Light Verb Constructions in Universal Dependencies for South Asian Languages

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May 25, 2024

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unless otherwise stated

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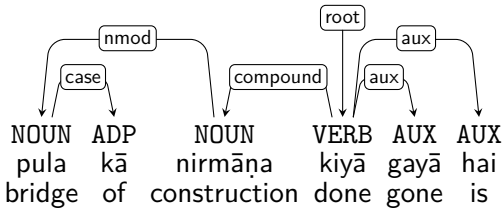
- In the case of South Asian languages this is problematic given the surface-identical noun incorporations and object-verb sequences.

Examples from Hindi



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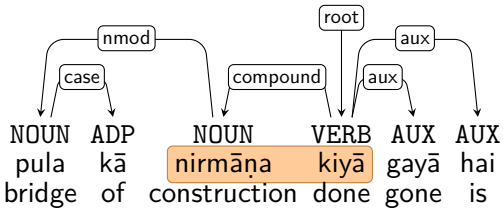

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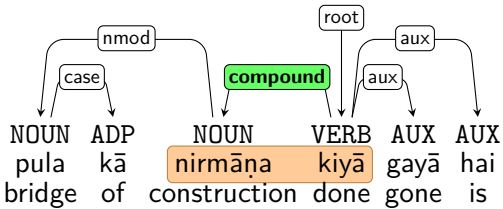

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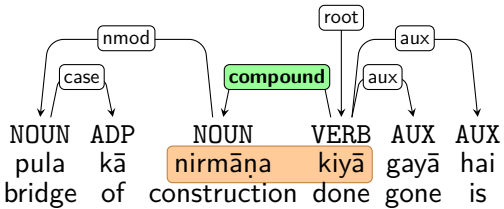

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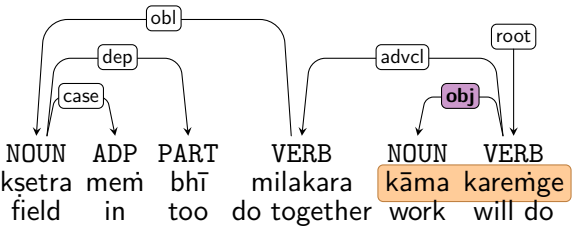
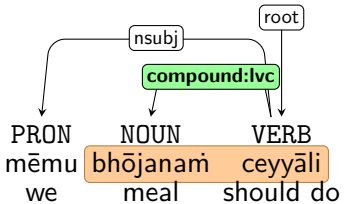


'(We) will work together in the field too.'

Examples from Telugu



‘We should eat.’

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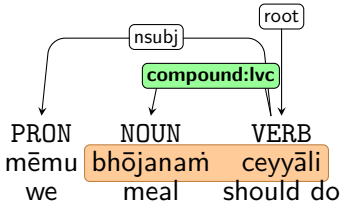

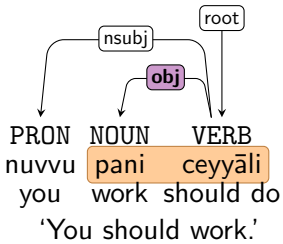

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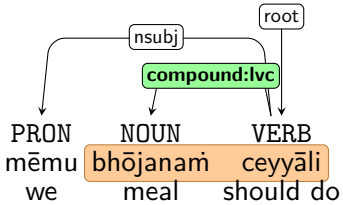

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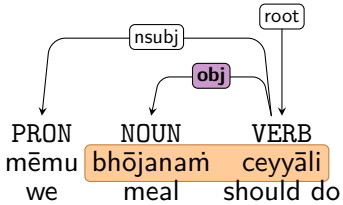

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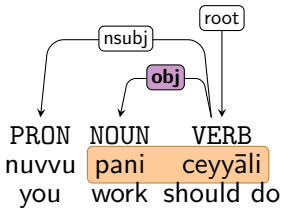

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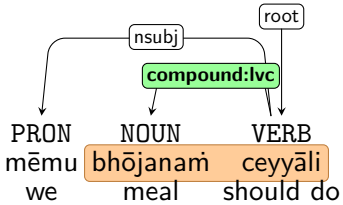

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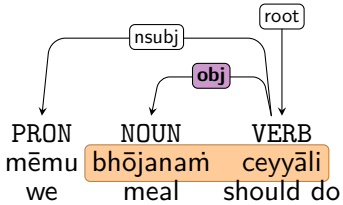

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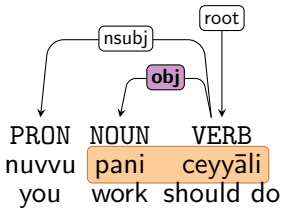

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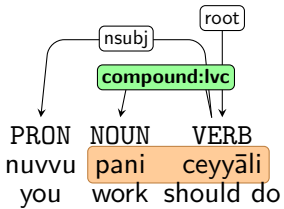

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Data

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Language	Treebank	Sentences	Words
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Hindi	HDTB	16,649	351,704
Hindi	PUD	1,000	23,829
Urdu	UDTB	5,130	138,077
Kangri	KDTB	288	2,514
Bhojpuri	BHTB	357	6,665
Bengali	BRU	56	320
Marathi	UFAL	466	3,847
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Telugu	MTG	1,328	6,465
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Indo-Aryan Languages I

Most of these treebanks use the dependency label `compound` to mark the verbo-nominal compounds or LVCs but the Bengali, Marathi, and Sinhala treebanks use the language-specific dependency sub-type label `compound:lvc`.

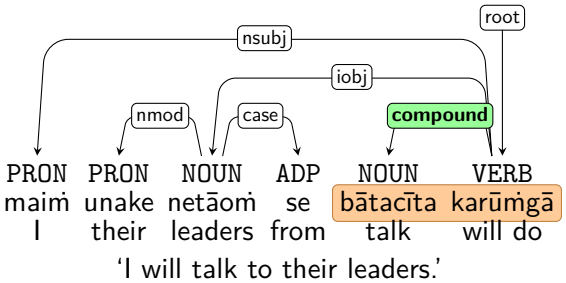

Figure 1: Compound analysis in Hindi (HDTB).

Indo-Aryan Languages II

Bengali, Bhojpuri and Kangri also present a similar picture where the verbs ‘to do’ and ‘to be’ persistently head such constructions.

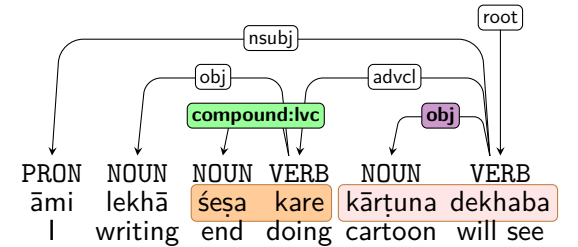

Figure 2: Compound analysis in Bengali (BRU).

Indo-Aryan Languages III

Sinhala happens to be the only Indo-Aryan language in UD to select the noun as a head for LVCs (Liyanage et al., 2023).

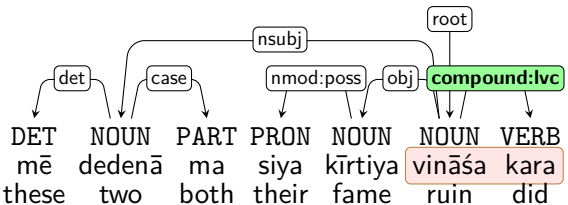

Figure 3: A verbo-nominal compound in Sinhala (STB), headed by the nominal node.

Dravidian Languages

For LVCs, only the compounds with the do-verb *ceyyuka* are labeled as `compound:lvc` in the Malayalam UFAL treebank (Stephen and Zeman, 2023).

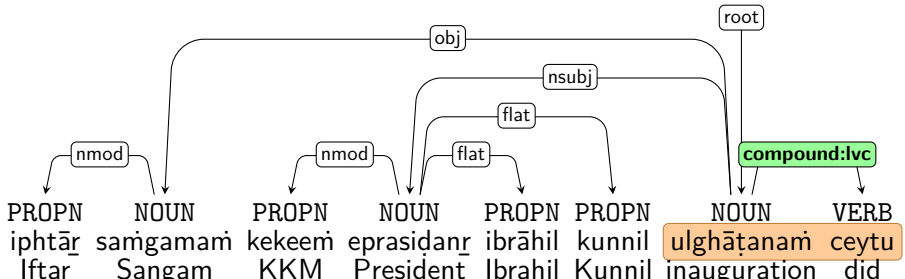

Figure 4: A verbo-nominal compound in Malayalam (UFAL), headed by the nominal node.

Compounding I

The UD taxonomy has a more relaxed definition of compounds: it states that the `compound` relation should be used for combinations of lexemes that morphosyntactically behave as single words, and lexicalization or semantic idiomaticity should not be a criterion for identifying compounds.

Compounding II

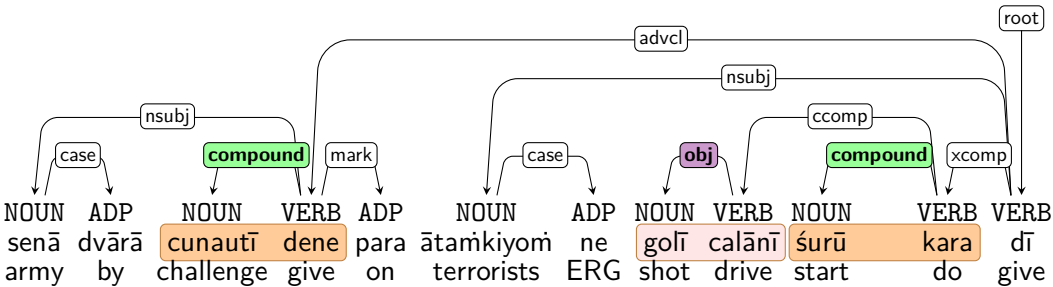

Figure 5: Multiple noun-verb pairs in Hindi (HDTB)

Compounding III

Expressions that would qualify should have a single argument structure or in other words, the syntactic head of an LVC should select all the required arguments and the dependent noun should neither be modified nor have an argument structure of its own. But in the case of the Indo-Aryan languages, this does not seem to be the case!!

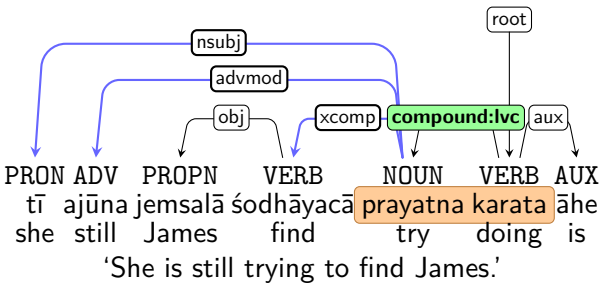

Figure 6: A verbo-nominal compound in Marathi (UFAL), arguments attached to the nominal node.

Compounding IV

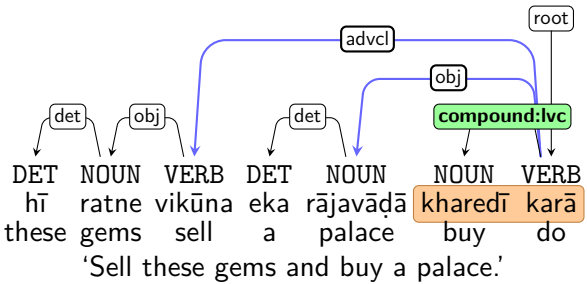

Figure 7: A verbo-nominal compound in Marathi (UFAL), arguments attached to the verbal node.

Noun Incorporation

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- Therefore, even though noun incorporation is a type of compounding of a syntactic object with the verb, both the object and the verb can have their own argument structures.

- Incorporated nouns do not take case or plural markers and external modifiers, they are morphosyntactically different from the regular object nouns.

Case Marking

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- Bhojpuri uses the same postposition *(ke)* for accusative, dative, and genitive, making it less obvious when it is selected by the nominal and not the verb.

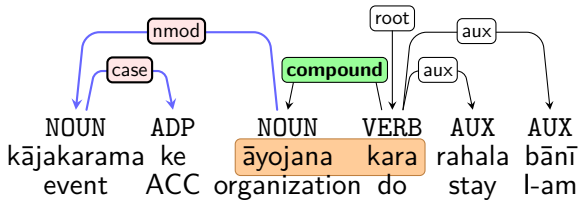

Figure 8: A verbo-nominal compound in Bhojpuri (BHTB) where the nominal conjunct *āyojana* 'organizing' selects the argument *kājakarama* 'event' case marked using the postposition *ke* '.'

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- In many instances of noun-verb sequences agreement between the noun and the verb is observed and represents a deviation from typical compound behavior.

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- In Kangri, the nominal *galla* ‘matter’ is modified by the determiner *isadī* ‘this’, suggesting that *galla mannī* is not a compound.

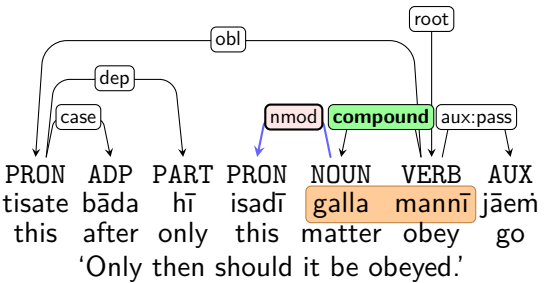

Figure 9: Compound analysis in Kangri (KDTB).

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- For example, Hindi *bāta karanā* 'to talk' is a relatively frequent expression and it is usually annotated as `compound` (118 instances), though occasionally it is annotated as `obj` (25 instances).
- We can conclude that in the present versions of the treebanks of South Asian languages, the treatment of noun-verb sequences or LVCs as compounds is not consistent because the interplay of surface level similarities between real noun-verb compounds and noun incorporations somehow weigh down the morphosyntatic cues.

What could be done?

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- By doing so, there will be a three-way distinction.
  - Noun incorporations (with a single argument structure) marked as `compound:lvc`.
  - Object-verb sequences marked as `obj`.
  - Noun-incorporations with individual noun and verb argument structures as `obj:lvc`.

Conclusion

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- While LVCs as semantically idiosyncratic constructions are widespread in these languages, we have shown that in many cases their syntactic behavior is transparent or very close to standard object-verb constructions.

Conclusion

- We have presented morphosyntactic clues for identifying light verb constructions in South Asian languages, which could prove instrumental in achieving consistent annotations of `compound` and `compound:lvc` dependency relations.
- While LVCs as semantically idiosyncratic constructions are widespread in these languages, we have shown that in many cases their syntactic behavior is transparent or very close to standard object-verb constructions.
- Their compound analysis should be reconsidered and the annotation could be changed to `obj` or `obj:lvc` based on the type of argument sharing.

Thank you!

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