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

$\rightarrow$ 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)

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   teeburu-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)

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)
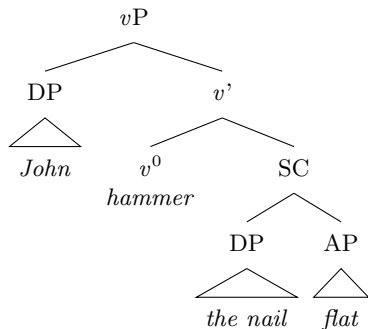
  (4) Miyukham fa-nfri-më-an-m
       fruit   eat-raw-REM.PST-1SG-3PL

       "I ate the fruit raw"   (Alamblak)

- ↝ Overlap between secondary predicate and primary predicate (Irimia 2012)

Syntax & semantics

→ A significant portion of the work on resultatives analyzes them as containing small clauses (Kayne 1985; Kratzer 2005; Harley 2007)

vP
- DP
  - *John*
- v'
  - v^0
    - *hammer*
  - SC
    - DP
      - *the nail*
    - AP
      - *flat*

⋆ Two events: causation (lexical verb) + result (small clause)
   ⋆ Object DP = participant in final state

Syntax & semantics

$\rightarrow$ Depictive secondary predicates have also be analyzed as small clauses (cf. Pylkkänen 2008), though these analyses are controversial (Bruening 2018)

  $\star$ Object DP $\neq$ part of a separate nonconcurrent event

$\rightarrow$ "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)

Syntax & semantics

★ Approaches to resultatives which include small clauses often see that SC contained within a *res*P 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 *dep*P projection contains an operator and a SC out of which the relevant DP moves

Syntax & semantics

e.g. Kratzer (2005):
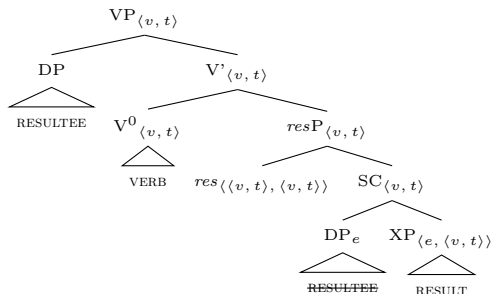
1. $\llbracket \text{SC} \rrbracket \leadsto \lambda s[\text{STATE}(s) \wedge \text{RESULT}(\text{RESULTEE})(s)]$

2. $\llbracket \text{res} \rrbracket \leadsto \lambda P.\lambda e.\exists s[\text{EVENT}(e) \wedge \text{STATE}(s) \wedge P(s) \wedge \text{CAUSE}(s)(e)]$

3. $\llbracket \text{V}^0 \rrbracket \leadsto \lambda e[\text{EVENT}(e) \wedge \text{VERB}(e)]$

4. $\llbracket \text{VP} \rrbracket \leadsto \lambda e[\text{VERB}(e) \wedge \exists s[\text{CAUSE}(s)(e) \wedge \text{RESULT}(\text{RESULTEE})(s)]]$

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)

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**

Prosody

Prosody reveals syntactic structure

The distinct prosody observed of secondary predicates =
sensitivity to an ι 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 (ι) phrase?
    - ⋆ LAYEREDNESS ≫ NONRECURSIVITY

Prosody

⋆ The difference between an attributive structure (i.e. [DP [AP] [NP]]) and one of secondary predication (i.e. [*res*P [SC [DP] [AP]]]) can therefore be captured as follows:
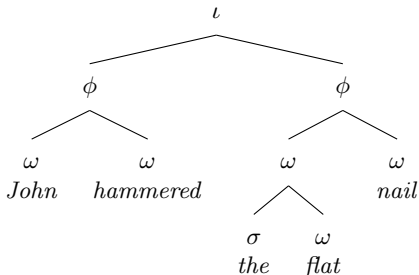
TREE 1: attributive adjective   TREE 2: secondary predicate
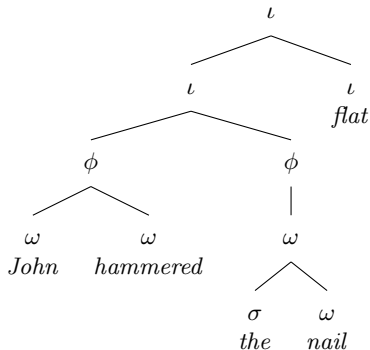
Prosody

- ⋆ In the Homeric poems and the R̥gVeda, 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)

Prosody reveals syntactic structure: secondary predication in metrical finite corpus data
└─Prosody and syntax at work
  └─Secondary predicates in finite metrical corpora

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 R̥gVeda are metrical corpora

∴ Secondary predicates in the Homeric poems and the
  R̥gVeda, which are prosodically marked, will be
  prosodically isolated

Methodology

- ⋆ RV 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

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

$\rightarrow$ 7 major varieties of R̥V meter attested:

Meter	Syllable structure	Verses
Gāyātrī	8-8-8	2447
Uṣṇih	8-8-12	341
Anuṣṭubh	8-8-8-8	855
Br̥hatī	8-8-12-8	181
Pankti	8-8-8-8+8	312
Triṣṭubh	11-11-11-11	4253
Jagatī	12-12-12-12	1318

$\star$ In triṣṭubh (11 syllable) & jagatī (12 syllable) verses:
  - $\star$ Caesura after syllable 4/5
  - $\star$ Pause after line break

$\star$ Verses with 8 syllables contain a very small number of words per line $\therefore$ distributional tendencies may be arbitrary
  $\rightarrow$ ignored for purposes of this study

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Homeric Greek meter

$\rightarrow$ Dactylic hexameter = "meter of epic"

$\star$ Verses range from 23-24 μ per line

$$\| - \smile\smile \, |- \smile\smile \, | - \dagger_M \smile \dagger_F \smile \, | - \dagger_M \smile\smile \, \ddagger_{BD} - \smile\smile \, | - \times \|$$

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

$\star$ No restrictions on verses studied due to length

Vedic resultatives

(5) utá médhaṃ   † **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

Vedic resultatives

(6) dādr̥hāṇó   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   sáṁ 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) **havíṣ** ṭvā **sántaṃ**
oblation.ACC.SG.M you.ACC.SG be.PTCP.ACT.ACC.SG.M

† havíṣā 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

→ *ṭvā* is interrupting the syntactic constituent [SC havíṣ
sántaṃ] for prosodic, and not syntactic, reasons

Vedic depictives

(8) johūtro   agníḥ   †
    invoked.on.every.side.NOM.SG.M. Agni.NOM.SG.M. ‖
    prathamáḥ   pitéva
    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   vr̥tró   † aśayad
      in.many.places Vr̥tra.NOM.SG.M † lie.3SG.PST
      vyàstaḥ
      fling.apart.PTCP.NOM.SG.M

      "Vr̥tra 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) āsya   védaḥ
      PVB+he.GEN.SG.M possessions.ACC.SG.M
      khidáti   † hánti
      rips/claws.away.3SG.NPST † slay.3SG.NPST
      nagnáṃ
      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

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　└─Vedic & Homeric data

Homeric resultatives

(11)　aùtàr èpeì dē　**kukloterès**　　　†
　　　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**'"　　　　　　　　　(Il 04.124)

- ⋆ 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

Prosody reveals syntactic structure: secondary predication in metrical finite corpus data
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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 (ἔρχομαι)*

- ⋆ The secondary predicate is isolated via adjacency to a
  caesura–it is tucked in between the caesura and bucolic
  diaresis

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

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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
      Akhilēa
      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
    diaresis and the line break

Prosody reveals syntactic structure: secondary predication in metrical finite corpus data
└─Prosody and syntax at work
  └─Vedic & Homeric data

Homeric depictives

(14) ton   d' ōs oun enoēse
      he.ACC.SG.M but thus really see.3SG.AOR.ACT
      podarkēs   dīos   Achilleus   ‖
      swift.NOM.SG.M divine.NOM.SG.M Achilles.NOM.SG ‖
      gymnon
      naked.ACC.SG.M

      "now as brilliant swift-footed Achilles saw him **naked**"
      (Il 21.49-50)

- ⋆ The **state** of being naked is concurrent with the action
  indicated by the matrix verb *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 *res*P/*dep*P 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 struture

Conclusion

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

⤳ Prosody reveals complex structure

Acknowledgements

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Thank you for listening :)

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