Tier-Based Strictly Local Analyses of Negation in Mandarin Chinese

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Take Home Message

Result. . .

The locality of co-occurrence of Mandarin Chinese negation markers (*bu* and *mei*) can be captured by a Tier Based-Strictly Local (TSL) grammar.

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TSL can capture properties of syntactic domains beyond move and merge dependencies

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Outline

TSL trend

TSL across language modules

	Complexity	Data Structure	Related Paper(s)
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Morphology	TSL	strings	Aksënova et al. (2016)
Syntax	**TSL**	**trees**	Graf (2016)

TSL syntax: “Hard to say in full generality, but Merge and Move are TSL.

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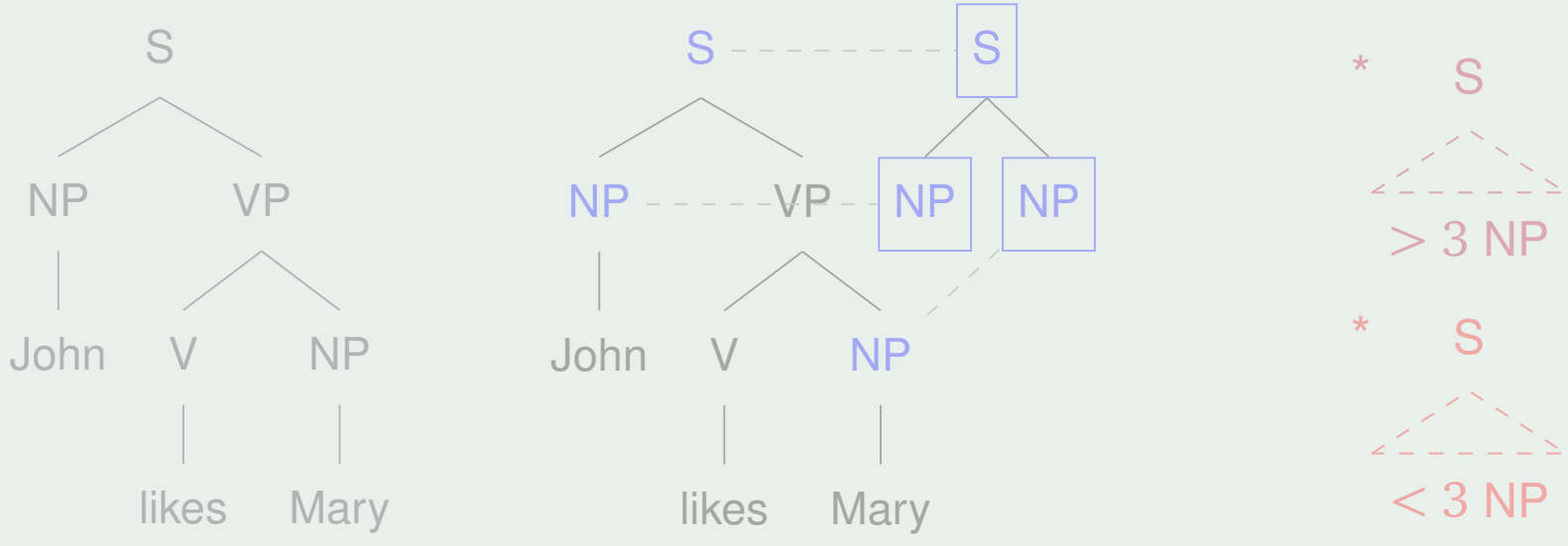
Tree n-gram grammars:

- All patterns are described by forbidden n-gram(s).
- A derivational tree is well formed iff no tier T contains any forbidden n-gram(s).

Example: TSL operating over trees



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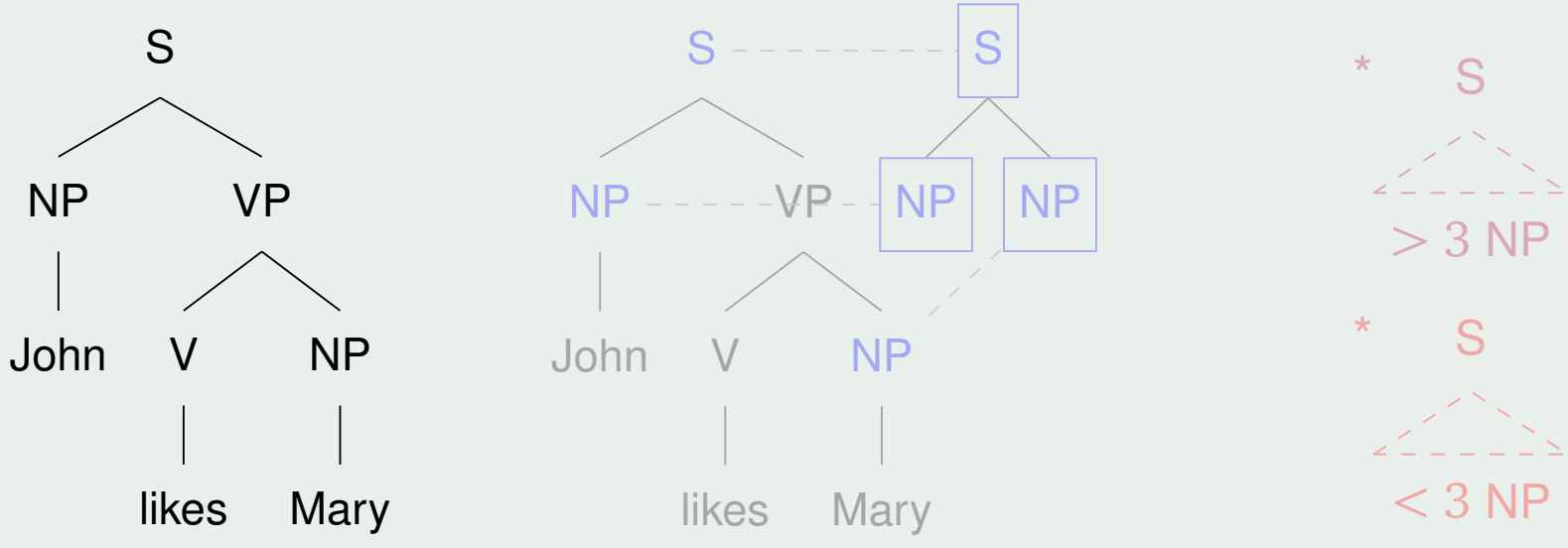

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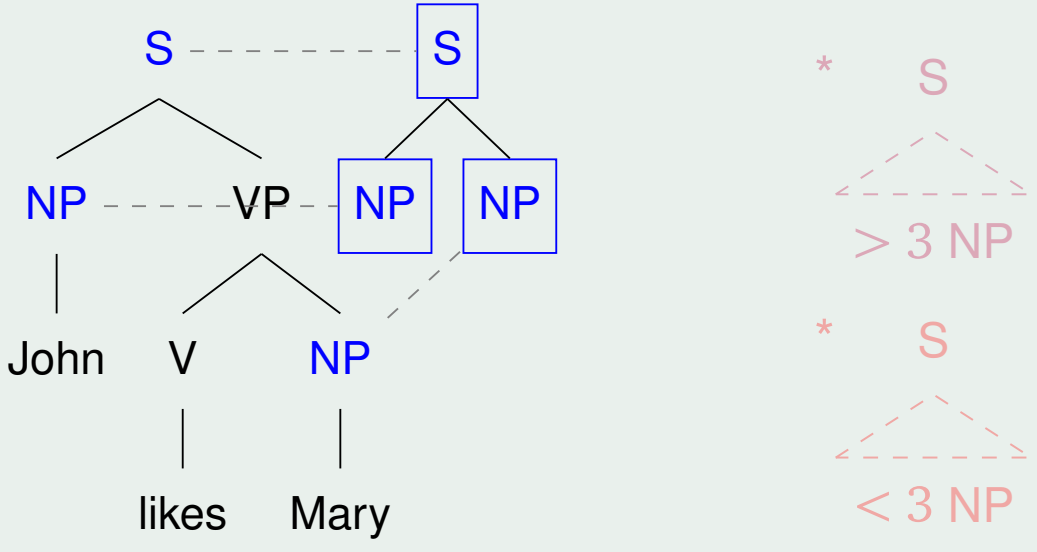

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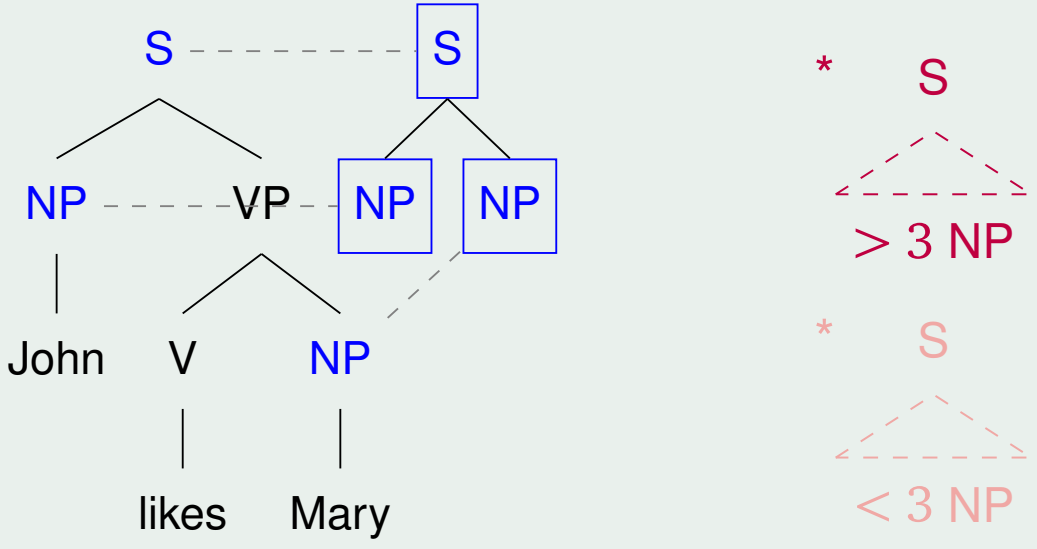

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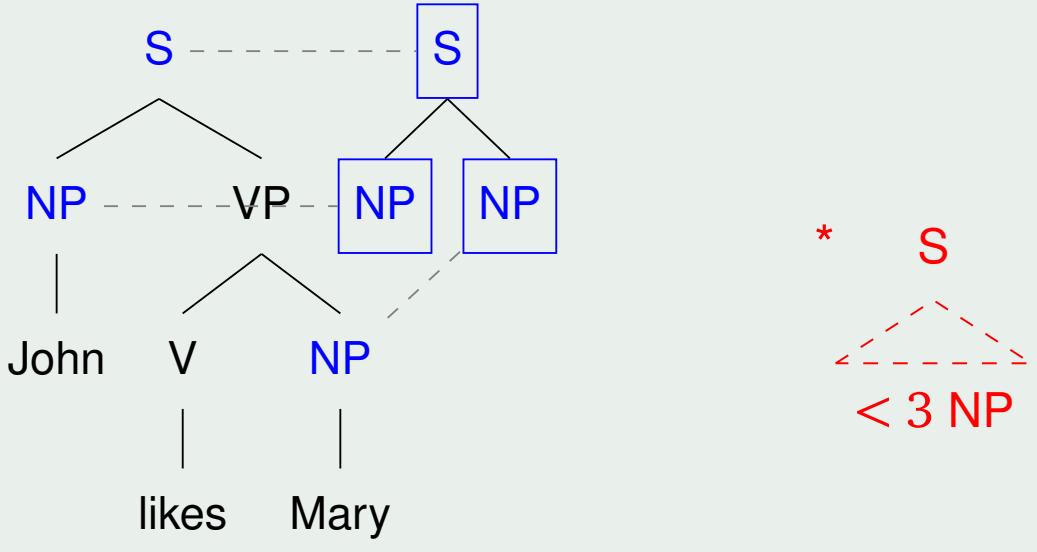

Negation in Mandarin

- *bu* ('Neg1') and *mei* ('Neg2')

Examples: possible negation maker combinations

(1) Ni bu neng bu gongzuo.
you Neg1 can Neg1 work
'You can't not work.'

(2) Ni bu neng mei you gongzuo.
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- For any sentence, negation markers do not need to be the same.

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(3) Wo mei bu chi zaofan.
I Neg2 Neg1 eat breakfast
'It's not the case that I don't eat breakfast.'

(4) Wo mei changchang bu chi zaofan.
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- Sentences with negation markers being adjacent are well-formed, as are sentences with non-adjacent negation markers. Hence the restrictions on co-occurance of Neg1 and Neg2 are not about adjacency.

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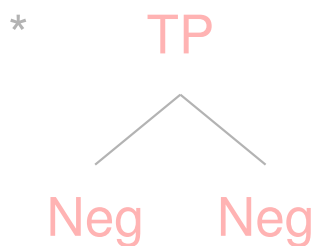
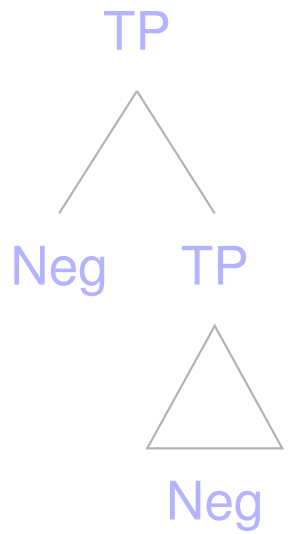
Requirement:

There must be at least one TP in between any two negation markers.

Tiers and tree n-gram

Tier: TP, Neg





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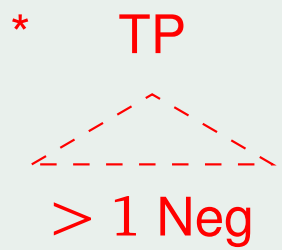

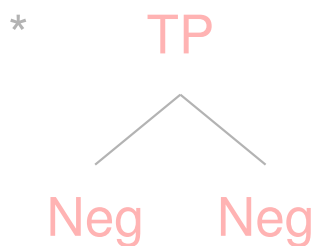

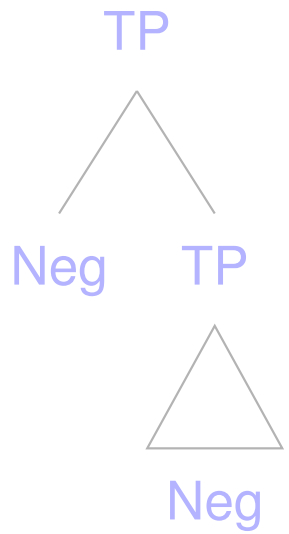

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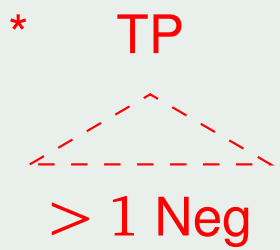

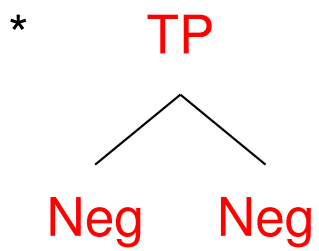

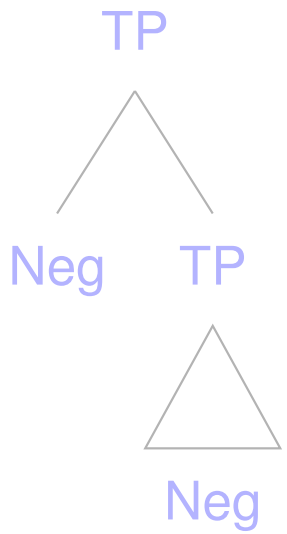

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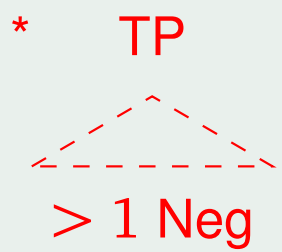

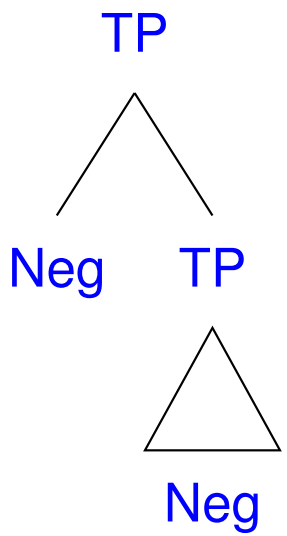

Example of Ill-Formed Derivation

(5) *Wo mei mei chi zaofan.
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'(lit.) It's not the case that I didn't eat breakfast.'

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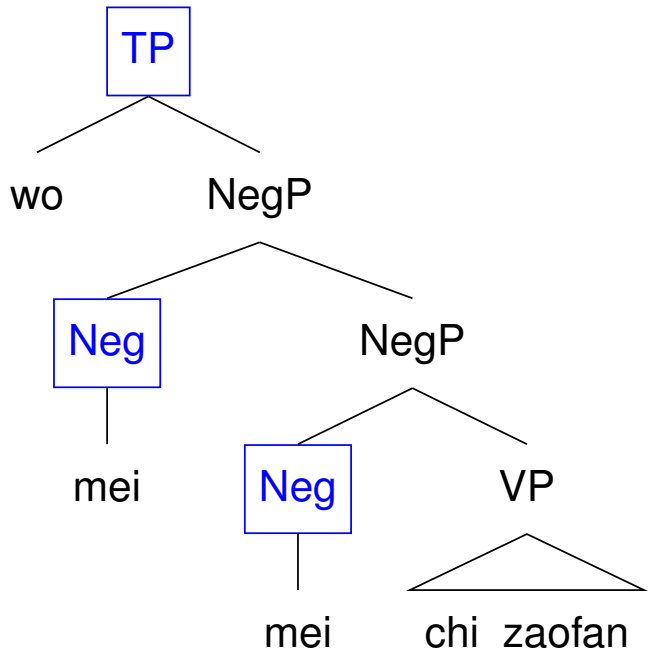

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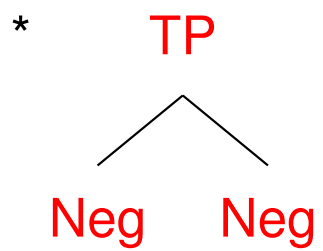

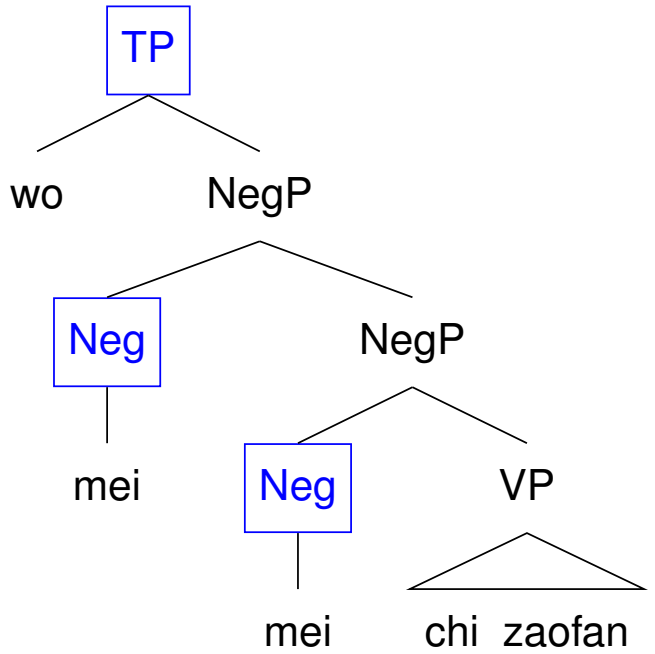

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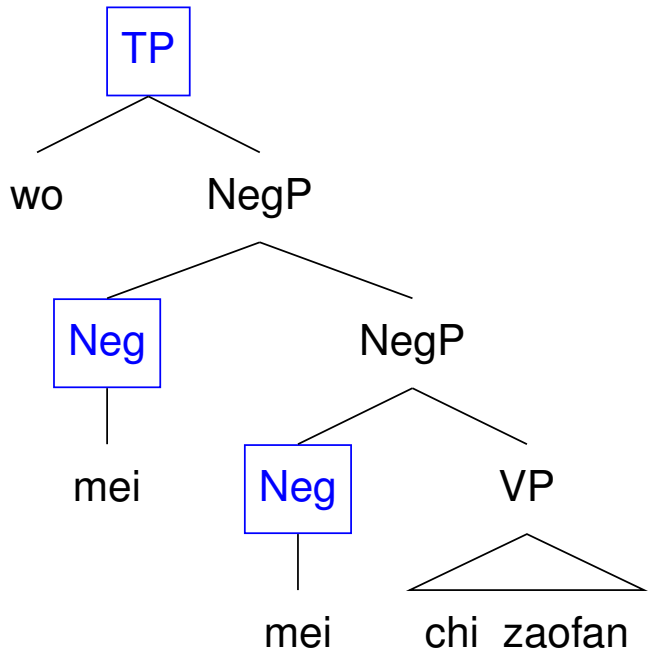

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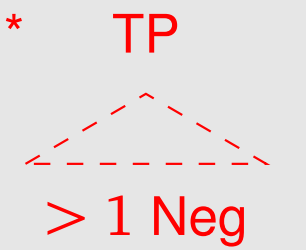

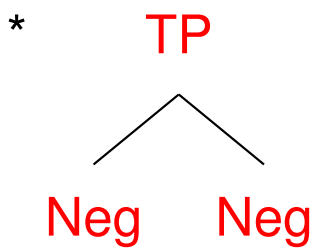

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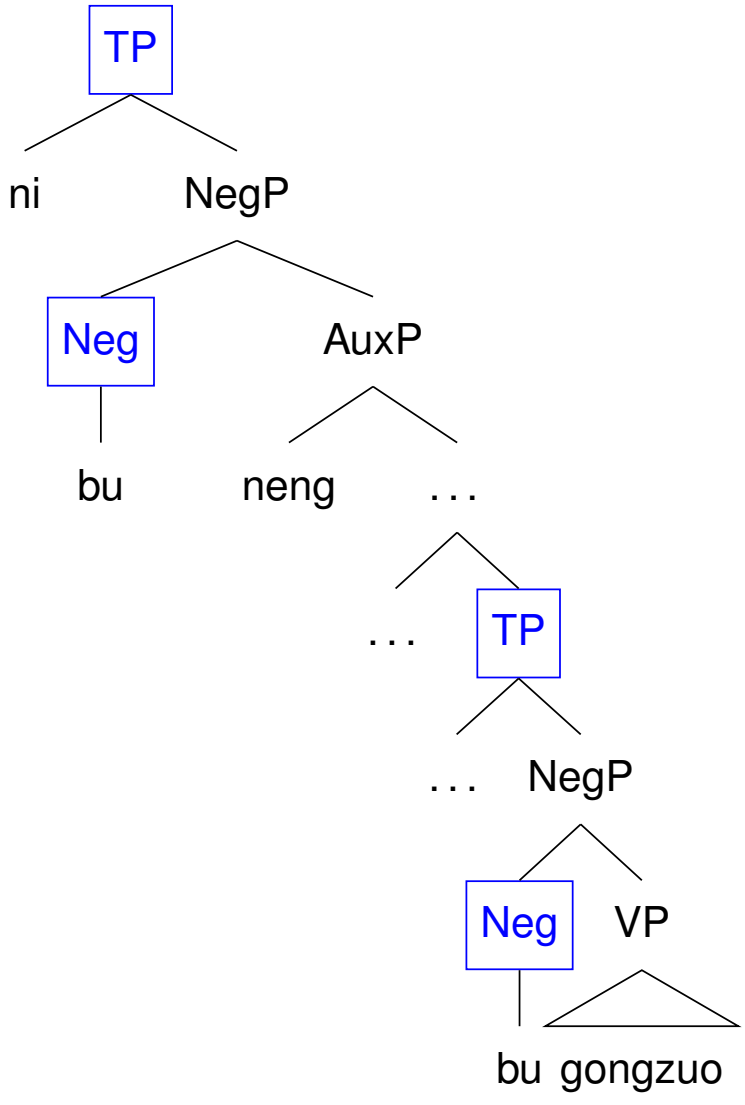

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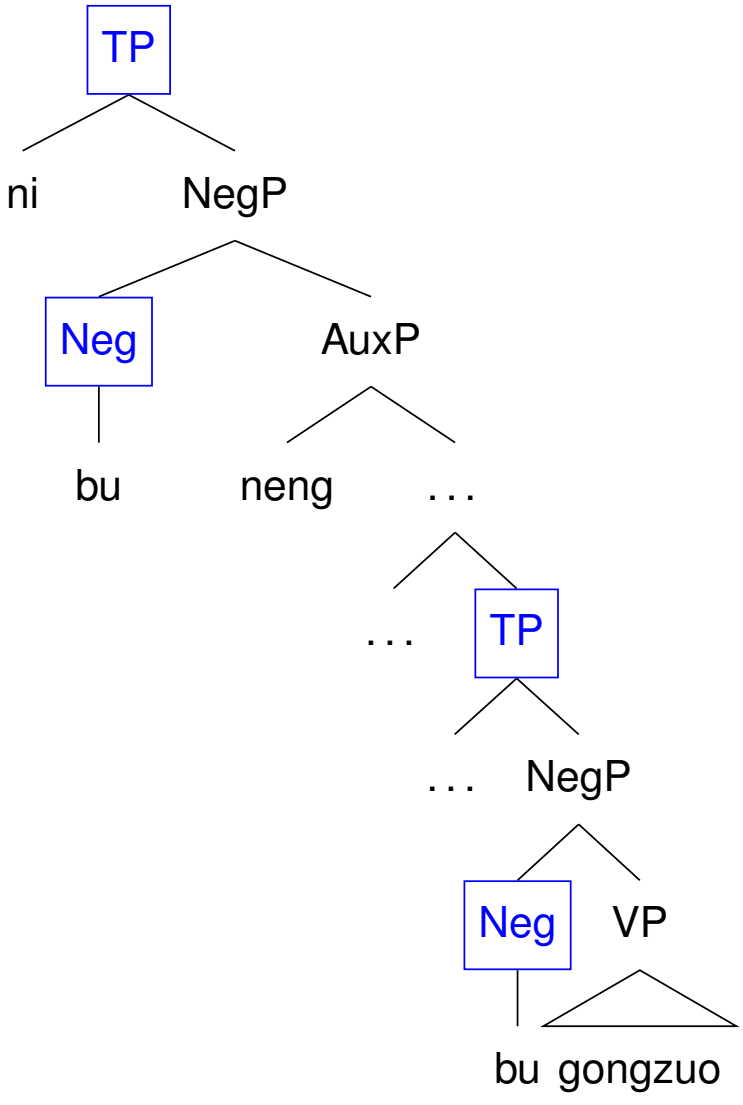

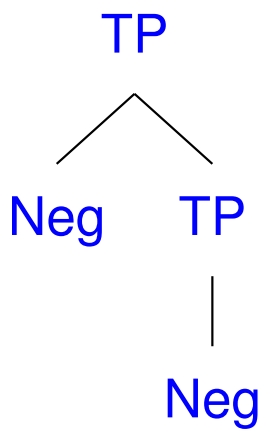

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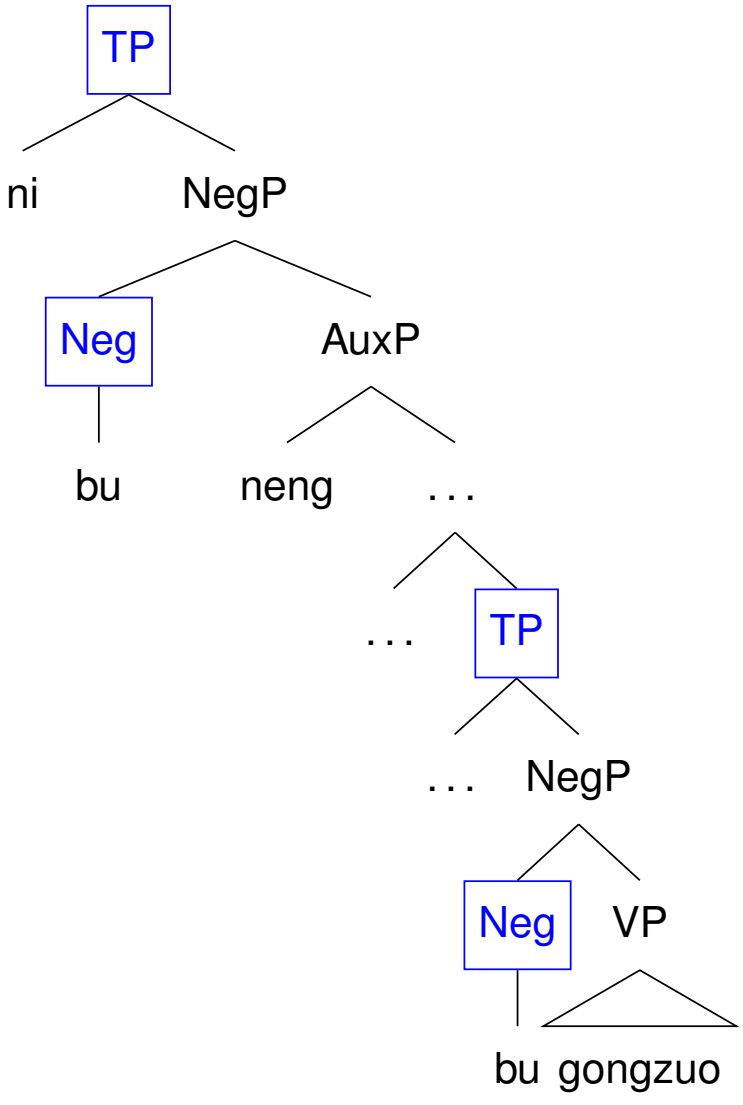

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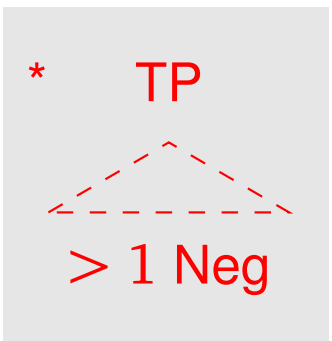
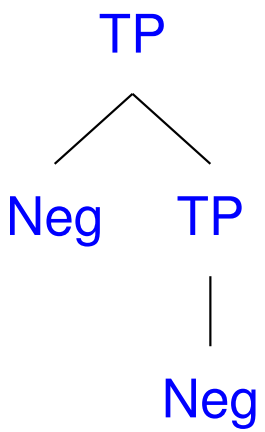
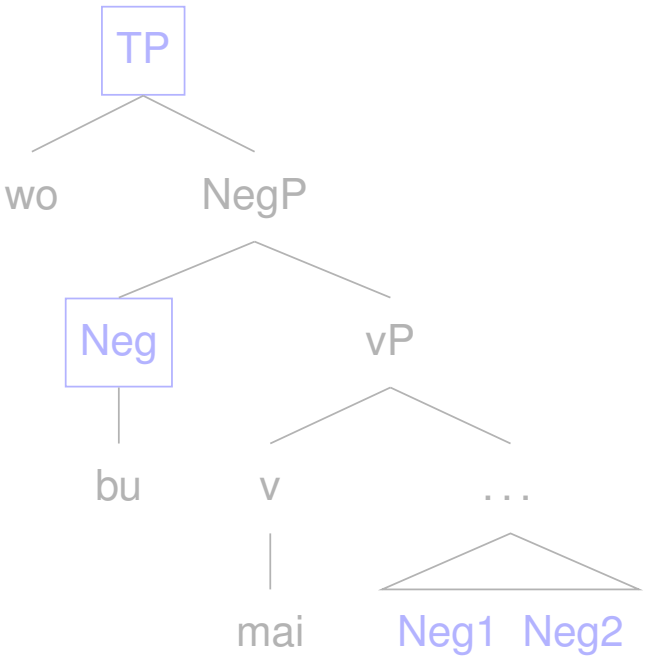




AP on the tier?

(6) Wo bu mai mei yiyi bu haokan de hua.
I Neg1 buy Neg2 meaning Neg1 beautiful DE painting
'I do not buy paintings that are not meaningful nor beautiful.'



Possible solution:

- Putting AP on the tier: treating the two constituents *mei yiyi* ('not meaningful') and *bu haokan* ('not beautiful') as coordinate APs.

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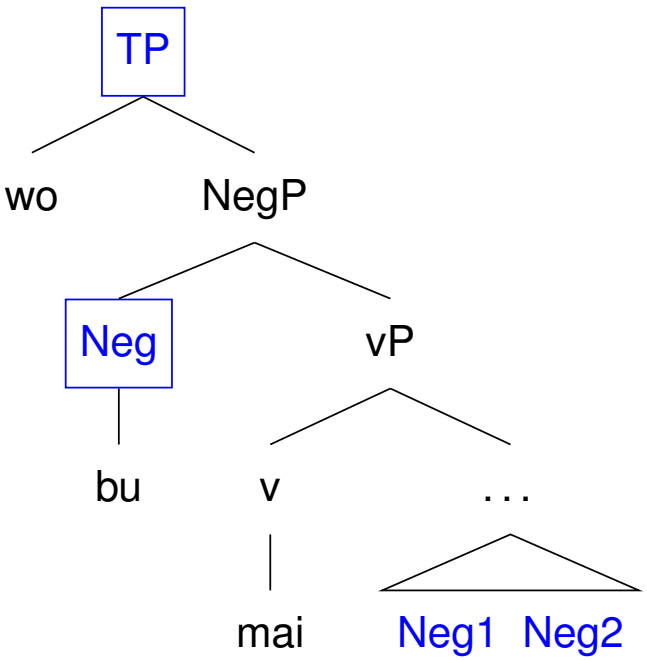

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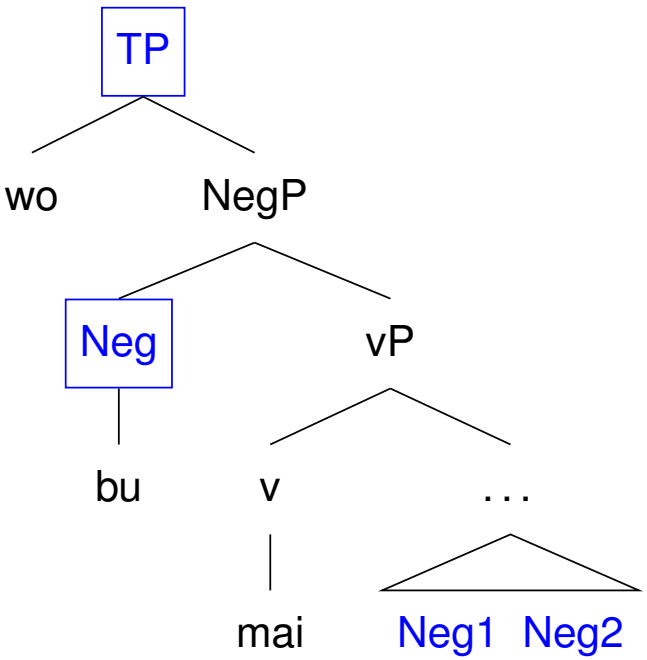

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  In this way, inside the syntactic structure of (6), there are two TPs in between the two negation markers.
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- Either one could work.
- Both of them can be handled by TSL!

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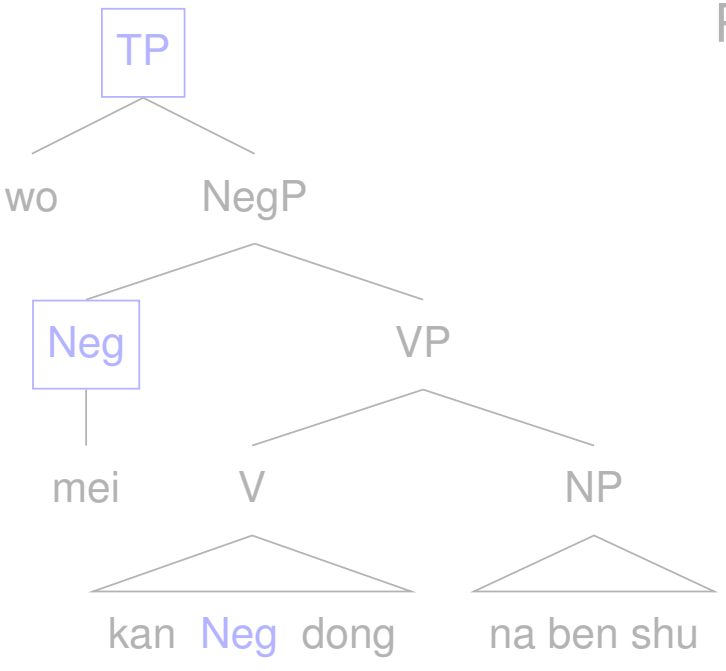

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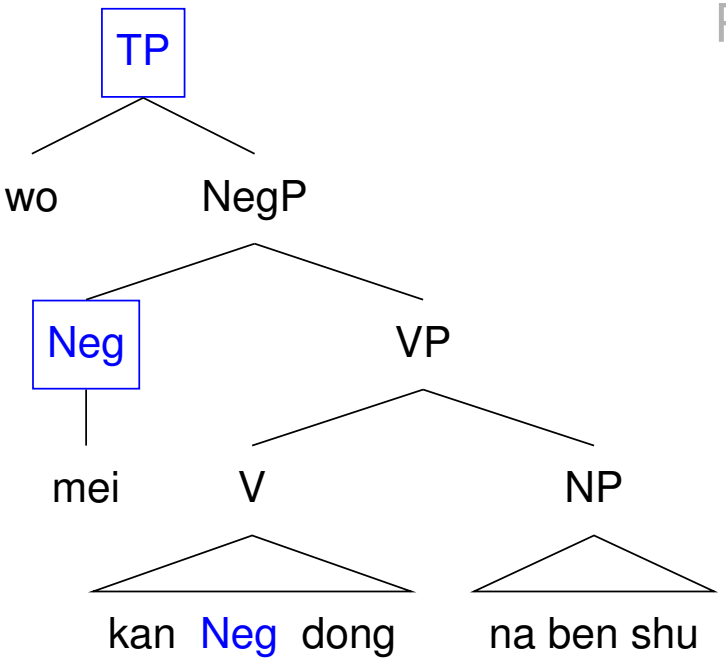

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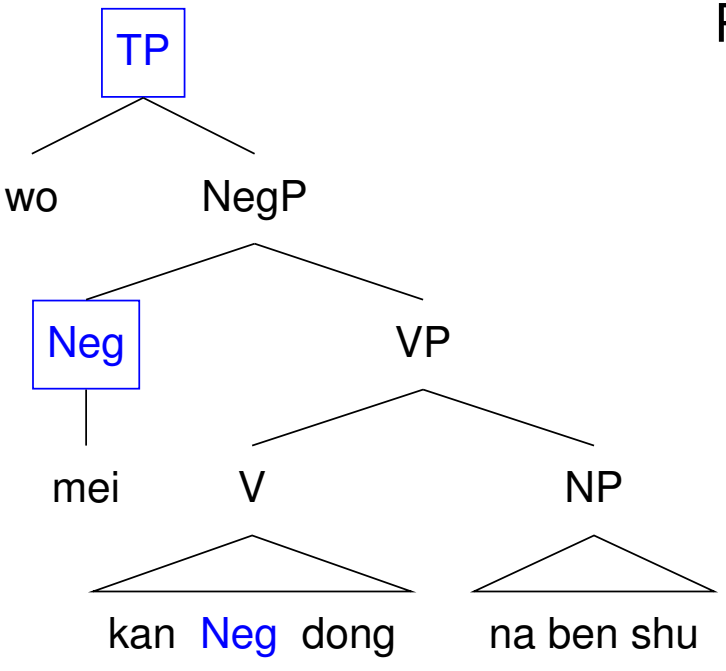

Possible solution:

- Putting VP on the tier: treating the constituent *kan bu dong* ('can read and not understand') as a complex V compound, like the way most linguists treat V-*de*-postverbal complement construction. (Zhuang & Liu 2011)

VP on the tier?

However, treating verb and its postverbal predicative complement as a complex V compound may have some downsides.

- Neg is not a head in this case.
- Putting VP on the tier makes this TSL grammar more restricted, which might block some well-formed sentences.

Meanwhile, for postverbal predicate complement, the structure is rich enough to be clausal, for example, to get an infinite TP clause.

(10) wo wan DE bu xiang shangxue le.
I play DE Neg want go-to-school ASP.
'(lit.) I played so much that I do not want to go to school any more.'

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Another Possible solution:

- Analyzing the postverbal predicative complement *bu dong* ('not understand') as an infinitive clause (a.k.a, TP).
  With this analysis, we only need TP on the tier for this moment.

These two solutions...

- Either one could work.
- Both of them can be handled by TSL!

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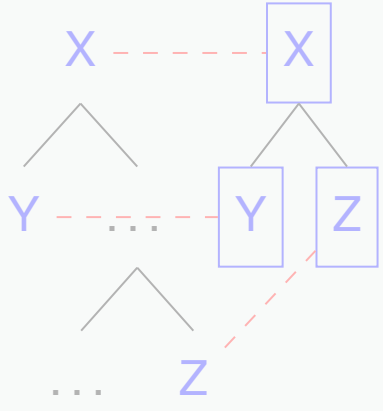
Beyond TSL?

Two kinds of localities that can not be handled by TSL...

- Sibling dependency
- C-command relation

Examples



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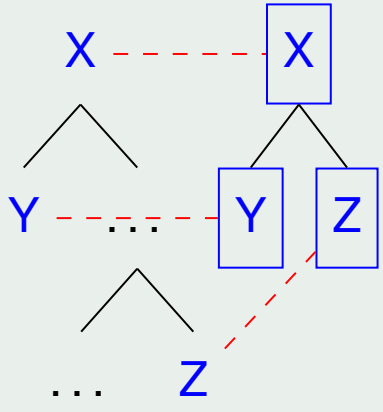

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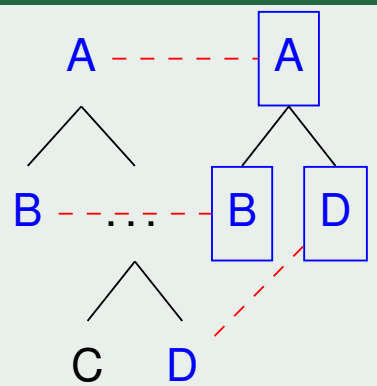

Sibling Dependency?

(11) a. Wo mei bu kaixin.
I Neg2 Neg1 happy
'It's not the case that I'm not happy.'

b. Wo mei hen bu kaixin.
I Neg2 very Neg1 happy
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c. Wo mei bu kaixin, ta ye mei.
I Neg2 Neg1 happy, he too Neg2
'It's not the case that I'm not happy. Also, It's not the case that he is not happy.'

- Neg1 and Neg2 are not real siblings!

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(12) Lisi bu shi mei mai che.
Lisi Neg1 be Neg2 buy car
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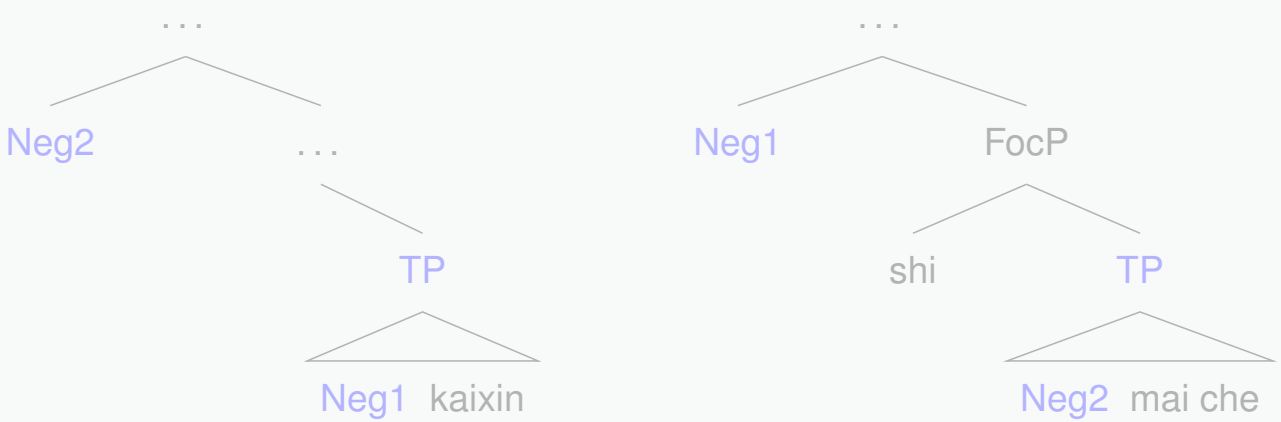

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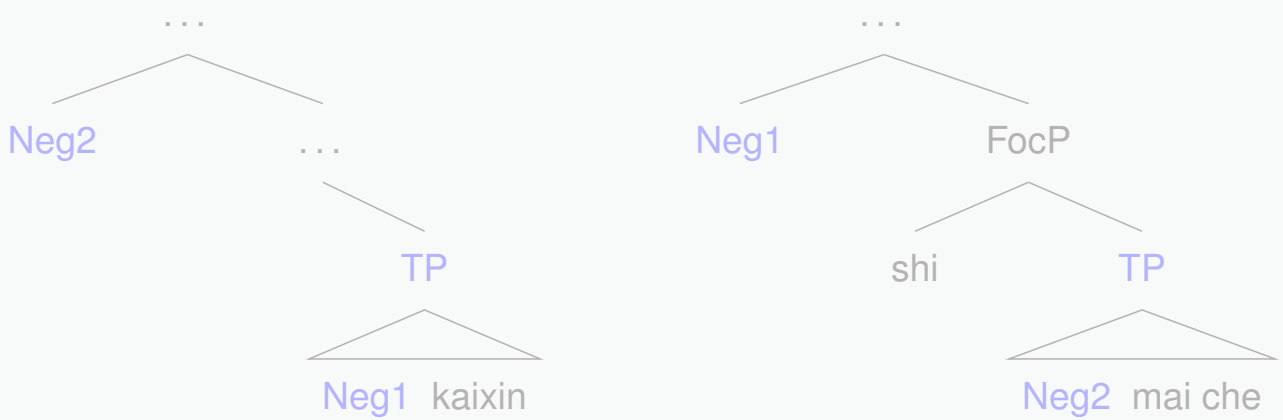

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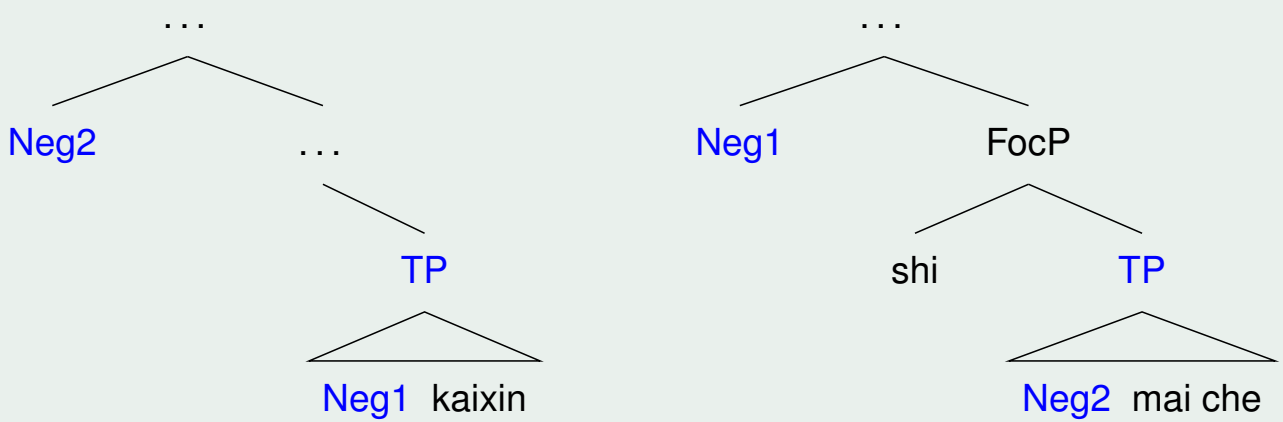

Main points

- The locality of co-occurrence of Mandarin Chinese negation markers is TSL bound.
- This shows that syntactic notion of locality domain can be captured by the class of TSL dependencies.
- Also it provides more support for the TSL trend across language modules

Future research

Investigating whether negation patterns have similar formal complexity across languages.

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Acknowledgments

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References

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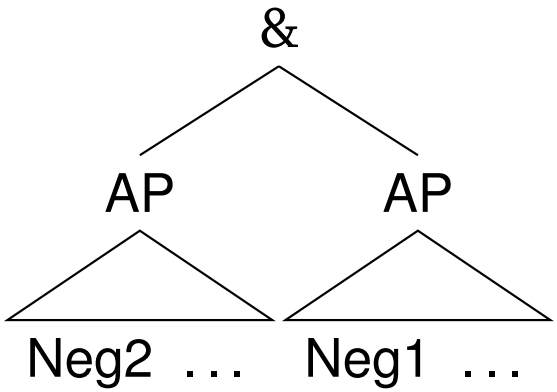
&
AP
AP
Neg2 …
Neg1 …

(13) Wo kan jufajiegou mei kan bu dong.
I read *Syntax* Neg2 read Neg1 understand
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