This document describes the treatment of some specific constructions in the tectogrammatical annotation of the Index Thomisticus Treebank and the Latin Dependency Treebank.

Only those constructions that are either not covered by or are treated differently from the guidelines for tectogrammatical annotation of the Prague Dependency Treebank are reported here.
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Lack of the governing verb in "nominal clauses"

Nominal clauses that are interpreted as verbal present the lack of the governing verb, which cannot be recovered from the context (i.e. the missing verb is not a copy of a verb occurring in an ATS). See the Tectogrammatical guidelines (p. 198): "usually a simple verb could be inserted into such constructions, however this possibility is not a necessary condition for interpreting this constructions as verbal".

The missing head verb of a nominal clause interpreted as verbal must be added to the TGTs as a newly added node. This node is assigned the t-lemma substitute #EmpVerb (nodetype: qcomplex).

The nodes that depend on the #EmpVerb node are assigned a functor according to their semantic role in the clause (see figure 6.26 in http://ufal.mff.cuni.cz/pdt2.0/doc/manuals/en/t-layer/html/ch06s04s01.html#pic232slov6).

This is in accordance with http://ufal.mff.cuni.cz/pdt2.0/doc/manuals/en/t-layer/html/ch06s12s01.html#elipsa1.1.2

Example: 005.SCG*LB1.CP--++2.N.-1.4-1.8-4 "[...] unde sapiens dicit, beatus vir qui in sapientia morabitur [...]".

In this example, the utterance "beatus vir" lacks the head verb, which could be thought to be "sum", but this is not the point. A new node is added, depending on "dico", with t-lemma substituted #EmpVerb (nodetype: qcomplex). The functor PAT is assigned to it, because this is the semantic role of the node. The words "vir" and "beatus" are assigned the functors ACT and PAT respectively, because these are the semantic roles according with the utterance they are in.

Two Newly Added Nodes Depending on Gerundives

Gerundives are assigned 2 newly added nodes (at least 2: if a three-argument verb is concerned, you should add three new nodes):
1. #Gen, ACT, topic
2. #PersPron, PAT, topic: with textual coreference to the (usually) noun modified by the gerundive

Example: "rebus nominandis". Nominandis heads two newly added nodes:
1. #Gen, ACT, topic
2. #PersPron, PAT, topic: with textual coreference to rebus

ID of nominandis: SlAT-005.SCG*LB1.CP--++1.N.-2.1-1.5-1-n8

Newly Added Node(s) Depending on Participle Used as Adjectives

The participles used as adjectives (sempos: adj.denot) require ellipsis resolution of one or more nodes according to the following rule (this rule is similar to and consistent with the previous one, that concerns gerundives):


present and future participles (active meaning): the node of the Actor (ACT) must be added (with #PersPron t-lemma) and assigned a textual coreference (coref_text) to the head noun in the tree.
Example: 005.SCG*LB1.CP--++1.N.-2.23-2.25-1: "[...] artes aliis principantes [...]."
  - aliis:
    - functor: PAT
    - newly added node depending on principantes:
      - t-lemma: #PersPron
      - functor: ACT
      - coref_text linking to artes

perfect participles (passive meaning): the node of the Patient (PAT) must be added (with #PersPron t-lemma) and assigned a textual coreference (coref_text) to the head noun in the tree.
Example: "Lesbia amata a Catullo".
  - Catullo:
    - functor: ACT
    - newly added node depending on amata:
      - t-lemma: #PersPron
      - functor: PAT
      - coref_text linking to Lesbia

Obviously, in addition to the newly added nodes mentioned above, all the argument nodes that are missing must be replaced. For instance, in the sentence “Lesbia amata”, two nodes must be added, namely the ACT and the PAT (both with t-lemma: #PersPron; the PAT must be textually coreferred with Lesbia).

**NB:** this rule does NOT cover all the possible cases and has not to be applied in a blind way. There are several cases that do not fit this rule. The semantics of the participle must always be taken into account. See for instance a phrase like “lupus mortuus”. In this case, mortuus depends on lupus and it is a perfect participle. However, the rule does not apply here because morior is a deponent and one-valency verb (i.e. it does not have a PAT among its frame elements). In this case, a #PersPron node must be added (dependent on mortuus): this node is assigned the functor ACT and gets textually corefered with lupus (literally: “the wolf that has died”).

A test to be applied in order to recognize the correct frame elements (and their functors) is to replace the participle with a relative clause:
- “lupus mortuus” -> “lupus qui (ACT) mortuus est”
- “Lesbia amata a Catullo” -> “Lesbia quae amatur a Catullo” -> [passive->active] “Lesbia quam (PAT) Catullus (ACT) amat”
- “artes aliis principantes” -> “artes quae (ACT) principantur aliis (PAT)"

**Respectu**

In those cases where the word respectu functions as a preposition, it is collapsed and it is referred to as an aux.rf of the word (or words, in case of coordination) that it governs in the analytical tree.
Value of grammatemes dispmod, verbmod, tense in modal constructions

In the case of infinitive verbs, the value “nil” is assigned by default to the following grammatemes: dispmod and verbmod. An exception holds in those cases where in the analytical layer the infinitive verb depends on a modal verb (possum, debeto, volo, oportet...): in these cases, the node of the infinitive verb in the tectogrammatical layer (which includes the modal one) is assigned the same grammatemes of the modal verb. For instance, see sentence 005.SCG*LB1.CP---+1.N.-3.11-2.12-5: “oportet esse”. The node sum in the tectogrammatical tree (despite corresponding to the infinitive form esse) is assigned the values of the grammatemes dispmod, verbmod, tense of its analytical governor oportet.

Sempos of Idem and Alius used as semantic nouns

In those cases where the lemmas idem and alius are used as a noun, they assigned respectively sempos “n.pron.def.demon” (idem) and “n.pron.indef” (alius). See: 005.SCG*LB1.CP---+1.N.-6.1-1.4-1. “eiusdem autem est...”

Ita/Sic...Sicut/Ut

In clause that include constructions like “sic/ita...sicut/ut”, all these words (sic, ita, sicut, ut) are collapsed under the node of the autosemantic word (a verb) that heads the comparative subclause, which is assigned functor CPR (subfunctor: basic). For instance, “Sic Marcus facit aliquid sicut Paulus (facit)”. In this sentence, the newly added node facio (functor: CPR) collects the nodes of both sic and sicut.

The same holds for sentences like “Sicut Marcus facit, ita Paulus (facit)”. The node of facio (not the newly added one) collects both the nodes of sicut and ita.

Examples:
- 005.SCG*LB1.CP---+1.N.-5.7-1.8-3
- 005.SCG*LB1.CP---+1.N.-6.4-2.7-2

Values of “Indeftype” grammateme by lemma

The Indeftype grammateme is assigned to the following t-lemmas according to the tables below (NB: one lemma can be assigned different “indeftype” values according to its meaning).

Relat (relative):
- Qui/quae/quod

Inter (interrogative):
- Qui/quae/quod
- Quis/quin
- ...

Indeftype1 (meaning: “someone”, “something” /whatever (person or thing):
- Aliqui/aliqua/aliquod
- Aliquis/aliquid
- Alius/alia/aliud
- Quidam/quiddam
- Quidam/quaedam/quoddam
- Quis/guid
- Quispiam/quidpiam
- Quispiam/quaepiam/quodpiam
- Quisquam/quidquam
- Ullus/a/um

Indeftype 2
- Alter/Altera/Alterum
- Uter/utra/utrum
- Uter/utravis/utrumvis
- Utercumque/utracumque/utrumcumque
- Uterlibet/utralibet/utrumlibet

Indeftype 3 (meaning: “whoever”, “anyone who” “whatever”):
- Quicumque/quaecumque/quodcumque
- Quilibet/quaelibet/quidlibet
- Quilibet/quaelibet/quodlibet
- Quisquis/quaequae/quidquid
- Quivis/quaevis/quidvis
- Unusquisque/unaquisque/unumquidque
- Unusquisque/unaquaque/unumquodque

Indeftype 4 (in Czech lecjiaky’ = more than one, every kind):
- Plerique/pleraeque/pleraque
- Complures/compluria
- Plurimi/plurimae/plurima
- Ceteri/ceterae/cetera
- Reliqui/reliquae/reliqua

Total1 & Total2
Lemmas totus, cunctus, universus and omnis can be assigned the
"adj.pron.indef", the "n.pron.indef" and the "adv.pron.indef" sempos.
In all these cases, they are assigned the “indeftype” grammateme
according to the following rule:
- value “total1”: totalizing adj./n./adv. referring to the whole of
something. Focus on “totality” in the sense of “entirety”:
  - cunctus (totality as union of all the elements)
  - totus (totality considered as a whole )
- value “total2”: totalizing adj./n./adv. referring to individuals.
  Focus on “totality” in the sense of a “set of elements”:
  - omnis (every element)
  - universus (all the elements composing a totality)
Temporary solution! Indeftype total1: Solus/sola/solum
Annotation of participles, gerunds and gerundives in the tectogrammatical level

Participles, gerunds and gerundives have a double nature according to their semantics, because they are nominal (noun or adjective) and verbal at the same time. According to the guideline lines of the PDT, all the nodes referring to nominal parts of verbs must be annotated in their <sempos> as verbs (“v” value), in order to make a lexicon valency bank where all verb forms fall together in the same entry and there are not different entries according to the sempo of the form, i. e., one entry for “duco” as a verb and another one for “duco” as an adjective. As any other verb form, all gerunds, participles and gerundives have a valency frame that has to be reconstructed in case it is not expressed in the sentence, i. e. all the arguments that the verb needs must be expressed as #Gen if it is not clear from the context or it is an impersonal construction, or #PersPron if it is already mentioned (in this case the textual coreference must be made).

Grammatemes

Like any other verb, all these forms must be classified with the seven grammatemes that are applied to verbs: deontic modality, verbal modality, interativeness, dispositional modality, aspect, tense, and resultative modality.

According to the guideline lines of the PDT, those are the values of all these grammatemes when there is a participle, a gerund or a gerundive in the text:

<table>
<thead>
<tr>
<th>GRAMMATEME</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>verbal modality</td>
<td>“nil”: «As for nodes representing infinitives, participles or transgressives (gerunds), the value of the verbal modality grammateme is nil.» (<a href="http://ufal.mff.cuni.cz/pdt2.0/doc/manuals/en/t-layer/html/ch05s06s04.html#komp6.4.3">http://ufal.mff.cuni.cz/pdt2.0/doc/manuals/en/t-layer/html/ch05s06s04.html#komp6.4.3</a>)</td>
</tr>
<tr>
<td>deontic modality</td>
<td>“decl”</td>
</tr>
<tr>
<td></td>
<td>Gerundives:</td>
</tr>
<tr>
<td></td>
<td>A) having a sense of obligation: “hrt”</td>
</tr>
<tr>
<td></td>
<td>Example: 005.SCGB1.CP-++1.N.-2.1-1.5-1: “multitudinis usus, quem in rebus nominandis sequendum philosophus censet”</td>
</tr>
<tr>
<td></td>
<td>B) acting as a verbal adjective: “decl”</td>
</tr>
<tr>
<td></td>
<td>Example: 005.SCGB1.CP-+++3.N.-1.1.2-2: “quis modus sit possibilis divinae veritatis manifestandae”.</td>
</tr>
<tr>
<td>dispositional</td>
<td>“nil”</td>
</tr>
<tr>
<td>modality</td>
<td>(<a href="http://ufal.mff.cuni.cz/pdt2.0/doc/manuals/en/t-layer/html/ch05s06s04.html#komp6.4.3">http://ufal.mff.cuni.cz/pdt2.0/doc/manuals/en/t-layer/html/ch05s06s04.html#komp6.4.3</a>)</td>
</tr>
<tr>
<td></td>
<td>B) Participles</td>
</tr>
<tr>
<td>“disp0”</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>iterativeness</strong></td>
<td>according to the semantic of the verb it could be 'it1' or 'it0'</td>
</tr>
<tr>
<td><strong>aspect</strong></td>
<td>this is a difficult point in discussion, because Czech participles and infinitives distinguish aspect, but Latin infinitives, gerunds and gerundives don’t and only participles do. According to this, only perfect participles would receive “cpl” as aspect, all the other nominal forms of verbs would receive “proc”.</td>
</tr>
<tr>
<td><strong>resultative modality</strong></td>
<td>The “res1” is only applied to a specific Czech construction (<a href="http://ufal.mff.cuni.cz/pdt2.0/doc/manuals/en/t-layer/html/ch05s06s04.html#komp6.4.3">http://ufal.mff.cuni.cz/pdt2.0/doc/manuals/en/t-layer/html/ch05s06s04.html#komp6.4.3</a>)</td>
</tr>
<tr>
<td><strong>Tense</strong></td>
<td>According to the guide lines, the tense values are only applied to finite verb forms or gerunds, because Czech infinitive and participles don’t distinguish tense but aspect. In all those cases the value assigned is “nil”. (<a href="http://ufal.mff.cuni.cz/pdt2.0/doc/manuals/en/t-layer/html/ch05s06s04.html#komp6.4.3">http://ufal.mff.cuni.cz/pdt2.0/doc/manuals/en/t-layer/html/ch05s06s04.html#komp6.4.3</a>) In Latin, gerunds and gerundives don’t distinguish tense, but participles and infinitives do. So, the tense value must be assigned also to participles and infinitives (instead of “nil”) according to consecutio temporum. Roughly speaking, past participles and infinitives are assigned the value “ant”; present participles and infinitives are assigned the value “sim”; future participles and infinitives are assigned the value “post”. Gerunds and gerundives are always assigned the tense value “nil”.</td>
</tr>
</tbody>
</table>

**DEVIATION FROM PDT GUIDELINES**

**Periphrastic constructions with gerundive**

Like in constructions with modal verbs heading infinitives (e.g. “debo dicere”), in periphrastic constructions formed with a gerundive the inflected verb (a form of lemma sum) acts as an auxiliary verb. This is why it does not appear in the tectogrammatical level, but it is removed and absorbed into the node of the gerundive.

This implies the following:

- the values of all the grammatemes of sum are assigned to the verb in the gerundive, as well as all the other annotations that the inflected verb may have (like, for instance, is_member, sentmod, etc.).

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Among the grammatemes, ONLY “deontmod” is assigned the original value “hrt” (inherited from the gerundive), in order to keep the sense of obligation of these periphrastic constructions;

- the functor of sum is assigned to the gerundive;
- all the nodes depending on sum are made dependent on the gerundive.

NB: the ACT of sum takes the PAT functor according to the passive meaning of the periphrastic construction with gerundive (this is a tendency: real data can show exceptions);

- the id of sum is reported into the “aux.rf” of the gerundive in the usual form (SlaA...-n...).

Examples

005.SCG*LB1.CP---+5.N.-1.5-4.8-2

et ideo demonstrandum est quod necessarium sit homini divinitus credenda proponi etiam illa quae rationem excedunt.

- the values of all the grammatemes (and of other annotations, as well; namely: “sentmod”= “enunc” and “is member”= “1”) of sum are assigned to demonstro (t_lemma of demonstrandum), but “deontmod”, which is assigned value “hrt”;
- the functor PRED is assigned to demonstro;
- all the nodes depending on sum are made dependent on demonstro with their functors, except the cluse “quod necessarium sit”, which is assigned functor PAT;
- a node #Gen is newly added depending on demonstro, with functor ACT;
- the id of sum is reported into the “aux.rf” of procedo with this form: SlaA-005.SCG*LB1.CP---+5.N.-1.5-4.8-2-n4.

005.SCG*LB1.CP---+9.N.-2.1-1.4-1:

ad primae igitur veritatis manifestationem per rationes demonstrativas, quibus adversarius convinci possit, procedendum est.

- the values of all the grammatemes (and of other annotations, as well; namely: “sentmod”= “enunc” and “is member”= “1”) of sum are assigned to procedo (t_lemma of procedendum), but “deontmod”, which is assigned value “hrt”;
- the functor PRED is assigned to procedo;
- all the nodes depending on sum are made dependent on procedo with their functors;
- a node #Gen is newly added depending on procedo, with functor ACT;
- the id of sum is reported into the “aux.rf” of procedo with this form: SlaA-005.SCG*LB1.CP---+9.N.-2.1-1.4-1-n16.
Annotation of videor/videtur

A) Impersonal Construction (ACT PAT)
“alicui videtur quod/AcI...”

Videtur heads:
- a dative (alicui), with functor ACT. If the dative is missing, a #Gen node is newly added with functor ACT
- the quod/AcI construction, with functor PAT

B) Personal Construction (ACT PAT EFF)
“alicui aliquid videtur esse”
“alicui aliquid videtur bonum”

Videor heads:
- a dative (alicui), with functor ACT. If the dative is missing, a #Gen node is newly added with functor ACT
- the syntactic subject (Sb afun in the analytical layer), with functor PAT. In the example: aliquid
- the nominal predicate (Pnom afun in the analytical layer), with functor EFF. In the example: esse/bonum

NB: in cases like “aliquid videtur bonum”, we do NOT add a new node heading bonum (like an empty verb, or a node with t_lemma sum), in order to highlight the copulative function of videtur. Instead, in “aliquid videtur esse bonum”, videtur heads esse (EFF), which embodies the copulative function

Consecutive Clauses with ita...quod or ita quod


Case 1: “ita...quod”
A clause introduced by quod which is considered consecutive because of one occurrence of ita in the sentence (with afun AuxZ in the analytical layer) is annotated as follows (consistently with the above mentioned guidelines of the PDT):
- ita: functor EXT
- quod: absorbed into the autosemantic node of the head verb of the consecutive clause
- head verb of the consecutive clause:
  - made dependent on ita: this implies to move the node from its position in the analytical layer (which is dependent on the verb of the main clause)
  - functor RESL

Example: SCG_2, sentence 23: “ita tamen imperfectum quod...invenitur”:
- ita is assigned functor EXT
- invenio is made dependent on ita and assigned functor RESL

Motivation: here ita is an adverb that modifies a specific lexical item of the sentence (indeed, it is assigned AuxZ in the analytical layer), which must be retained in the TGTS too.

Case 2: “ita quod”
Case:
A clause is introduced by the multiple subordinating conjunction *ita quod*. In the ATS, *ita quod* is annotated as follows:
- *quod*: AuxC
- *ita*: dependent on *quod*, AuxY

TGTS:
- both *ita* and *quod* are absorbed into the autosemantic node of the head verb of the consecutive clause
- the node of the head verb of the consecutive clause is assigned functor RESL
- a new node is added between the head verb of the main clause and the head verb of the consecutive clause, i.e. this node:
  o depends on the node of the head verb of the main clause
  o governs the head verb of the consecutive clause
  o is a qcomplex node of the type #AsMuch
  o is assigned functor EXT

Motivation: here *ita* is a clause adverb (AuxY) and does not modify a specific lexical item of the sentence, but it is part of a multiple conjunction

**Semantic Part-of-Speech of adverbial forms of participle**
Although their t-lemma is the base verb, adverbial forms of participles are assigned sempos “adv…”.

Motivation: the (only) competitor to sempos “adv…” here is sempos “v”, which is discharged because grammatemes of semantic verbs do not apply to adverbial forms of participles.

Example: *convenienter* (SCG_1, sentence 7). Lemma: *convenio*. Sempos: adv.denot.grad.neg

**“necesse est” and “oportet” as modal verbs**
The constructions of *necesse est* and *oportet*, when followed by a subjective clause (infinitive or finite, e.g. *quod/quia/ut*+subjunctive), behave like a modal verb.

Therefore, the adjective and the verb (in the case of *necesse est*) and the verb (in the case of *oportet*) are absorbed into the node of the head node (i.e. the predicate) of the depending clause.

For example:

Oportet:
a-005.SCG*LB1.CP--++3.N.-4.5-6.8-2
“oportet quod [...] sit modus [...]”
The head verb of the depending clause (*sit*):
- absorbs the nodes of oportet and quod → the IDs of oportet and quod are reported in the aux.rf.
- is assigned the following grammateme values:
  - aspect: “proc”
  - deontmod: “deb”
  - dispmod: “disp0”
- iterativeness: “it0”
- resultative: “res0”
- tense: “sim”
- verbmod: “ind”

Necesse est:
a-005.SCG*LB1.CP--++3.N.-1.2-4.8-2
“[...] necesse est prius ostendere [...]”
The head verb of the depending clause (ostendere):
- absorbs the nodes of necesse and est -> the IDs of necesse and est
  are reported in the aux.rf.
- is assigned the following grammateme values:
  - aspect: “proc”
  - deontmod: “deb”
  - dispmod: “disp0”
  - iterativeness: “it0”
  - resultative: “res0”
  - tense: “sim”
  - verbmod: “ind”

The deontmode of the depending infinitive is assigned the value “deb”. This phenomenon does not apply when the constructions with necesse est or oportet are nominal. (In those cases the nodes are not absorbed:
- aliquid oportet: aliquid is assigned the functor “act” and oportet is assigned the corresponding grammatemes and the corresponding functor.
- aliquid necesse est: aliquid is assigned the functor “act”, necesse is assigned the functor “pat” and the corresponding grammatemes and est is assigned the corresponding grammatemes and the corresponding functor.

Possibile/Impossibile est + Infinitive Obj
The constructions like “Sb est possibile/impossibile + infinitive”, where the infinitive depends on possibile/impossibile with afun Obj in the ATS, are treated as follows in the TGTS.
The nodes of est and possibile/impossibile are collapsed into the node of the infinitive. Thus, the node of the Sb is made dependent on the node of the infinitive.
In case of possibile, a new node (nodetype: atom; t_lemma: #Neg) is added, depending on the infinitive.

Example: SCG_5, sentence n. 155
[...] quod possibile est non moveri [...] 
- ATS: moveri depends on possibile via Obj; quod depends on est via Sb
- TGTST: possibile and est collapse into the node of moveo, which heads est and non.
NB: in case the sentence was [...] impossibile est non moveri [...], a new #Neg node would be added, depending on the node of moveo

Sum + infinitive with meaning: “it is possible to”
When in ATS the verb sum heads an infinitive via Obj, this means that the meaning of the clause is “it is possible to...”. In TGST:
- the node of sum is collapsed into the node of the infinitive and all
  the nodes depending on sum become dependent on the infinitive
- the node of the infinitive is assigned deontmod “poss”
- all the grammatemes and other features (e.g. is_member) of the verb
  sum are assigned to the infinitive

Example: 005.SCG*LB1.CP-1++3.N.11.1-1.3-5
[...] non sit procedere in infinitum [...]  
- ATS: procedere depends on sit via Obj  
- TGTS: the node of sit is collapsed into the node of procedere, which
  is assigned deontmod “poss” and all the other grammatemes and features
  of sum

**Ut/sicit-clauses with meaning “for instance”**

NB: change in PDT guidelines

According to the PDT guidelines, the “for instance” constructions are
considered a mixed apposition.


We propose a new way to analyse the “for instance” construction, which is
easier: the node of the conjunction (e.g. ut/sicit) is absorbed into the
node of the word that acts as example, which is assigned functor “CPR”
with subfunctor “nr”, because none of the available values of the
subfunctors of CPR expresses properly the semantics of “for instance”.

The dependencies remain the same of the ATS.

Example:
005.SCG*LB1.CP---++2.N.--4.1-1.6-4
“[...]quidam eorum, ut mahumetistae et pagani [...]”
The functors assigned to these words are the following:
- quidam: “ACT”
- eorum (t-lemma #PersPron): “RSTR”
- ut: absorbed into the mahumetista node
- mahumetistae (t-lemma mahumetista): “CPR”, subfunctor “nr”
- et: “CONJ”
- pagani (t-lemma paganus): “CPR”, subfunctor “nr”

**Quod quid est**

The expression *quod quid est* is a translation of the Greek sentence to *ti
en einai*, from Aristotle, where *quod* corresponds to the Greek article *to*.

Treatment of *quod quid est* in TGTS:

- *quod* is absorbed into the head-node of the expression (*sum*)
- a newly added node is made dependent on *sum*; this newly added node is
  a qcomplex #Gen node and it is assigned functor ACT
- *qui* (ATS: *quid*) is assigned functor PAT
An example is found in 005.SCG*LB1.CP-++3.N.-4.1-1.5-5

**Periphrastic constructions to be absorbed into autosemantic nodes**

A periphrastic construction can introduce a dependent clause, e.g. “propter hoc quod” (005.SCG*LB1.CP-++4.N.-4.11-1.15-8) or “ex quo” (005.SCG*LB1.CP-++4.N.-2.3-3.5-4), or “secundum quod”.

In these cases, the periphrastic construction has to be absorbed into an autosemantic node, as follows:

- all the nodes that form the periphrastic construction get absorbed into the the head node(s) of the dependent clause, i.e. the predicate of a verbal phrase, or the head-noun of a nominal phrase, including possible modificators of the pronoun, like ipso.

To do it, the analytical IDs of the nodes are reported into the “aux.rf” box of the predicate and the nodes of the periphrastic construction are removed from the TGIS.

Beside the constructions mentioned above (“propter hoc quod” etc.), a number of such constructions is formed with the word ratione. In particular, the constructions are the following: (a) ex ratione alicuius rei; (b) in ratione alicuius rei; (c) ratione alicuius rei. In these cases, the nodes for in/ex and ratione are absorbed into that for rei.

Example 1: 005.SCG*LB1.CP-1++8.N.-3.1-2.4-3

“ex ratione compositionis”: the nodes for ex and ratione are absorbed into the node of compositio and the analytical IDs of ex and ratione appear into the aux.rf of compositio (likewise the ID of potest).

**Semos of de-adjectival, de-verbal and de-nominal adverbs**

Adverbial forms derived from adjectives, verbs or nouns, i.e. those adverbs whose “t-lemma” is different from the form (e.g. praecipue: praecipuus; convenienter: convenio; forte: fors), are assigned the same sempos of their “t-lemma” and the correspondent grammatemes: Differently, un-inflected adverbs (like semper, diu, etc.), i.e. those whose “t-lemma” is identical to the form, are assigned sempos adv...

Example 1

- form: convenienter
- t-lemma: convenio
- sempos of t-lemma: v
- grammatemes: the ones of a participle present, i.e.:
  - aspect: “proc”
  - deontmod: “decl”
Example 2:

- form: praecipue
- t-lemma: praecipuus
- sempos of t-lemma: adj. denot
- grammatemes: the ones of an adjective, i.e.:
  - degcmp: “pos”
  - negation: “neg0”

Relative clauses with subjunctive

Relative clauses with the verb inflected in the subjunctive case are assigned any possible value but “decl” for the “deontmod” grammateme.

Most of the times, the value to be assigned is “poss”, i.e., “possibility”.

The value of the “verbmod” grammateme is always “ind”.

Example: 005.SCG*LB1.CP--++5.N.-2.18-1.20-2

"pauca proposuit quae humanae rationis inquisitionem excederent"

excedo is assigned the following grammatemes:

- aspect: “cpl”
- deontmod “poss”
- dispmod “disp0”
- iterativeness “it0”
- resultative “res0”
- tense “ant”
- verbmod “ind”

Relocation of the Atv node (ATS) in the COMPL node (TGTS)

In ATS, a node with afun Atv (NB: only Atv, not AtvV) depends on the node of the noun it agrees with.

In TGTS, a nodes corresponding to an ATS Atv node:

- is (mostly) assigned functor COMPL
- it is moved under the governing node of the clause (i.e. its predicate verb). Motivation: semantically (TGTS), these nodes are adjunct
complementations of the head verb (and not the noun); syntactically (ATS), they depend on the noun because of the agreement

Example: 005.SCG*LB1.CP++6.N.-2.12-1.15-5

ut idiotae et simplices, dono spiritus sancti repleti, summam sapientiam et facundiam in instanti consequerentur.

In the ATS, the node of repleti depends on the node of et (because it modifies both idiaotae and simplices).

In the TGTS, the node of repleo does not depend on the node of the coordination (as in the ATS), but on the node of consequor (relocation of the node).

Repleo is assigned the functor COMPL and it has a compl.rf. that links to the nodes of idota and simplex.

**Functor for partitive complementations of superlatives**

The functor to be assigned to partitive complementations of superlatives is DIR1.

The definition of DIR1 functor is the following: [http://ufal.mff.cuni.cz/pdt2.0/doc/manuals/en/t-layer/html/ch07s04s01.html](http://ufal.mff.cuni.cz/pdt2.0/doc/manuals/en/t-layer/html/ch07s04s01.html)

The definition (also) says that "a modification with the DIR1 functor can also have the meaning of a selection from a group of objects; e.g.:

jeden z chlapců.DIR1 (=lit. one of (the) boys)

nejlepší z lidí.DIR1 (=lit. (the) best of men)"

The example at work here is "the best of men", where "of men" is a complementation that represents "a selection from a group of objects"


**Negative Modal Verbs**

Negative modal verbs like nequeo or nolo are treated like regular modal verbs, i.e.:

- the grammatemes of the modal verb are assigned to the infinitive verb + the the deontic mode (deont) of the modal verb
- the id of the modal verb must appear in the auxiliary references (aux.rf) of the infinitive
- the node of the modal verb is removed
In order to keep the negative meaning of the modal verb, an atomic node with #Neg t_lemma and RHEM functor is newly added, depending on the infinitive verb.

Example: 005.SCG*LB1.CP---+7.N.-4.1-2.3-2

contrariis rationibus intellectus noster ligatur, ut ad veri cognitionem procedere nequeat.

- the grammatemes of nequeo are assigned to procedo and the deontmod grammateme is assigned the value “poss”
- the id of nequeo appears in the aux.rf of procedo (and also all the aux.rf comparing in the nequeo node come to the aux.rf of procedo, like ut)
- the node of nequeo is removed
- an atomic node with #Neg t_lemma and RHEM functor is newly added, depending on procedo

**Passive Constructions with infinitive**

In (personal) constructions featuring a passive head-verb and a dependent infinitive (dicuntur esse), the subject of the passive head-verb in the analytical layer becomes the ACT (or the PAT, according to the voice of the infinitive) of the infinitive verb:

005.SCG*LB1.CP---+6.N.-3.1-1.10-5:

solum simplicium, sed sapientissimorum hominum, ad fidem christianam convolavit, in qua omnem humanum intellectum excedentia praedicantur, voluptates carnis cohibentur et omnia quae in mundo sunt contemni docentur;

omnia, the subject of docentur in the analytical layer, becomes the PAT of contemno in the tectogrammatical layer; so the node of omnis is moved and depends on contemno. The arguments of doceo ACT and ADDR are newly added nodes, and contemno is the PAT.

**Missing correspondence between morphological features and semantic properties**

When there is not correspondence between the morphological features of a word and its semantic properties (like for pluralia tantum), the latter must be reflected through the grammatemes.

E.g. the gender of the noun animal is neuter, but semantically it is an animate; so the grammateme for gender assigned is “anim”, corresponding to the property of animacy of the noun.
According to the PDT tectogrammatical rules (p. 805 and ff.; http://ufal.mff.cuni.cz/pdt2.0/doc/manuals/en/t-layer/html/ch08s07.html), a node with the t-lemma substitute #Asmuch and a corresponding functor (usually, EXT) and subfunctor “basic” must be added when the expression referring to the high or low degree of an aspect of the governing event is omitted in the surface form of the sentence. The node with the t-lemma substitute #AsMuch stands in place of the expression referring to the high or low degree (e.g.: tak málo (=so few/little), tak špatně (=so badly), tak dobře (=so well), tak hodně (=so much/many), tak moc (=so much/many)).

In the tectogrammatical annotation of Latin, the node #Asmuch is added in the following cases:

1. when the introducing element is part of the connective of the RESL clause (like in the multiple subordinate conjunction ita quod: ita depends as “AuxY” on quod in the analytical layer):
   sentence 005.SCG*LB1.CP-1++0.N.-1.1-1.6-7: “haec autem consideratio [...], superflua fortasse quibusdam videbitur, qui asserunt quod deum esse per se notum est, ita quod eius contrarium cogitari non possit, et sic deum esse demonstrari non potest.”
   In this case a new node #Asmuch is added depending on sum (lemma of est) and the verb cogito (lemma of cogitari possit) depends on this newly added node with functor RESL (and the nodes of ita and quod are absorbed in the node of cogito).

2. when the introducing element is missing in the governing clause (for instance, there is no ita, tantum etc. in the sentence) and the context shows that the depending clause has a functor value RESL.:
   sentence 005.SCG*LB1.CP-1++0.N.-2.9-8.10-7: “ut sic saltem in intellectu iam deum esse oporteat.”
   In this case, the preceding predicate (hoc autem formatur) must be reconstructed by ellipsis resolution. According to the context, a node #Asmuch is built and made dependent on formo (lemma of formatur). The node of sum (lemma of esse oporteat) depends on #Asmuch by RESL. The node of ut gets collapsed into the node of sum.

Ne as a conjunction absorbed by the verb

Like all the conjunctions, the conjunction ne (AuxC in the analytical layer) is absorbed into the node of the head-verb of the clause introduced by ne.

This makes the semantic feature of negation carried by ne to be lost in the tectogrammatical level. This is solved by adding a new node #Neg.

E.g. 005.SCG*LB1.CP---+8.N.-3.8-4.11-2

sed ne te inferas in illud secretum , et arcano interminabilis nativitatis non te immergas , summam intelligentiae comprehendere praesumens
The conjunction *ne* is absorbed into the nodes of the verbs *infero* and *immergo*, and a #Neg node is newly added, depending on *infero*, in order to keep the negative sense of the sentence.

**NB** A #Neg node is not newly added as depending on *immergo* (or common to both verbs, i.e. depending of the copula *et*), because the negation of *immergo* is already expressed by *non* (depending on *immergo*). Otherwise, the #Neg node newly added should have been common to both verbs, and should be dependent on the copula *et*. This is quite common when coordinate constructions depend on *ne*, i.e. “ne ... 1st-verb *et non* 2nd-verb”.

**Pars in periphrastic preposition**

The noun *pars* can take part in the periphrastic preposition *ex parte alicuius rei*.

Both the nodes of *ex* and of *pars* are absorbed into the node of the noun in genitive. Their ids appear as auxref of the noun in genitive, as if they were one preposition.

**Relation between m-lemma and t-lemma**

According to the section 4.2 in the PDT guidelines about the relation between a node's t-lemma and m-lemma and between its t-lemma and wordform ([http://ufal.mff.cuni.cz/pdt2.0/doc/manuals/en/t-layer/html/ch04s02.html](http://ufal.mff.cuni.cz/pdt2.0/doc/manuals/en/t-layer/html/ch04s02.html)), the following are the correspondances between the m-lemma of some pronouns & quantificatives and their t-lemma.

<table>
<thead>
<tr>
<th>m-lemma</th>
<th>t-lemma</th>
</tr>
</thead>
<tbody>
<tr>
<td>aliqui</td>
<td>qui</td>
</tr>
<tr>
<td>aliquis</td>
<td>quis</td>
</tr>
<tr>
<td>duplex</td>
<td>duo</td>
</tr>
<tr>
<td>qualiscumque</td>
<td>qualis</td>
</tr>
<tr>
<td>quantuscumque</td>
<td>quantus</td>
</tr>
<tr>
<td>quicumque</td>
<td>qui</td>
</tr>
<tr>
<td>quidam</td>
<td>qui</td>
</tr>
<tr>
<td>quiliber</td>
<td>qui</td>
</tr>
<tr>
<td>quisquis</td>
<td>quis</td>
</tr>
<tr>
<td>seipse</td>
<td>ipse</td>
</tr>
<tr>
<td>singulus</td>
<td>unus</td>
</tr>
</tbody>
</table>
Coordination of nodes with different functors

Since the rule is not trivial, see:

http://ufal.mff.cuni.cz/pdt2.0/doc/manuals/en/t-layer/html/ch06s06s01.html#pic234sour14

There are cases where two or more coordinated nodes are assigned different functors.

This contradicts the principle of coordination, which says that the coordinated elements have to be equal.

The PDT guidelines state to make an ellipsis resolution, i.e. to coordinate the head-verb (on which the two, or more coordinated elements depend) with a copy of it and to make each of the coordinated elements with different functors depend of each head-verb.

Here, we part from the PDT guidelines, allowing one or more different functors to be coordinated. This is for two main reasons: (a) it is more simple (no new nodes are added); (b) it faces the truth (there is no real ellipsis working here); (c) it preserves better the information (see the query below to search for all such cases, that the PDT-style loses).

Fictional example: "I run fast and with my brand new shoes". Here, a MANN ("fast") and a MEANS ("with my brand new shoes") are coordinated.

List of some cases in the IT-TB:

<table>
<thead>
<tr>
<th>Phrase</th>
<th>Functors</th>
<th>Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCG_1/167</td>
<td>MEANS and AUTH</td>
<td>efficacia (MEANS)-violencia (MEANS)-promissio (MEANS)-tyrannis (AUTH)</td>
</tr>
<tr>
<td>SCG_2/97</td>
<td>MANN and MEANS</td>
<td>naturalis (MANN) - #PersPron (MEANS)</td>
</tr>
<tr>
<td>SCG_3/1</td>
<td>TWHEN and MEANS</td>
<td>unus (TWHEN)- #PersPron (MEANS)</td>
</tr>
<tr>
<td>SCG_3/3</td>
<td>TWHEN and MEANS</td>
<td>unus (TWHEN)- #PersPron (MEANS)</td>
</tr>
<tr>
<td>SCG_3/121</td>
<td>TWHEN and MEANS</td>
<td>unus (TWHEN) - ratio (MEANS)</td>
</tr>
<tr>
<td>SCG_3/186</td>
<td>TWHEN and MEANS</td>
<td>semper (TWHEN) - pars (MEANS)</td>
</tr>
</tbody>
</table>
Query to be used to retrieve all such cases:

```
t-node $n0 :=
    [ nodetype = "coap",
    t-node $n1 :=
    [ is_member = 1 ],
    t-node $n2 :=
    [ functor != $n1.functor, is_member = 1 ] ];
```

**Tanto-quanto, tantum-quantum (distribution and uses)**

The adverbs tanto-quanto can appear in two different syntactic constructions:

- **tanto** and **quanto** are part of two paratactic clauses, coordinated by a comma: 005-SCG*LB1.CP-1++4.N.-2.9-5.12-1

- **quanto** is part of a subordinate clause depending on a main one (where tanto occurs). The predicate of the subordinate clause (where quanto occurs) is assigned a fun “Adv”: 005-SCG*LB1.CP-1++8.N.-5.1-2.4-2

According to these possible syntactic constructions, the tectogrammatical annotation of tanto-quanto is different:

- in the first case, both adverbs are assigned the functor EXT and the functors of the head verbs are assigned the functor value according to their semantic role in the sentence.

- in the second case, both adverbs are assigned the functor EXT, but the head verb of the quanto sentence is assigned the functor value CPR, with subfunctor “basic”.

NB: the second structure is also possible with tantum-quantum, but it is not frequent.

**Other uses of tantum**

Tantum can also be used:

- as a verbal or noun modification that introduces consecutive sentences: in this case, it is assigned the functor value EXT and the
subordinate clause (usually introduced by ut) depends on tantum with the functor value RESL: 005-SCG*LB1.CP--++5.N.-4.3-3.7-9.

- as a verbal or noun modification with no consecutive value but with the meaning “very”. In this case, it is assigned the value EXT. This is the most frequent use of tantum: 005-SCG*LB1.CP-1++3.N.22.9-5.11-1.

Other uses of quantum

Quantum can appear with a comparative meaning in a construction similar to the tantum–quantum construction, where the lemma tantum is not present. In this case, the head verb of quantum is assigned the functor value CPR, with subfunctor “basic”: 005-SCG*LB1.CP-1++8.N.-3.1-2.4-3

Quantum can also be a part of a periphrastic construction (quantum ad aliquam rem); in this case, in the ATS quantum depends on ad as an Aux2. In TGS, the node of quantum is collapsed into the head noun (just like the node of ad is) and this is assigned the functor value REG:005-SCG*LB1.CP-2++0.N.12.11-3.13-1

Opus est aliqua re

The periphrastic construction opus est aliqua re is annotated in the ATS in the following way:

- the form of the verb sum is the head-node
- the noun opus depends on sum via Sb
- the ablative depends on opus via Atr (because all the nominal modifications in the ATS are assigned the afun value “Atr”)

Example: 005.SCG*LB1.CP-4++3.N.13.5-2.9-4.

In the TGS, this construction is treated as follows:

- the node of sum is collapsed into the node of opus
- the node of opus heads the whole structure
- a #Gen node depending on the node of opus is newly added with the functor value ACT, to render the impersonality of the construction
- the node of the ablative depends on the node of opus with the functor value PAT

NB: the node of opus is assigned the value “v” for the grammate me “sempos”; the others grammate mes are filled according to the values that would be assigned to sum, except “deontmod”, which is assigned “deb”.

Example: 005.SCG*LB1.CP-4++3.N.13.5-2.9-4

In this case the node of opus is assigned the values:

- “proc” for aspect
- “deb” for deontmod
- “disp0” for dispmod
- “it0” for iterativeness
- “res0” for resultative
- “v” for sempos
- “sim” for tense
• “ind” for verbmod

NB: no entry for *opus est aliqua re* is added in the valency-lexicon, since no periphrastic construction is reported there.

Relative Clauses with Final, Concessive, or Other Values

The relative clauses which have a final, concessive or other type of semantic value, are moved from the nominal head to the verbal head above the nominal one, because these kinds of values affect the predication, not the noun phrase.

In such clauses, the relative pronoun maintains the grammatical coreference with the (nominal) node it refers to, but the head of the relative clause (i.e. its predicate) is moved from the nominal head to the verbal head.

Example: a-332 (Caes, Gall. 2,2): *His nuntiis litterisque commotus Caesar duas legiones in citeriore Gallia novas conscripsit et inita aestate in ulteriorem Galliam qui deduceret Q. Pedium legatum misit.*

In this sentence, the relative clause is "qui deduceret" and the relative pronoun stands in grammatical coreference with *Pedium* (lemma *Pedius*), but since it has a final sense ("in order to conduct - them to the Gaul-"), the head verb of this clause (*deduco*) is moved and it is made dependent on *mitto* (the PRED) instead than on *Pedius*.

T_lemma of the Pronoun *is, ea, id*

The forms of the demonstrative pronoun and adjective *is, ea, id* have *t_lemma "is"* (and not #PersPron) in accordance with the treatment of all the other demonstrative pronouns and adjectives (*hic, ille, isdem, ipse*).

Some Special Cases of Annotation of Subordinate Clauses

Problematic Issue

Subordinate clauses with the syntactic function of subject or object of a verb (in ATS) that are respectively not ACT, or PAT (or any other functor) of that verb in TGTS.

NB: so far, this issue concerns subject or object subordinate clauses only because we have not found evidence for other afun. But, in principle, this is possible.

Following are the specific cases concerned:

(A)

Subordinate clauses featuring the relative pronoun *qui* in nominal function.

How to treat them in TGST:
1- a newly added node #PersPron is made dependent on the head verb of the main clause. This newly added node is assigned its functor according to the semantic role of the depending clause (e.g. if Sb of an active verb: usually, ACT). The grammatemes are assigned in accordance with the morphological features of the relative pronoun of the subordinate clause (person, gender, number, politeness);

2- the subordinate clause is transformed into a relative clause depending on the #PersPron. Its head verb is, thus, assigned functor RSTR;

3- a grammatical coreference is made from the relative pronoun in the subordinate clause to the newly added node #PersPron in the main clause.

N.B.! This is the only case in which a #PersPron (not for the 1st or the 2nd person) can have no textual coreference.

Example:

005.SCG*LB1.CP--++1.N.-2.1-1.5-1
“[...] sapientes dicantur qui res directe ordinant et eas bene gubernant.”

1- a newly-added-node #PersPron is made dependent on the head verb “dico” with the semantic role PAT; the grammatemes are: gender “anim”, number “sg”, person “3” and politeness “basic”

2- the subordinate clause “qui res directe ordinant et eas bene gubernant” is made dependent on the #PersPron as RSTR, i.e. functor RSTR is assigned to the two coordinated predicates (ordino and guberno), which depend on the COAP node et (which, in turn, depends on the newly added node #PersPron);

3- a grammatical coreference is made between the relative qui and the newly added node #PersPron.

(B)

Subordinate clauses featuring an indefinite pronoun in nominal function (e.g. quisquis, quicumque, etc.).

How to treat them in TGST:

1- the indefinite pronoun is made dependent on the head verb of the main clause. It is assigned its functor according to the semantic role of the depending clause (e.g. if Sb of an active verb: usually, ACT)

2- the subordinate clause is transformed into a relative clause depending on the indefinite pronoun. Its head verb is, thus, assigned functor RSTR

3- a new node is added (depending on the head verb of the relative clause), with grammatical coreference to the indefinite pronoun. Grammatemes: “inher” for gender, number and person, and “relat” for indeftype. This node is assigned its functor according to its semantic role in the depending (now, relative) clause.

Example:

005.SCG*LB1.CP--++7.N.-3.8-3.10-1
“quicquid igitur principiis huiusmodi contrarium est, divinae sapientae contrariatur”

- the indefinite pronoun quicquid (lemma quis) is made dependent on the verb contrarior with functor ACT

- the clause whose head is sum (contrarium est) is made dependent on the node of quis with functor RSTR

- a new node is added depending on sum with functor ACT and with grammatical coreference to the indefinite pronoun (node quis).
Subordinate clauses featuring an indefinite pronoun in adjectival function, depending on a noun (e.g. quicunque, qui, quis, etc.).

How to treat them in TGST:

1- the noun which the indefinite pronoun in adjectival function depends on, is made dependent on the head verb of the main clause. It is assigned its functor according to the semantic role of the depending clause (e.g. if Sb of an active verb: usually, ACT).

2- the indefinite pronoun in adjectival function depends on the noun as a RSTR.

3- the subordinate clause is transformed into a relative clause depending on the noun. Its head verb is, thus, assigned functor RSTR.

4- a new node is added (depending on the head verb of the relative clause), with grammatical coreference to the noun. Grammatemes: “inher” for gender, number and person, and “relat” for indeftype. This node is assigned its functor according to its semantic role in the depending (now, relative) clause.

Example:
005.SCG*LB1.CP--++2.N.-5.1-1.3-1
“simul autem veritatem aliquam investigantes ostendemus qui errores per eam excludantur”
- the noun error is made dependent on the verb ostendo with functor PAT
- the indefinite pronoun in adjectival function qui depends on error with functor RSTR
- the clause whose head is excludo (per eam excludantur) is made dependent on the node of error with functor RSTR
- a new node is added depending on excludo with functor PAT and with grammatical coreference to the noun (node error).

Not Collapsing Modal Verbs

When the infinitive subordinate clause depending on a modal verb and the modal verb do not share the same syntactic subject, the node of the modal verb is not collapsed into the verb of the infinitive subordinate clause. The value for the grammateme deontmod of the infinitive verb in the subordinate clause does not change (the original value “decl” for an infinitive is kept).

The functor of the infinitive subordinate clause is PAT.
This operation must be done to keep the information regarding to the different subjects of both (the modal and the infinitive) verbs.

Example:
quoiusvis opes voluisse contra illius potentiam crescere (Sallust, De coniuratione Catilinae, XVII)

In this sentence, the main verb is voluisse (lemma volo^velle, a modal verb), and its subject is elided, but it is Crassus, according to the context. The infinitive clause quoiusvis opes contra illius potentiam crescere depends from it. The head verb of the infinitive clause is crescere (lemma cresco) and its subject is opes (lemma ops).
In this case, the modal verb volo^velle is not made collapsing into the node of cresco. The value of deontmod for cresco does not change to “vol” (it remains “decl”). The infinitive subordinate clause depends on the
verb volo^velle with functor PAT.
Special Cases

Sentence: 005.SCG*LB1.CP-++6.N.-3.1-1.10-5 (SCG_1, n. 167)

quibus inspectis, praedictae probationis efficacia, non armorum violentia, non voluptatum promissione, et, quod est mirabilissimum, inter persecutorum tyrannidem, innumerabilis turba non solum simplicium, sed sapientissimorum hominum, ad fidem christianam convolavit, in qua omnem humanum intellectum excedentia praedicantur, voluptates carnis cohibentur et omnia quae in mundo sunt contempti docentur;

This sentence features a coordination of phrases which must be assigned different functors, which is in principle not permitted by guidelines:

- praedictae probationis efficacia,
- non armorum violentia,
- non voluptatum promissione, et,
- inter persecutorum tyrannidem

The first three phrases are assigned the functor MEANS, but the fourth is assigned the functor LOC, with subfuctor “betw”.

The particular semantic structure can be appreciated only in the TGST, because in the ATS all phrases are assigned the afun “Adv”.

Breaking the rule that states that coordination must hold between nodes with the same functor only is here meaningful, since it shows a variatio by the author.