Prosody reveals syntactic structure: secondary predication in metrical finite corpus data

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Introduction

★ Preferentially, morphosyntactic words (X^0) map to prosodic words (ω), syntactic phrases (XP) map to prosodic phrases (ϕ), and clauses (CP) map to intonation phrases (ι) (Selkirk 2009, 2011; Elfner 2012)

★ The default relationship between syntactic and prosodic structures = identity

★ Mismatches arise as a result of the interaction of violable OT constraints (Selkirk 1996, 2011)
Introduction

- Secondary predicates are distinct *prosodically* and *syntactically* from attributive adjectival/prepositional phrases (Kayne 1985; Ramchand 2008; Irimia 2012)

- Metrical corpora encode prosodically and syntactically marked structures systematically (Hale and Kissock 2021)
  - Assumption: verse ≠ artificial; *a good poet makes use of a poetic formula in linguistically real ways*

- Vedic (Indo-Aryan) & Homeric (Greek) offer richly attested ancient corpora with well understood prosody, but poorly understood syntax
Introduction

Goals of study:

- Enrich understanding of Vedic & Homeric syntax via prosody
- Hopefully (but not necessarily): enrich understanding of syntax and prosody of secondary predicates cross-linguistically
Overview

→ Secondary predicates = nonverbal expressions which share an argument with the finite matrix verb in a clause, but which are their own distinct predicates

• Secondary predicates express a STAGE-LEVEL (temporary) property as opposed to an INDIVIDUAL-LEVEL (permanent) property (Carlson 1977; Kratzer et al. 1995; Casaretto 2020)

• The syntactic categories available for these constructions (AP/PP/PtcpP/ConvP etc.) vary cross-linguistically (Snyder 2001; Irimia 2012; Milway 2019)
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Secondary predication

Overview

Resultatives express an eventuality which is obtained as a result of the action of the primary predicate (Kratzer 2005; Irimia 2012; Milway 2019)

(1) John-ga teebru-o kiree-ni hui-ta
    John.NOM table.ACC clean wipe.PST
    “John wiped the table clean” (Japanese)

(2) die teekane leer trinken
    the teapot empty drink
    “to drink the teapot empty” (German)

No overlap between secondary predicate and primary predicate (Irimia 2012)
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Secondary predication

Overview

Depictives describe the state of their subject *at the time when* the action of the primary predicate occurs (Bruening 2018; Milway 2019)

(3) Ana leyó el libro enferma
   Ana read.PST the book.M ill
   “Ana read the book ill” (Spanish)

(4) Miyukham fa-nfri-më-an-m
    fruit eat-raw-REM.PST-1SG-3PL
    “I ate the fruit raw” (Alamblak)

Overlap between secondary predicate and primary predicate (Irimia 2012)
A significant portion of the work on resultatives analyzes them as containing small clauses (Kayne 1985; Kratzer 2005; Harley 2007)

Two events: causation (lexical verb) + result (small clause)

Object DP = participant in final state
Depictive secondary predicates have also been analyzed as small clauses (cf. Pylkkänen 2008), though these analyses are controversial (Bruening 2018).

★ Object DP ≠ part of a separate nonconcurrent event

“Hybrid” analyses of secondary predicates with small clauses have the object DP moving out of the small clause and becoming an argument of the verbal event (Ramchand 2008; Milway 2019)
Approaches to resultatives which include small clauses often see that SC contained within a resP projection that includes an operator (Kratzer 2005; Ramchand 2008; Milway 2019)

- This operator explains away the observed tendency of secondary predicates to be STAGE-LEVEL

- Maintaining a “hybrid” approach for depictives, a depP projection contains an operator and a SC out of which the relevant DP moves
Syntax & semantics

e.g. Kratzer (2005):

1. $[SC] \leadsto \lambda s[\text{STATE}(s) \land \text{RESULT}((\text{RESULTEE})(s))]$
2. $[res] \leadsto \lambda P.\lambda e.\exists s[\text{EVENT}(e) \land \text{STATE}(s) \land P(s) \land \text{CAUSE}(s)(e)]$
3. $[V^0] \leadsto \lambda e[\text{EVENT}(e) \land \text{VERB}(e)]$
4. $[VP] \leadsto \lambda e[\text{VERB}(e) \land \exists s[\text{CAUSE}(s)(e) \land \text{RESULT}((\text{RESULTEE})(s))]]$
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Secondary predication

Syntax & semantics

⇝ Kratzer (2005)’s account ensures that the event expressed by the verb is **identical** to the event of causing the result **state**

⇝ In an analogous depictive structure, the event expressed by the verb and the **state** of the depictive DP at the time of the event are **identical** (Milway 2019)
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Secondary predication

Prosody

Prosody

Cross-linguistically, secondary predicates tend to be marked by special prosody (Irimia 2012; Milway 2019)

Depictives are thought of as being more prosodically independent than resultatives (Schultze-Berndt and Himmelmann 2004: 66; Irimia 2012: 208)

Secondary predicates = prosodically distinct units

Prosodic independence ↔ clause-like structure
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Secondary predication

Prosody

Prosody reveals syntactic structure

The distinct prosody observed of secondary predicates = sensitivity to an $\iota$ boundary which maps to the clause-like structure in the syntax

★ Open question(s):
★ What consequences are predicted from proposing that secondary predicates constitute an intonational ($\iota$) phrase?
★ Layeredness $\gg$ Nonrecursivity
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- Secondary predication
- Prosody

Prosody

The difference between an attributive structure (i.e. \([\text{DP} [\text{AP}] [\text{NP}]]\)) and one of secondary predication (i.e. \([\text{resP} [\text{SC} [\text{DP}] [\text{AP}]]]\)) can therefore be captured as follows:

**Tree 1:** attributive adjective

```
\[
\begin{array}{c}
\phi \\
\omega \\
John \\
\end{array}
\begin{array}{c}
\sigma \\
the \\
\omega \\
\end{array}
\begin{array}{c}
\omega \\
hammered \\
\omega \\
\end{array}
\begin{array}{c}
\omega \\
nail \\
\end{array}
\]
```

**Tree 2:** secondary predicate

```
\[
\begin{array}{c}
\phi \\
\omega \\
flat \\
\end{array}
\begin{array}{c}
\sigma \\
the \\
\omega \\
\end{array}
\begin{array}{c}
\omega \\
John \\
\omega \\
\end{array}
\begin{array}{c}
\omega \\
hammered \\
\omega \\
\end{array}
\begin{array}{c}
\omega \\
nail \\
\end{array}
\]
```
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Secondary predication

Prosody

Prosody

★ In the Homeric poems and the RgVeda, elements with marked prosody are subject to strategies of isolation within and across lines (Hale and Kissock 2021)

★ These isolation strategies include:

(i) adjacency to a caesura

(ii) or sentence final/post-verbal position

(iii) the process of *enjambment* whereby syntactic units are broken across multiple prosodic domains (→ metrical lines) at the expense of Selkirk (2011)’s MATCH constraints

(iv) a combination of (i)-(iii)
Secondary predicates in finite metrical corpora

Secondary predicates are complex, containing a clause-like boundary and a state-yielding operator.

Secondary predicates, projecting to a phrase high in the prosodic hierarchy(?), are prosodically marked.

Metrical corpora encode prosodically marked forms by means of isolation strategies.

The Homeric poems and the RgVeda are metrical corpora.

Secondary predicates in the Homeric poems and the RgVeda, which are prosodically marked, will be prosodically isolated.
Methodology

- R˚V and Homeric poem search in Mark Hale’s corpus for:
  1. Cross-linguistically common secondary predicate forms (e.g. naked, raw, sick/ill) → approx. 20
  2. Manual collection of secondary predicates via independent translation work (e.g. thick/crowded) → approx. 50
  3. Participial constructions (e.g. being) → approx. 30

- DB Monro (1891)’s Homeric Grammar: certain participial constructions “often [have] the character of a distinct Clause, coming at the end of a sentence, and after a metrical pause” (§243.3-a)

- Immediate goal: a tendency in 1-3 to be (a) prosodically isolated and (b) within STAGE-LEVEL predicates

- Long term goal: minimal pairs of attributive and secondary predicate forms that differ in terms of prosodic isolation
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Prosody and syntax at work

Secondary predicates in finite metrical corpora

Vedic Sanskrit meter

→ 7 major varieties of ṚV meter attested:

<table>
<thead>
<tr>
<th>Meter</th>
<th>Syllable structure</th>
<th>Verses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gāyātrī</td>
<td>8-8-8</td>
<td>2447</td>
</tr>
<tr>
<td>Uṣṇih</td>
<td>8-8-12</td>
<td>341</td>
</tr>
<tr>
<td>Anuṣṭubh</td>
<td>8-8-8-8</td>
<td>855</td>
</tr>
<tr>
<td>Bṛhatī</td>
<td>8-8-12-8</td>
<td>181</td>
</tr>
<tr>
<td>Pankti</td>
<td>8-8-8-8+8</td>
<td>312</td>
</tr>
<tr>
<td>Triṣṭubh</td>
<td>11-11-11-11</td>
<td>4253</td>
</tr>
<tr>
<td>Jagatī</td>
<td>12-12-12-12</td>
<td>1318</td>
</tr>
</tbody>
</table>

★ In triṣṭubh (11 syllable) & jagatī (12 syllable) verses:
   ★ Caesura after syllable 4/5
   ★ Pause after line break

★ Verses with 8 syllables contain a very small number of words per line. ∴ distributional tendencies may be arbitrary
→ ignored for purposes of this study
Homeric Greek meter

→ Dactylic hexameter = “meter of epic”

* Verses range from 23-24 μ per line

|| − ˍˍ | − ˍˍ | − †ₘ − †ₕ | − †ₘ − ‖ †ₕBD − ˍˍ | − × ||

* Multiple caesurae per line:
  * Principle caesura = third foot (second and fourth foot possible)
  * Bucolic diaeresis = between fourth and fifth foot
  * Pause after line break

* No restrictions on verses studied due to length
Vedic resultatives

(5) utá médham † śṛtapākaṃ
and ritual.offering.ACC.SG.M † cooked.ACC.SG.M
pacantu
cook.3PL.IMP

“and let them cook the ritual offering cooked” (RV 01.162.10d)

★ The **state** of being cooked is achieved as a result of the action indicated by the matrix verb *pac*

★ The secondary predicate is prosodically isolated by means of adjacency to a caesura
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Prosody and syntax at work

Vedic & Homeric data

Vedic resultatives

(6) dādrhāṇó vájram †
hold.PTCP.PERF.MID.NOM.SG.M Vajra.ACC.SG.M †
índro gábhastyoḥ ‖
Indra.NOM.SG.M hand.LOC.DUAL.M ‖
kṣádmeva tigmám †
knife.ACC.SG.N.like sharp.ACC.SG.N †
ásanāya sāṁ śyad
for.throwing.DAT.SG LP hone.3SG.PRS.INJ

“holding the Vajra in (his) hands, Indra honed (it)
sharp like a carving knife” (RV 01.130.04ab)

★ The state of being sharp is achieved as a result of the action indicated by the matrix verb śā

★ The secondary predicate is prosodically isolated by means of adjacency to a caesura
Vedic depictives

(7) **havīṣa**  ṭvā  sántaṁ
oblation.ACC.SG.M  you.ACC.SG  be.PTCP.ACT.ACC.SG.M
† havīṣā  yajāma
† oblation.INSTR.SG.M  worship.1PL.IMP

“let us worship you, **being an oblation**, with an oblation”  (RV 10.124.06d)

★ The **state** of being an oblation is concurrent with the action indicated by the matrix verb *yaj*

★ The secondary predicate is prosodically isolated via adjacency to a caesura

→ ṭvāa is interrupting the syntactic constituent *[SC havīṣa  sántaṁ]* for prosodic, and not syntactic, reasons
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Prosody and syntax at work

Vedic & Homeric data

Vedic depictives

(8) johūtro agnīḥ †
invoked.on.every.side.NOM.SG.M. Agni.NOM.SG.M. ǁ
prathamāḥ pitēva
first.NOM.SG.M. father.NOM.SG.M.-like

“Agni (is) invoked as the first on every side like a father” (RV 02.10.01a)

★ The state of being the first is concurrent with the action indicated by the (null) verbal element
  ★ Nominal (verb-less) sentence/clause

★ The secondary predicate is prosodically isolated via adjacency to a caesura
Vedic depictives

(9) purutrā vrtró † aśayad
   in.many.places Vṛtra.NOM.SG.M † lie.3SG.PST
vyāstaḥ
fling.apart.PTCP.NOM.SG.M

“Vṛtra lay (there), flung apart in many places”   (RV 1.32.7d)

★ The **state** of being flung apart is concurrent with the action indicated by the matrix verb  śay
★ The secondary predicate is prosodically isolated via sentence final/postverbal position
Vedic depictives

(10) āsyā vēdāḥ
PVB+he.GEN.SG.M possessions.ACC.SG.M
khidāti † hánti
rips/claws.away.3SG.NPST † slay.3SG.NPST
nagnāmā
naked.ACC.SG.M

“he rips away his possessions and slays him naked” (RV 04.25.07c)

★ The **state** of being naked is concurrent with the action indicated by the matrix verbs *han* and *khid*

★ The presence of the “coordinating accent” indicates that the action indicated by them are closely connected

★ The secondary predicate is isolated via sentence final/postverbal position
Homeric resultatives

(11) aùtàr èpeì dē kuklótèrs †
    but when PTCL made.round.ACC.SG.N †
méga tókson éteine
great.ACC.SG.N bow.ACC.SG.N stretch.3SG.AOR.ACT
“But when he had pulled the great weapon ‘till it
made a circle’”

★ The state of being made into a circle is achieved as a result
of the action indicated by the matrix verb teíno (τείνω)
★ The secondary predicate is isolated via adjacency to a
caesura
Homeric depictives

(12) eí pántes sùn nēusìn †
if all.NOM.PL.M with ship.DAT.PL.F †
apēmones ‡ ēlthon
unharmed.NOM.PL.M ‡ come.3PL.AOR.ACT
Achaioí
Achaean.NOM.PL.M

“whether all the Achaeans came unharmed with their ships”  
(Od 04.487)

★ The state of being unharmed is concurrent with the action indicated by the matrix verb erchomai (ἐρχομαί)

★ The secondary predicate is isolated via adjacency to a caesura—it is tucked in between the caesura and bucolic diacresis

★ Given that Homeric lines are built from both the left and the right edges, this is an interesting space prosodically
Homeric depictives

(13) ‡ entha thameiai || Myrmidonōn
‡ then crowded.NOM.PL.F || Myrmidon.GEN.PL
eirunto nees takhyn amph’
drag.3PL.IMPF.MP boat.NOM.PL fast.ACC.SG.M around
Akhilea
Achilles.ACC.SG

“then the boats of the Myrmidons were dragged thick around quick Achilles” (Il 18.68-69)

* The state of being crowded is concurrent with the action indicated by the matrix verb erúo (ἐρύω)

* The secondary predicate is isolated via adjacency to a line break + enjambment—it is tucked in between the bucolic diaeresis and the line break
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Prosody and syntax at work

Vedic & Homeric data

Homeric depictives

(14) \( \text{ton} \quad 
\text{d’ ōs} \quad \text{oun} \quad \text{enoēse} \)
he.ACC.SG.M but thus really see.3SG.AOR.ACT
podarkēs \( \quad \text{dīos} \quad \text{Achilleus} \quad || \)
swift.NOM.SG.M divine.NOM.SG.M Achilles.NOM.SG ||
gymnon
naked.ACC.SG.M

“now as brilliant swift-footed Achilles saw him \text{ naked}”
(Il 21.49-50)

★ The \text{state} of being naked is concurrent with the action indicated by the matrix verb \text{noéo (νοέω)}
★ The secondary predicate is isolated via enjambment
Conclusion

* Secondary predicates share in the property of expressing a STAGE-LEVEL property (Carlson 1977; Kratzer et al. 1995)
  → Consequence of the $resP/depP$ operator which ensures the STAGE-LEVEL reading across these examples

* Secondary predicates are prosodically isolated by means of
  (i) adjacency to a caesura
  (ii) or sentence final/post-verbal position
  (iii) the process of *enjambment*
  (iv) a combination of (i)-(iii)
  → Consequence of prosodic sensitivity to a boundary which maps to the syntactic-semantic structure
Conclusion

Secondary predicates in Vedic and Homeric exhibit uniform prosodic, syntactic, and semantic behavior

⇝ Prosody reveals complex structure
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References II


Thank you for listening :)

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