELATTO: “Mary [secondo]₄ me [è]ₜ bella” – “Mary [according to]₄ me [is]ₜ beautiful”

50. RESULT
It represents the result of the head.

51. ROLEIN
It shows in what the head play a role.

52. SITDESCR
The description of the situation described by the head.
Examples: VERB+FIN-RMOD-SITDESCR: “Udì la [notizia]ₜ [che]₄ erano arrivati nella notte” – “(She/he) heard the [news]ₜ [that]₄ (they) was arrived during the night”

53. SITUATION
It describes the situation where the head happens.

54. SOURCE
It indicates the source of the head.

55. STRENG
It gives more streng to the event described by the head.

56. SUBCLASS
It describes a subclass of the head.

57. SUBDIVISION
It indicates among who/what the head is divided.
58. **THEME**
   It describes the theme of the head.

59. **TIME**: +APPROX, +DAY, +DISTRIB, +DUR, +MONTH, +OF, +YEAR
   It describes the time in which the head happens in its various forms.

60. **TOGETHER**
   It indicates who is together with the head.

61. **TOPIC**
   It describes the topic of the head.

62. **TRANSPMEANS**
   It describes the means of transport of the head.

63. **TYPE**
   It indicates the type of the head.

64. **VALUE**
   It describes the value of the head in terms of money.

65. **VOCATIVE**
   It describes the fact that the head is attracting the attention of someone calling directly him.

66. **WEAR**
   It describes what the head is wearing.

67. **WHOLEOBJ**
   It represents the whole object of which the head is part.

68. **YEAR**
   It represents the number of a year which is the head.
4. Other labels for relations

It is possible to find in the sentences the following relations composed by a couple of grammatical relations separated by slash:

1. VERB-SUBJ/VERB-INDCOMPL-AGENT
2. VERB-OBJ/VERB-SUBJ
3. VERB-PREDCOMPL+OBJ/VERB-PREDCOMPL+SUBJ
4. VERB-SUBJ/VERB-SUBJ+IMPE
5. VERB-SUBJ/VERB-INDOBJ

In these labels the "/" indicates a transformation, a difference between surface and deep syntactic structure. The transformations of the above list respectively concern the passive form (1. and 2.) (or their consequences on predicative complement (3.)) and include the surface SUBJ which become deep OBJ and the surface INDCOMPL-AGENT which become deep SUBJ; the impersonal transformation of subject; and the causative construction (explained in the pertinent paragraph in linguistic notes) where the deep subject of the infinitive verb can be the surface object or indirect object of the causative verb. See section 3 for the examples of relations including transformation.

As well as *LOCUT (described in note 1) it is possible to find another kind of label introduced by *: the label CLEFT has been associated to the relation VERB-PREDCOMPL+SUBJ (obtaining VERB-PREDCOMPL+SUBJ*CLEFT) when that relation occurs in a cleft sentence structure (explained in the pertinent paragraph of linguistic notes).