

A formal account of Latin deponent verbs: defectiveness and semi-deponency

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1 Introduction

Latin deponent verbs involve the mismatch between morphosyntactic voice and its formal expression. We offer a formal account within the Network Morphology framework (Corbett and Fraser 1993; Evans, Brown and Corbett 2001; Hippisley 2001) that captures the salient facts about Latin deponents that is represented in the lexical knowledge representation language DATR (Evans and Gazdar 1996). We base our account on Baerman's report of Latin deponency (Baerman 2006), who in turn draws on Ernout and Thomas (1953), Flobert (1975) and Kühner (1955). The theorem is validated by checking against the Kennedy Latin primer (Kennedy 1962). We begin by discussing our formal treatment of the verb system to capture generalisations that can be stated over regular verbs. We are then in a position to highlight the defining features of deponent and semi-deponent verbs and express these features formally as overrides to the generalisations. These features, or properties, are as follows. First, as we have said the mismatch involves voice, specifically *active* morphosyntactic features are realised by *passive* morphology. Second, deponent verbs are defective: there are no forms available for realising passive categories. Third, certain of the active categories are not involved in the mismatch. For some of these this because there is no corresponding form in the passive paradigm: a mismatch is *de facto* impossible. But this does not result in a gap in a deponent's paradigm since suitable active forms are used in these instances. However for one category, the future infinitive, the active is used even though there is a passive form available. Fourth, a consequence of the mismatch involves the addition of a morphosyntactic category that is generally absent because there is no morphological form to realise it. This is the active perfect past participle, realised by the passive perfect past participle form. Fifth, verbs may be semi-deponents: part of the paradigm involves a mismatch, and part is regular. Which part of the paradigm is deponent varies between semi-deponent verb classe. In section 2 we outline our formal treatment of the verb system in Latin and show how we can account for regular verbs. We then outline our treatment of fully deponent verbs (section 3) and semi-deponent verbs (section 4).

2 Formal treatment of the verbal system

We follow Aronoff's (1992) analysis of the four Latin verb conjugations as a function of one of four theme vowels available to build a Latin stem. For the realisation of a given morphosyntactic category, the theme vowel is used to imply the correct combination of stem type, stem shape, and the inflectional suffix. Stem types, or indexed stems, are argued for in Aronoff (1994) and are assumed in formal theories of morphology, e.g. Network Morphology (see Hippisley 1998, 2001 for a Network Morphology account of Russian using indexed stems) and Paradigm Function Morphology (Stump 2001).

All verbs inherit ultimately from the node `VERB`, shown in (1). This node holds the generalisation that syntactic features by default correspond to morphological features. The DATR theory expresses how these morphosyntactic features are realised as the combination

of a stem path and atomic value, as we will show. The `VERB` node also contains the generalisation that the primary division of the verbal paradigm is in terms of voice. This is expressed by the attribute ordering of paths: the first feature attribute is either `active` or `passive`. The path is then expanded at active and passive formation nodes, where it is passed on appropriately for further expansions until the full path inherits a value. This captures the first property of Latin deponents, that the mismatch involves voice.

(1)

```
VERB:
  <syn> == "<mor>"
  <mor active> == ACT_FORMS:<>
  <mor passive> == PASS_FORMS:<>.
```

The secondary division of the paradigm is along aspectual lines. Formally this means that attributes expressing aspect features are ordered after those expressing voice features. As we shall see in section 4 this enables us to capture the fact that semi-deponents are really verbs that are deponent in one aspect, and regular in another. This is formalised in (2a, b).

(2a)

```
ACT_FORMS:
  <imperfective> == ACT_IMPF:<>
  <perfect> == ACT_PERF:<>.
```

(2b)

```
PASS_FORMS:
  <imperfective> == PASS_IMPF:<>
  <perfect> == PASS_PERF:<>.
```

The next division is according to tense; formally an attribute representing a tense feature follows the aspect attribute. This is followed by a mood attribute, then number attribute and finally person attribute. We illustrate this ordering for the fully specified path `<mor active perfective past indicative sg 2>` with the DATR nodes in (3). Note that the path `<plus>` in (3a) expresses the pluperfect tense feature in Latin.

(3a)

```
ACT_PERF:
  <past> == ACT_PAST_PERFECT:<>
  <future> == ACT_FUTURE_PERFECT:<>
  <plus> == ACT_PLU_PERFECT:<>.
```

(3b)

```
ACT_PAST_PERFECT:
  <indicative sg 1> == "<stem 2>" ī
  <indicative sg 2> == "<stem 2>" istī
  <indicative sg 3> == "<stem 2>" it
  <subjunctive sg 1> == "<stem 2>" erim
  <subjunctive sg 2> == "<stem 2>" erīs
  <subjunctive sg 3> == "<stem 2>" erit
  <infinitive> == "<stem 2>" isse.
```

Our analysis of Latin verbs takes an inferential-realisation approach (Stump 2001). The function is realised as a modification of the stem. Formally this is expressed as the path `<mor active perfective past indicative sg 2>` inheriting the complex value of (a) the value of the path `<stem 2>` and (b) the atom `istī`. We also assume that a lexical entry can have more than one modifiable stem. In this case what is being modified is the value of a path labelled 'stem 2' that is retrievable from the lexical entry being queried; this is what is expressed by the double quotes. There are (typically) three stems which are used to realise the full set of morphosyntactic features, and the shape of the three stems is generalisable. We capture this using nodes to hold the generalisations and then allowing lexical entries to inherit from them. There is an association between stem shape and conjugation class, and to preserve this association we label the stem formation nodes after the four conjugation classes used in traditional analyses of Latin verbs. These are shown in (4).

(4a)

```
CONJ_1:
  <stem theme> == ā
  <stem 1> == "<root>" "<stem theme>"
  <stem 2> == "<stem 1>" v
  <stem 3> == "<stem 1>" t.
```

(4b)

```
CONJ_2:
  <> == CONJ_1
  <stem theme> == ē
  <stem 2> == "<root>" u
  <stem 3> == "<root>" it.
```

(4c)

```
CONJ_3:
  <> == CONJ_1
  <stem theme> == e
  <stem 2> == "<root>" s
  <stem 3> == "<root>" t
  <stem 1 alt> == "<root>" i.
```

(4d)

```
CONJ_4:
  <> == CONJ_1
  <stem theme> == ī
  <stem 1 ext> == <stem 1> ē.
```

From (4) we can see that each conjugation class node also specifies an associated theme vowel. For example in Conjugation 2 this is / ē/. The value of the theme vowel for a lexical entry is expressed as the value of a path that extends <stem>, and is used for determining the shape of Stem 1.

The lexical entry representing *amō* ‘love’ is given in (5a), a node with the label A_{mo} . It shows how its stems are inherited from the Conjugation node, as well as its theme vowel.

(5a)

```
Amo:
  <> == VERB
  <gloss> == love
  <root> == am
  <stem> == CONJ_1.
```

In DATR the leading sub-path implies all of its extensions. This means <stem> implies <stem 1>, <stem 2>, <stem 3> and <stem theme> (for theme vowel). The partial theorem of A_{mo} is given in (5b) and shows the value of its three stems, and the realisation of the morphosyntactic category ‘active perfective past indicative 2nd person singular’.

(5b)

```
Amo:<gloss> = love.
Amo:<root> = am.
Amo:<stem 1> = am ā.
Amo:<stem 2> = am ā v.
Amo:<stem 3> = am ā t.
Amo:<syn active perfect past indicative sg 2> = am ā v istī.
. . .
```

Following Aronoff (1992) the theme vowel, the value of the path <stem theme>, is used not only to build stems but also to determine stem type and inflectional marker combinations when they differ amongst conjugations for a given feature. For example, for the active imperfective future, one set of desinences is attached to Stem 1 for Conjugations 1 and 2, and another set of desinences is attached directly to the root for Conjugation 3 and to Stem 1 for Conjugation 4. This is shown in the partial theorems of four verbs each belonging to one of the four Conjugations. (6a) is a Conjugation 1 verb, (6b) belongs to Conjugation 2, (6c) Conjugation 3 and (6d) Conjugation 4.

(6a)

```
Amo:<gloss> = love.
Amo:<root> = am.
Amo:<stem 1> = am ā.
mo:<syn active imperfective future indicative sg 1> = am ā bō.
Amo:<syn active imperfective future indicative sg 2> = am ā bis.
Amo:<syn active imperfective future indicative sg 3> = am ā bit.
. . .
```

(6b)

Monēo:<gloss> = advise.
Monēo:<root> = mon.
Monēo:<stem 1> = mon ē.
Monēo:<syn active imperfective future indicative sg 1> = mon ē bō.
Monēo:<syn active imperfective future indicative sg 2> = mon ē bis.
Monēo:<syn active imperfective future indicative sg 3> = mon ē bit.
. . . .

(6c)

Rego:<gloss> = rule.
Rego:<root> = reg.
Rego:<syn active imperfective future indicative sg 1> = reg am.
Rego:<syn active imperfective future indicative sg 2> = reg ēs.
Rego:<syn active imperfective future indicative sg 3> = reg et.
. . . .

(6d)

Audio:<gloss> = hear.
Audio:<root> = aud.
Audio:<stem 1> = aud ī.
Audio:<syn active imperfective future indicative sg 1> = aud ī am.
Audio:<syn active imperfective future indicative sg 2> = aud ī ēs.
Audio:<syn active imperfective future indicative sg 3> = aud ī et.
. . . .

The theory for this is given in (7) where (7a) show that evaluation is based on the theme vowel of the lexical entry being queried: <"<stem theme>". It should be made clear that for the realisation of most categories there is no conjugation distinction if a stem indexing approach is taken. In other words, the conjugational distinctions in the formation of the various stem types allows us to make a general statement about stem type and desinence as the spell out for most categories, which is inherited by default by (regular) verbs of any class. The way we express the realisation of 'active perfective past indicative 2nd person singular' in (2) to (5) above is how we are able to handle most of the categories.

(7a)

```
ACT_IMP_FUT:  
  <indicative> == ACT_IMP_FUT_INDIC:<"<stem theme>">  
  <infinitive> == "<mor active imperfective future participle>" esse  
  <participle> == "<stem 3>" ūrus.
```

(7b)

```
ACT_IMP_FUT_INDIC:  
  <ā> == TYPE_1_ACT_FUT_INDIC:<>  
  <e> == TYPE_2_ACT_FUT_INDIC:<>  
  <ī> == TYPE_3_ACT_FUT_INDIC:<>  
  <ē> == <ā>.
```

(7c)

```
TYPE_1_ACT_FUT_INDIC:  
  <sg 1> == "<stem 1>" bō  
  <sg 2> == "<stem 1>" bis  
  <sg 3> == "<stem 1>" bit.
```

(7d)

```
TYPE_2_ACT_FUT_INDIC:  
  <sg 1> == "<root>" am  
  <sg 2> == "<root>" ēs  
  <sg 3> == "<root>" et.
```

(7e)

```
TYPE_3_ACT_FUT_INDIC:  
  <sg 1> == "<stem 1>" am  
  <sg 2> == "<stem 1>" ēs  
  <sg 3> == "<stem 1>" et.
```

To end this preliminary section on our theory of the Latin verbal system, we should briefly note that where possible we capture cases of directional syncretism as path referrals, in the spirit of Network Morphology (see Baerman, Brown and Corbett 2005: ch. 5). For example, in (7a) the active imperfective future infinitive is partially realised by the active imperfective future participle. In (8a) we show how we capture the fact that for all verbs the active future perfect indicative is syncretic with the active perfect past subjunctive. (8c) shows the identities in form in the theorem for the Conjugation 2 verb *monēo* ‘advise’.

(8a)

```
ACT_FUTURE_PERFECT:  
  <indicative sg 1> == "<stem 2>" erō  
  <indicative sg 2> == "<mor active perfect past subjunctive sg 2>"  
  <indicative sg 3> == "<mor active perfect past subjunctive sg 3>".
```

(8b)

```
ACT_PERF:  
  <past> == ACT_PAST_PERFECT:<>  
  . . .  
  
ACT_PAST_PERFECT:  
  <subjunctive sg 1> == "<stem 2>" erim  
  <subjunctive sg 2> == "<stem 2>" eris  
  <subjunctive sg 3> == "<stem 2>" erit  
  . . .
```

(8c)

```
Monēo:<gloss> = advise.
Monēo:<root> = mon.
Monēo:<stem 1> = mon ē.
Monēo:<stem 2> = mon u.
Monēo:<stem 3> = mon it.
Monēo:<syn active perfect past subjunctive sg 1> = mon u erim.
Monēo:<syn active perfect past subjunctive sg 2> = mon u erīs.
Monēo:<syn active perfect past subjunctive sg 3> = mon u erit.
Monēo:<syn active perfect future indicative sg 1> = mon u erō.
Monēo:<syn active perfect future indicative sg 2> = mon u erīs.
Monēo:<syn active perfect future indicative sg 3> = mon u erit.
. . .
```

3 Fully deponent verbs

The first property of Latin deponent verbs that we need to capture is that they realise active morphosyntax with passive morphology. A second property is that they lack morphosyntactic passive forms. These two properties are expressed as equations at a deponency node from which deponent verbs inherit, a partial version of which is shown in (9a).

(9a)

```
DEPONENT:
  <> == VERB
  <mor active> == PASS_FORMS:<>
  <mor passive> == undefined
  . . .
```

(9b)

```
PASS_FORMS:
  <imperfective> == PASS_IMPF:<>
  <perfect> == PASS_PERF:<>.
```

As deponency only involves a single feature, the voice feature, and not aspect, tense, mood, number or person, and because in our theory of Latin verbs we have partitioned the paradigm according to voice, we can express deponency parsimoniously with the path `<mor active>` referring to the node which handles passive morphology. This is because formally `<mor active>` is the leading sub-path that implies all its extensions, e.g. `<mor active perfect past indicative sg 2>`, and hence gathers together the full set of active morphological features. All these fully specified paths are then evaluated at passive morphology nodes: from (9b) we see that an active imperfective will be evaluated at a passive imperfective node, and an active perfect at a passive perfective node. The second property, that the deponent's passive paradigm is lacking, is expressed by the third equation in (9a). Again the path `<mor passive>` implies all its extensions, the full set of passive features. In (10a) we have the lexical entry for the deponent verb *hortor* 'encourage'.

(10a)

Hortor:

```
<> == DEPONENT
<gloss> == encourage
<root> == hort
<stem> == CONJ_1.
```

If we compare (10a) with the lexical entry for *amō* ‘love’ in (5a) we see that the only difference between a lexical entry for a deponent verb and a regular verb is the main source of inheritance. Deponent verbs, just as regular verbs, have stem types and theme vowels which are specified by their conjugation class. The partial theorem of *Hortor* is given in (10b), and this can be compared to the partial theorem of *Amo* in (10c).

(10b)

```
Hortor:<gloss> = encourage.
Hortor:<root> = hort.
Hortor:<stem 1> = hort ā.
Hortor:<stem 2> = hort ā u.
Hortor:<stem 3> = hort ā t.
Hortor:<syn active imperfective present indicative sg 2> = hort ā ris.
Hortor:<syn active imperfective present indicative sg 3> = hort ā tur.
Hortor:<syn active imperfective present infinitive> = hort ā rī.
Hortor:<syn active imperfective present participle> = hort ā ns.
Hortor:<syn active imperfective future infinitive> = hort ā t ūrus esse.
Hortor:<syn active imperfective future participle> = hort ā t ūrus.
Hortor:<syn active perfect past indicative sg 2> = hort ā t us es.
Hortor:<syn active perfect past indicative sg 3> = hort ā t us est.
Hortor:<syn active perfect past participle> = hort ā t us.
Hortor:<syn passive imperfective present indicative sg 2> = undefined.
Hortor:<syn passive imperfective present indicative sg 3> = undefined.
Hortor:<syn passive imperfective present infinitive> = undefined.
Hortor:<syn passive imperfective future infinitive> = undefined.
Hortor:<syn passive perfect past indicative sg 2> = undefined.
Hortor:<syn passive perfect past indicative sg 3> = undefined.
Hortor:<syn passive perfect past participle> = undefined.
. . .
```

(10c)

Amo:<gloss> = love.
Amo:<root> = am.
Amo:<stem 1> = am ā.
Amo:<stem 2> = am ā u.
Amo:<stem 3> = am ā t.
Amo:<syn active imperfective present indicative sg 2> = am ā s.
Amo:<syn active imperfective present indicative sg 3> = am ā t.
Amo:<syn active imperfective present infinitive> = am ā re.
Amo:<syn active imperfective present participle> = am ā ns.
Amo:<syn active imperfective future infinitive> = am ā t ūrus esse.
Amo:<syn active imperfective future participle> = am ā t ūrus.
Amo:<syn active perfect past indicative sg 2> = am ā u istī.
Amo:<syn active perfect past indicative sg 3> = am ā u it.
Amo:<syn passive imperfective present indicative sg 2> = am ā ris.
Amo:<syn passive imperfective present indicative sg 3> = am ā tur.
Amo:<syn passive imperfective present infinitive> = am ā rī.
Amo:<syn passive imperfective future infinitive> = am ā t um irī.
Amo:<syn passive perfect past indicative sg 2> = am ā t us es.
Amo:<syn passive perfect past indicative sg 3> = am ā t us est.
Amo:<syn passive perfect past participle> = am ā t us.
. . .

The theorem clearly shows the mismatch between syntactic active function and passive morphology. It also shows its lack of a realisation for any passive function, the second property of Latin deponent verbs. In section 1 we mentioned a third property, namely that several categories are not involved in the mismatch. These are highlighted in boldface in Hortor's theorem and compared to Amo's theorem to see that the forms are identical, i.e. active morphosyntactic function corresponds to active morphology for some categories. For two of these, the imperfective present participle and the imperfective future participle, the mismatch is impossible because there are no passive equivalents in a verb's paradigm. Deponent verbs default to active morphology for these categories, thereby avoiding gaps in the paradigm. This is captured by defaulting to active formation unless otherwise specified, and is represented in (11a) for the case of present participle (last equation), and in (11b) for the future participle.

(11a)

```
PASS_IMPFPRES:  
  <indicative sg 2> == "<stem 1>" ris  
  <indicative sg 3> == "<stem 1 alt>" tur  
  <subjunctive> == PASS_PRES_SUBJ:<"<stem theme>">  
  <imperative sg 2> == VERB:<mor active imperfective present infinitive>  
  <imperative pl 2> == "<stem 1 alt>" minī  
  <infinitive> == PASS_PRES_INF:<"<stem theme>">  
  <> == ACT_IMPFPRES.
```

(11b)

```
PASS_IMPFPUT:  
  <indicative> == PASS_FUT_INDIC:<"<stem theme>">  
  <infinitive> == "<stem 3>" um irī  
  <> == ACT_IMPFPUT.
```

The empty path expresses any extension of the sub-path not defined at the node; this is referred to an equivalent active formation node for its value. In (11b) this will be the (future) participle as the indicative and infinitive are defined, and there are no active future imperative or subjunctive categories. And in (11a) this will be the (present) participle as it is the only feature not defined at the node. (11b) shows quite clearly that there is in Latin a passive future infinitive form, and we see it in the theorem of A_{MO} in (10c). However, for deponent verb H_{ORTOR} the active form is used, *hortātūrus esse* (compare A_{MO} 's theorem). In this case we have a category not involved in the mismatch when the equivalent passive form is available. This is a stipulation we must therefore make for deponent verbs, and is expressed at the $DEPONENT$ node, the full version of which is now given in (12).

(12)

DEPONENT:

```

<> == VERB
<mor active> == PASS_FORMS:<>
<mor active imperfective future infinitive> == VERB
<syn active perfect past participle> ==
                                VERB:<mor passive perfect past participle>
<mor passive> == undefined.

```

We should note that this issue does not arise in Greek deponency (ancient and modern) as the same set of active features is present for the medio-passive. This means that the statement `<mor active> == MEDIO_PASSIVE_FORMS:<>` would suffice to account for the mismatch in Greek (c.f. (9a)). The node in (12) also show the fourth property of deponent verbs, that as a consequence of a mismatch with passive morphology they are able to realise a category that cannot be realised for regular verbs, namely the active past participle. Latin has a form for passive past participle, which is used. This is expressed as a syntactic function, where the leading sub-path is `<syn>`, inheriting from a passive form, where the leading sub-path is `<mor>`. Since this is the only place where the extension of this `<syn>` path is specified, the absence of morphology for this function for non-deponent verbs results in it not appearing in their theorems.

4 Semi-deponent verbs

We end by outlining our formal analysis of the fifth, and last property of deponency in Latin, namely semi-deponency. For semi-deponent verbs part of the paradigm involves a mismatch, and part does not. The division of the paradigm could be seen as being one of aspect. Another view is to see the division based on Stem 2 forms, but as they only involve realisation of perfect categories (in the active), it makes no additional claim: in either case the perfect is involved. This is different to Archi, for example, where the deponency is a function of the stem types (see Hippisley 2006 for the formal account of Archi). To illustrate we show the theory for the verb *audeo* ‘dare’, which is deponent for perfect morphosyntax, and regular for imperfective features, and the verb *revertor* ‘return’ which is the converse: it is deponent for imperfective morphosyntactic features, and regular for perfective. (13a) and (13b) give the nodes that express generalisations about these two types of semi-deponent verb. It should be noted that semi-deponents traditionally refer to what I call Perfect Deponent, and what I called Imperfect Deponent is not usually discussed in the context of deponency.

(13a)

```
PERFECT_DEPONENT:  
  <> == DEPONENT  
  <mor active imperfective> == VERB.
```

(13b)

```
IMPF_DEPONENT:  
  <> == DEPONENT  
  <mor active perfect> == VERB.
```

The node in (13a) expresses that deponency properties are inherited by default, except that the active imperfective forms override the generalisation that their values are those of passive forms; instead they behave like any other verb. (13b) is the converse: this time active perfect forms override the mismatching generalisation stated at the Deponent node. This analysis makes the claim that semi-deponency is a type of deponent verb, with some regular behaviour, rather than a type of regular verb with some deponent behaviour. In this way we capture the fact that semi-deponent verbs are defective in the same way as deponent verbs: this is inherited from the *Deponent* node. Lexical entries for perfect deponent *audeō* ‘dare’ and imperfect deponent *revertor* ‘return’ along with their partial theorems are given in (14) and (15) respectively

(14a)

```
Audeo:  
  <> == PERFECT_DEPONENT  
  <gloss> == dare  
  <root> == aud  
  <stem 3> == aus  
  <stem> == CONJ_2.
```

(14b)

```
Audeo:<gloss> = dare.  
Audeo:<root> = aud.  
Audeo:<stem 1> = aud ē.  
Audeo:<stem 2> = aud u.  
Audeo:<stem 3> = aus.  
Audeo:<syn active imperfective present indicative sg 2> = aud ē s.  
Audeo:<syn active imperfective present indicative sg 3> = aud ē t.  
Audeo:<syn active imperfective present infinitive> = aud ē re.  
Audeo:<syn active imperfective present participle> = aud ē ns.  
Audeo:<syn active imperfective future infinitive> = aus ūrus esse.  
Audeo:<syn active imperfective future participle> = aus ūrus.  
Audeo:<syn active perfect past indicative sg 2> = aus us es.  
Audeo:<syn active perfect past indicative sg 3> = aus us est.  
Audeo:<syn active perfect past participle> = aus us.  
Audeo:<syn passive imperfective present indicative sg 2> = undefined.  
Audeo:<syn passive imperfective present indicative sg 3> = undefined.  
Audeo:<syn passive imperfective present infinitive> = undefined.  
Audeo:<syn passive imperfective future infinitive> = undefined.  
Audeo:<syn passive perfect past indicative sg 2> = undefined.  
Audeo:<syn passive perfect past indicative sg 3> = undefined.  
Audeo:<syn passive perfect past participle> = undefined.  
. . .
```

This approach also allows us to capture the fact that perfect deponent verbs such as *audeō* ‘dare’ have an active perfect past participle form, again a property stipulated at the *Deponent* node. We can also capture the fact that for the imperfective deponent verb *revertor* ‘return’ the active imperfective future infinitive is not a passive form, but an active one. Recall that this is a fact that needs to be stipulated for deponents, as is stated at the *Deponent* node. In addition, *Revertor* inherits a syntactic active perfect past participle, spelled out as a passive form: *reversus*. This is possible despite *Revertor*’s perfect sub-paradigm not being involved in the mismatch because realisation of a syntactic active perfect past participle is stipulated information at *Deponency*. The reason it is stipulated is that there is no morphological active perfect past participle to mismatch with the passive counterpart, as with the other categories for deponents, hence the path `<mor active>` at *Deponency* is inadequate.

(15a)

```
Revertor:
  <> == IMPF_DEPONENT
  <gloss> == return
  <root> == revert
  <stem 2> == <root>
  <stem 3> == <root> s
  <stem> == CONJ_3.
```

(15b)

```
Revertor:<gloss> = return.
Revertor:<root> = revert.
Revertor:<stem 1> = revert e.
Revertor:<stem 2> = revert.
Revertor:<stem 3> = revert s.
Revertor:<syn active imperfective present indicative sg 2> = revert e ris.
Revertor:<syn active imperfective present indicative sg 3> = revert i tur.
Revertor:<syn active imperfective present infinitive> = revert ī.
Revertor:<syn active imperfective present participle> = revert e ns.
Revertor:<syn active imperfective future infinitive> = revert s ūrus esse.
Revertor:<syn active imperfective future participle> = revert s ūrus.
Revertor:<syn active perfect past indicative sg 1> = revert ī.
Revertor:<syn active perfect past indicative sg 2> = revert istī.
Revertor:<syn active perfect past indicative sg 3> = revert it.
Revertor:<syn active perfect past participle> = revert s us.
Revertor:<syn passive imperfective present indicative sg 2> = undefined.
Revertor:<syn passive imperfective present indicative sg 3> = undefined.
Revertor:<syn passive imperfective present infinitive> = undefined.
Revertor:<syn passive perfect past indicative sg 2> = undefined.
Revertor:<syn passive perfect past indicative sg 3> = undefined.
Revertor:<syn passive perfect past participle> = undefined.
. . .
```

5 Conclusion

Latin deponent verbs exhibit a number of properties, every one of which needs to be captured in a full formal account of Latin deponency. Using the lexical knowledge representation language DATR we have captured the mismatch between voice morphosyntax and form (property 1) as a referral of all paths that extend `<mor active>` to a passive formation node. Another property that we have captured is defectiveness in the passive sub-paradigm (property 2) by defining all paths that extend `<syn passive>` as undefined. Both these facts have been placed at a generalising deponency node. Further properties that characterise deponent verbs have also been stated at this node: the fact that deponents can express a morphosyntactic feature that regular verbs cannot, the active perfect past participle (property 4), and the fact that the imperfective future infinitive is not involved in the mismatch (property 3). Other categories that are not involved in the mismatch due to the nature of the passive paradigm fall out from the detailed theory of Latin verbs that we have presented. Finally, the last property we have accounted for is semi-deponency by basing it on aspect, and ordering path attributes appropriately. The theory presented offers a validated account of regular, deponent and semi-deponent verbs in Latin, and as such represents the first formal account to describe the full range phenomena in what is seen as the classic example of deponency.

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