# Clausal complements and tone sandhi in Chaozhou

Nick Huang and Jiajia Cai
{znhuang, jiajia.cai}@nus.edu.sg

National University of Singapore

# This talk: subcategorization and finiteness

Two types of attitude verbs: “belief verbs” (beliefs and speech) vs. “control verbs” (expressing desires).

In many languages, different subcategorization requirements.

(1) English

a. Jo **thinks** [$_{\text{Finite}}$ she is in LA].
b. Jo **plans** [$_{\text{Nonfinite}}$ to be in LA].

# Is the same clausal distinction present in Chinese?

A lot of evidence suggests: yes, there is a two-way distinction.

| | Belief complements | "Control" complements |
|---|---|---|
| Overt subjects | OK | Typically no |
| Future markers and modals | OK | No |
| Low SFPs | OK | No |
| Certain cross-clausal dependencies | No | OK |

But this evidence almost always comes from Mandarin.

(see C.-T. J. Huang 2022 and He 2024 for a recent review.)

**What about other varieties of Chinese?**

# This talk: a case study from Chaozhou (Southern Min)

**Empirical contribution**: novel report of tone sandhi exceptions in belief and control constructions.

Our analysis links tone sandhi to structure (not unlike Simpson & Wu 2002).

# This talk: a case study from Chaozhou (Southern Min)

**Empirical contribution**: novel report of tone sandhi exceptions in belief and control constructions.

Our analysis links tone sandhi to structure (not unlike Simpson & Wu 2002).

**Theoretical contribution 1**: Chaozhou provides a new kind of evidence from a non-Mandarin variety for recent claims about the Implicational Complementation Hypothesis (ICH; Wurmbrand & Lohninger 2023) and finiteness in Chinese.

- cf. Liu & Yip 2025 on Cantonese.

# This talk: a case study from Chaozhou (Southern Min)

**Empirical contribution**: novel report of tone sandhi exceptions in belief and control constructions.

Our analysis links tone sandhi to structure (not unlike Simpson & Wu 2002).

**Theoretical contribution 1**: Chaozhou provides a new kind of evidence from a non-Mandarin variety for recent claims about the Implicational Complementation Hypothesis (ICH; Wurmbrand & Lohninger 2023) and finiteness in Chinese.

- cf. Liu & Yip 2025 on Cantonese.

**Theoretical contribution 2**: an argument for a uniform analysis of clause structure across Chinese varieties.

# Background: Implicational Complementation Hypothesis (ICH)

Empirically based on restructuring and tense-related phenomena.

**Intuition**: Attitude verbs select for complement clauses with certain semantics, which then impose lower bounds on structure.

Complement clauses of "plan" and similar control verbs:

- Semantically: must be a Situation.
- Structurally: must have the Inflectional domain (IP level).
  - But **may** contain higher functional projections (e.g. complementizers), provided they don't change the semantics $\rightarrow$ **Structural flexibility**.

# Background: Implicational Complementation Hypothesis (ICH)

Empirically based on restructuring and tense-related phenomena.

**Intuition**: Attitude verbs select for complement clauses with certain semantics, which then impose lower bounds on structure.

Complement clauses of "plan" and similar control verbs:

- Semantically: must be a Situation.
- Structurally: must have the Inflectional domain (IP level).
  - But **may** contain higher functional projections (e.g. complementizers), provided they don't change the semantics $\rightarrow$ **Structural flexibility**.

Complement clauses of "think," "say" and other belief verbs:

- Semantically: must be a Proposition.
- Structurally: must have the Operator domain (CP level).
  - In principle, could allow higher functional projections, but not in practice, because there are no higher projections beyond the Operator domain $\rightarrow$ **No structural flexibility**.

# Overview of Chaozhou tone sandhi

Eight tones + extensive tone sandhi very similar to Xiamen and Taiwanese Southern Min.

All data reported here are for Fengxi Chaozhou (Jiajia's native variety, $\sim$ prestige variety in mainland China), using Peng'im romanization and Chao tone numerals (1 = low pitch, 5 = high pitch).

- Same tone sandhi facts hold for NH's variety of Singapore Chaozhou.

# Citation and sandhi tones

Two types of environments affecting how tone is realized: Final syllable of VP, NP, clauses, in isolation: **citation**; all other positions: **sandhi**

(2) sang$^{\underline{\text{citation 213}}}$
give

Tone 3a “yinqu”

(3) a. oi$^{\underline{\text{citation 55}}}$
shoe

b. sang$^{\text{sandhi 53 = high falling}}$ [$_{\text{NP}}$ oi$^{\underline{55}}$] keh i
give shoe to 3s
‘give shoes to him/her’

# Citation and sandhi tones

Two types of environments affecting how tone is realized: Final syllable of VP, NP, clauses, in isolation: **citation**; all other positions: **sandhi**

(2) sang$^{\underline{\text{citation 213}}}$
give
Tone 3a “yinqu”

(3) a. oi$^{\underline{\text{citation 55}}}$
shoe
b. sang$^{\text{sandhi 53 = high falling}}$ [$_{\text{NP}}$ oi$^{\underline{55}}$] keh i
give shoe to 3s
‘give shoes to him/her’

For tone 3a, the overall pitch (“register”) of its sandhi tone is actually determined by the register of following citation tone.

(4) a. san$^{\underline{\text{citation 33}}}$
“shirt” (low register)
b. sang$^{\text{sandhi 42 = low falling/*53}}$ [$_{\text{NP}}$ san$^{\underline{33}}$] keh i
give shirt to 3s

# “Register harmony” (Bao 1999)

(5) Tone 3a’s sandhi tone:

a. 53 (high falling) if following citation tone is high-register
b. 42 (low falling) elsewhere

**Formally**: A citation tone’s high register spreads leftwards to the immediately-preceding sandhi tone (adapting Bao 1999).

Caveats

- Register harmony applies to only 3 tones (out of 8): 2a, 3a, 4a (yinshang, yinqu, yinru) (Lin 1995; Bao 1999).
- But register harmony is robust: found in VPs, compound words, resultative verbs, Aux-Verb, …

# Tone sandhi for tone 2a “yinshang”

(6) Tone 2a’s sandhi tone:

a. 35 (high rising) if following citation tone is high-register
b. 24 (low rising) elsewhere

(7) (oi)hiou$^{\underline{\text{citation 53}}}$
can

(8) a. tag$^{\underline{\text{citation 5}}}$
read
b. hiou$^{35}$ tag$^{\underline{5}}$
can read

(9) a. zo$^{\underline{\text{citation 213}}}$
“do”
b. hiou$^{24}$ zo$^{\underline{213}}$
can do

# Tone sandhi for tone 4a “yinru”

(10) Tone 4a’s sandhi tone:

a. 5 (high) if following citation tone is high-register

b. 3 (mid = low register) elsewhere

(11) tih$^{\underline{\text{citation 2}}}$
iron

(12) a. giu$^{\underline{\text{citation 55}}}$
ball

b. tih$^{5}$ giu$^{\underline{55}}$
iron ball

(13) a. dêng$^{\underline{\text{citation 33}}}$
“nail”

b. tih$^{3}$ dêng$^{\underline{33}}$
iron nail

# Register harmony in attitude verb constructions?

**Fact 1**: Attitude verbs can also precede citation tone.

(14) Verb $[_{\text{clause}}$ CitationTone …]
Citation tone on topic, subject, …

**Prediction**: If Verb ends with either Tone 2a, 3a, or 4a, register harmony should apply.

# Register harmony in attitude verb constructions?

**Fact 1**: Attitude verbs can also precede citation tone.

(14) Verb [$_{\text{clause}}$ CitationTone …] "Unmarked clause"
Citation tone on topic, subject, …

**Prediction**: If Verb ends with either Tone 2a, 3a, or 4a, register harmony should apply.

**Fact 2**: Overt complementizer *dan* (< *dan* "say", Tone 3a) can also precede citation tone.

(15) Verb [$_{\text{clause}}$ *dan* CitationTone …] "Overt COMP clause"

**Prediction**: *dan* should also undergo register harmony.

# Register harmony in attitude verb constructions?

**Fact 1**: Attitude verbs can also precede citation tone.

(14) Verb [$_{clause}$ CitationTone …] "Unmarked clause"
Citation tone on topic, subject, …

**Prediction**: If Verb ends with either Tone 2a, 3a, or 4a, register harmony should apply.

**Fact 2**: Overt complementizer *dan* (< *dan* "say", Tone 3a) can also precede citation tone.

(15) Verb [$_{clause}$ *dan* CitationTone …] "Overt COMP clause"

**Prediction**: *dan* should also undergo register harmony.

Following examples will always feature Tones 2a, 3a, 4a + H citation tones. Do we find "**H sandhi**, **H citation**"?

# Verbs checked

| Rightmost tone | Belief verbs | Control verbs |
|---|---|---|
| 2a | • *toin* “think” (lit. “see”)<br>• *huênglo* “worry” [cf. MC *fánnǎo*] | n/a |
| 3a | • *dan* “say”<br>• *siangsing* “believe” [MC *xiāngxìn*]<br>• *manggin* “dream” [MC *mèngjiàn*] | • *ain* “want, must”<br>• *main* “do not want”<br>• *pahseng* “plan” [MC *dǎsuàn*]<br>• *dah’êng* “promise” [MC *dāyìng*]<br>• *haon* “be willing to” |
| 4a | • *gagdig* “feel, think” [MC *juéde*]<br>• *gidig* “remember” [MC *jìdé*] | • *gidig* “remember” [MC *jìdé*]<br>• (Singapore/Malaysia Chaozhou only) *su’gah* “like” [< Malay *suka* “like”] |

# Belief verbs: unmarked clauses

**No register harmony**: odd to have register harmony.

- NB: *dan* “say” has tone 3a (sandhi tone: high/low falling).

(16) L sandhi, H citation

a. i dan$^{42/*53}$ [[$_{NP}$ iên$^{\underline{55}}$] oi si-ke].
3s say goat will die-PRT
‘S/he said that the goat(s) will die.’ *V-Subject*

b. i {dan$^{42/*53}$ / gagdig$^{3/*5}$} [[$_{NP}$ iên$^{\underline{55}}$] i bho bhoi].
3s say feel goat 3s NEG sell
‘S/he said/felt that the goat(s) s/he didn’t sell.’ *V-Topic*

c. i {dan$^{42/*53}$ / gagdig$^{3/*5}$} [*pro* [$_{VP}$ lai$^{\underline{55}}$] liou.]
3s say feel come PRT
‘S/he said/felt that [s/he] has arrived.’ *V-VP*

# Control verbs: unmarked clauses

**Register harmony applies.**

(17) H sandhi, H citation

a. i {ain$^{53/*42}$ / pahseng$^{53/*42}$ / haon$^{53/*42}$ [PRO lai$^{\underline{55}}$].
3s want plan be.willing come
'S/he wants/plans/is willing to come.' *V-VP*

b. i pahseng$^{53/*42}$ [lai$^{\underline{55}}$ muanrig zian bhoi].
3s plan pear tomorrow PRT buy
'S/he plans to buy pears tomorrow.' *V-Topic*

# Overt COMP clauses

**No register harmony**: *dan* always has L sandhi, regardless of verb type.

(18) L sandhi, H citation

a. i gagdig [dan$^{42/*53}$ iên$^{55}$ oi si-ke].
3s feel COMP goat will die-PRT
'S/he said/felt that the goat(s) will die.' *Belief*

b. i gagdig [dan$^{42/*53}$ iên$^{55}$ i bho bhoi].
3s feel COMP goat 3s NEG sell
'S/he said/felt that the goat(s) s/he didn't sell.' *Belief*

c. i pahseng [dan$^{42/*53}$ lai$^{55}$ muanrig zian bhoi].
3s plan COMP pear tomorrow PRT buy
'S/he plans to buy pears tomorrow.' *Control*

# Summary: the distribution of register harmony

| | Unmarked | Overt COMP |
|---|---|---|
| Belief verbs | No register harmony | No register harmony |
| Control verbs | Register harmony | No register harmony |

Recall that register harmony is otherwise robust.

# Analysis

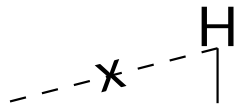
Two components:

1. Register harmony applies **only within a prosodic domain** Φ: H register of citation tone can spread leftward but must stop at Φ's boundary (cf. Lee & Selkirk 2022 on Xitsonga high tone spreading).
2. Φ is the prosodic correlate of a functional projection FP (following work on the syntax–prosody interface).

Absence of register harmony = presence of FP and Φ.

# How this works: unmarked complements

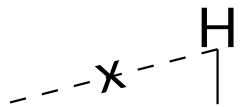
Belief verb / No register harmony => FP present




(19) i dan [$_{FP/\Phi}$ lai$^{\underline{55}}$ i bho bhoi].
3s say goat 3s NEG buy
'S/he said the pear(s) s/he didn't buy.'

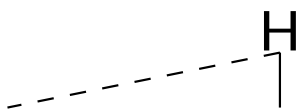
# How this works: unmarked complements

Belief verb / No register harmony => FP present




(19) i dan [$_{FP/\Phi}$ lai$^{\underline{55}}$ i bho bhoi].
3s say goat 3s NEG buy
'S/he said the pear(s) s/he didn't buy.'

Control verb / Register harmony => FP absent




(20) i pahseng [$_{not\ FP}$ lai$^{\underline{55}}$ muanrig zian bhoi].
3s plan pear tomorrow PRT buy
'S/he plans to buy pears tomorrow.' *Control verb: no FP*

Note that FP is very high – Operator domain: it contains topics.

# How this works: overt COMP clauses

No register harmony => FP always present

H

(21) i gagdig [$_{CP}$ dan [$_{FP/\Phi}$ lai$^{55}$ i bho bhoi]].
3s feel say pear 3s NEG buy
'S/he felt the pear(s) s/he didn't buy.' *Belief verb*

# Both components of our analysis are independently motivated

Spreading of tone is sensitive to prosodic domains in certain languages, e.g. Xitsonga (Bantu) (Lee & Selkirk 2022).

- Well-established analyses of such phenomena: e.g. CrispEdge family of constraints within OT (Itô & Mester 1999).

Well-established that syntactic structure correspond to prosodic domains. Within Southern Min:

- Citation tones in Southern Min found on right edge of prosodic domains, which in turn correspond to syntactic constituents like NPs, VPs, clauses (see Chen 1987; Lin 1994 for Xiamen Min).
- The same tone group analysis is a good fit for Chaozhou citation tones.
- Unsurprising that Chaozhou register harmony is similarly sensitive to prosodic and syntactic boundaries.

# Belief and control verbs have different complements

| | Unmarked | Overt COMP |
|---|---|---|
| Control verbs | Register harmony<br>$\rightarrow$ No FP and Φ | No register harmony<br>$\rightarrow$ FP and Φ |
| Belief verbs | No register harmony<br>$\rightarrow$ FP and Φ | No register harmony<br>$\rightarrow$ FP and Φ |

Belief complements always have FP; not so for control complements.

**Basic subcategorization difference** between belief and control verbs (Huang 2022, etc., contra Huang 1994; Hu et al. 2001).

- But evidence from a very different phenomenon – tone sandhi, and not e.g. future markers, cross-clausal dependencies, etc.

# Belief and control verbs have different complements

| | Unmarked | Overt COMP |
|---|---|---|
| Control verbs | Register harmony<br>$\rightarrow$ No FP and $\Phi$ | No register harmony<br>$\rightarrow$ FP and $\Phi$ |
| Belief verbs | No register harmony<br>$\rightarrow$ FP and $\Phi$ | No register harmony<br>$\rightarrow$ FP and $\Phi$ |

Belief complements always have FP; not so for control complements.

**Structural flexibility for control complements, as generally predicted by the ICH** (He 2024, N. Huang 2018).

- Control complements can be quite small (like IP), but higher projections (like FP) are possible.
- Reminiscent of monoclausal/biclausal structures and restructuring phenomena.

# But ICH does not predict the exact distribution of FP

The ICH merely predicts that, all else being equal, FP can freely occur in all control complements.

# But ICH does not predict the exact distribution of FP

The ICH merely predicts that, all else being equal, FP can freely occur in all control complements.

**There is actually less flexibility**: FP is always absent in unmarked control complements (i.e. register harmony always applies) and always present in overt COMP control complements (no register harmony).

Restrictions => FP needs to be formally licensed.

# What licenses FP?

Unmarked clauses: FP cannot appear with control verbs => FP's licenser is incompatible with control verbs.

Our proposal, based on cross-linguistic considerations: this licenser is a Finite head.

- Licensing might be via subcategorization: Fin takes FP as a complement.
- Likely that Fin has certain semantics that gives the clause a Proposition interpretation (C.-T. J. Huang 2022).

# What licenses FP?

Unmarked clauses: FP cannot appear with control verbs => FP's licenser is incompatible with control verbs.

Our proposal, based on cross-linguistic considerations: this licenser is a Finite head.

- Licensing might be via subcategorization: Fin takes FP as a complement.
- Likely that Fin has certain semantics that gives the clause a Proposition interpretation (C.-T. J. Huang 2022).

Explains why register harmony applies outside of attitude verb constructions (e.g. compound nouns): these constructions do not involve clauses, Fin or FP.

# What licenses FP?

Unmarked clauses: FP cannot appear with control verbs => FP's licenser is incompatible with control verbs.

Our proposal, based on cross-linguistic considerations: this licenser is a Finite head.

- Licensing might be via subcategorization: Fin takes FP as a complement.
- Likely that Fin has certain semantics that gives the clause a Proposition interpretation (C.-T. J. Huang 2022).

Explains why register harmony applies outside of attitude verb constructions (e.g. compound nouns): these constructions do not involve clauses, Fin or FP.

As for overt COMP clauses, simplest story is that the complementizer *dan* can also exceptionally license FP even without Fin (e.g. in control constructions).

- e.g. *dan* may take FP as a complement.

# Additional evidence for a finiteness distinction

If Chaozhou makes such a finiteness distinction, then control complements should show characteristics more typical of nonfinite clauses.

This is indeed the case, e.g. control complements disallow overt subjects and future markers.

(22) i pahseng (dan) (*i) (*oi) ke.
3s plan COMP 3s will go.
Intended: 'S/he plans to go.'

# Uniform analysis of Chinese clause structure

Our proposal about Chaozhou aligns with proposals that locate finite-marking heads high in the left periphery.

- Italian: Finiteness is located on Force head (= C) Rizzi (1997); Rizzi & Bocci (2017).
- Mandarin: SFPs like *le* and *laizhe* head a CP-like projection and mark finiteness (Paul & Pan 2017; Zhang 2019, etc.)

The parallels between Chaozhou and Mandarin suggests that the representation of (non)finiteness might be more or less uniform across Chinese varieties.

(23) CP(/FinP) > FP > TopicP > ExternalFocus > …

# Conclusion

Chaozhou belief and control verb constructions show tone sandhi exceptions.

These tone sandhi phenomena can be explained in structural terms, following the literature on the syntax–prosody interface.

These structural differences in turn are consistent with the ICH and a finiteness distinction.

# Thank you

This research was supported by an NUS startup grant and the Ministry of Education, Singapore, under the Academic Research Fund Tier 1 (FY2021-FRC3-002).

Special thanks to Yuyin He, Michael Yoshitaka Erlewine, Zheng Shen, Li Yuting, Tay Wenkai, and Cher Que Hiang for comments, suggestions, and intuitions.

# Background: Implicational Complementation Hypothesis (ICH)

| Verb class | Example | S-selection | Canonical structure |
|---|---|---|---|
| Control | “try” | Event | vP = Theta domain |
| Control | “plan” | Situation | IP = vP + Inflectional domain |
| Belief | “think” | Proposition | CP = IP + Operator domain |

# Chaozhou tone inventory

| Tone | Name | Citation | Citation register | Sandhi |
|---|---|---|---|---|
| 1a | yinping | 33 | Low | 33 |
| 2a | yinshang | 53 | High | 35/_ ~~53, 55, 5~~ High<br>24 elsewhere |
| 3a | yinqu | 213 | Low | 53 /_ ~~53, 55, 5~~ High<br>42 elsewhere |
| 4a | yinru | 2 | Low | 5 /_ ~~53, 55, 5~~ High<br>3 elsewhere |
| 1b | yangping | 55 | High | 11 |
| 2b | yangshang | 35 | Low | 21 |
| 3b | yangqu | 11 | Low | 11 |
| 4b | yangru | 5 | High | 2 |

# The overall picture

Still consistent with the ICH.

Belief complements always contain the Operator domain, which contains FinP and FP.

Control verbs still have greater flexibility in their complements. Three scenarios:

| Operator domain projections | *dan* | FinP | FP | Register harmony |
|---|---|---|---|---|
| None (Unmarked) | No | No | No | Yes |
| Some (e.g. TopicP) | No | No | No | Yes |
| Some (overt COMP) | Yes | No | Yes | No |

# What is FP?

One possibility: FP = TopicP

- But we can find FP in belief complement clauses without topics.

Another possibility: No FP. Rather, there is a prosodic mapping rule that maps the complement of FinP and complementizer *dan* (whatever it is) into the prosodic domain Φ.

# Object control verbs

(24) i ga/gie$^{53/*42}$ [$_{NP}$ ien$^{\underline{55}}$] [PRO siuzui].
3s tell goat swim
'S/he told/taught the goat to swim.'

As expected, if there is no Fin/FP between the verb and the object NP.

- But more systematic investigation needed, e.g. control for whether the NP is definite / specific / generic / ....

# Overt complementizer and topics in control complements

One might argue that these already demonstrate that control complements can be larger than IPs.

But this isn't evidence that validates the ICH.

- To support the ICH, we need to show subcategorization differences between control and belief complements.
- However, overt complementizers and topics are also optional in belief complements.
- So they merely show that control and belief complements both can be larger than IPs, but they don't demonstrate a difference.

# Fin = C?

Maybe Fin = C: no need to posit two distinct functional heads.

# Fin = C?

Maybe Fin = C: no need to posit two distinct functional heads.

FP is uniformly licensed by complementizers of various “flavors”:

- a silent finite complementizer compatible with only belief verbs
- an overt complementizer *dan* with finite and nonfinite variants, compatible with both belief and control verbs (cf. N. Huang 2018 on finite and nonfinite *shuo* in Mandarin).

# References I


Bao, Zhiming. 1999. Tonal Contour and Register Harmony in Chaozhou. *Linguistic Inquiry* 30:485–493. URL http://www.jstor.org/stable/4179074.

Chen, Matthew Y. 1987. The syntax of Xiamen tone sandhi. *Phonology Yearbook* 4:109–149.

He, Yuyin. 2024. Finiteness in Mandarin clausal complements: the role of ICH and future modals. *Journal of East Asian Linguistics* 33:259–297. URL https://link.springer.com/10.1007/s10831-024-09278-w.

Hu, Jianhua, Haihua Pan, & Liejiong Xu. 2001. Is there a finite vs. nonfinite distinction in Chinese? *Linguistics* 39:1117–1148.

Huang, C.-T. James. 2022. Finiteness, opacity, and Chinese clausal architecture. In *Linguistik Aktuell/Linguistics Today*, ed. Andrew Simpson, volume 272, 17–76. Amsterdam: John Benjamins Publishing Company. URL https://benjamins.com/catalog/la.272.02hua.

Huang, Nick. 2018. Control complements in Mandarin Chinese: implications for restructuring and the Chinese finiteness debate. *Journal of East Asian Linguistics* 27:347–376. URL http://link.springer.com/10.1007/s10831-018-9185-1.

Huang, Yan. 1994. *Syntax and pragmatics of anaphora*. Cambridge: Cambridge University Press. URL http://public.ebookcentral.proquest.com/choice/publicfullrecord.aspx?p=4640340, oCLC: 958548365.

# References II


Itô, Junko, & Armin Mester. 1999. Realignment. In *The prosody-morphology interface*, ed. René Kager, Harry van der Hulst, & Wim Zonneveld, 188–217. Cambridge: Cambridge University Press.

Lee, Seunghun J., & Elisabeth Selkirk. 2022. Xitsonga tone: The syntax–phonology interface. In *Prosody and Prosodic Interfaces*, ed. Haruo Kubozono, Junko Ito, & Armin Mester, 337–373. Oxford: Oxford University Press, 1 edition. URL `https://academic.oup.com/book/43861/chapter/370566608`.

Lin, Jo-wang. 1994. Lexical government and tone group formation in Xiamen Chinese. *Phonology* 11:237–275. URL `https://www.cambridge.org/core/product/identifier/S0952675700001962/type/journal_article`.

Lin, Lunlun. 1995. Chaoshan fangyan shengdiao yanjiu [research on tones in chaoshan dialects]. *Yuwen yanjiu [Linguistic research]* 52–59.

Liu, Yuyang, & Ka-Fai Yip. 2025. Again, finiteness and split aspect in Chinese languages. submitted. Lingbuzz/008780.

Paul, Waltraud, & Victor Junnan Pan. 2017. What you see is what you get: Chinese sentence-final particles as head-final complementizers. In *Discourse Particles: Formal approaches to their syntax and semantics*, ed. Josef Bayer & Volker Struckmeier, 49–77. De Gruyter. URL `https://www.degruyter.com/document/doi/10.1515/9783110497151-003/html`.

Rizzi, Luigi. 1997. The fine structure of the left periphery. In *Elements of Grammar*, ed. Liliane Haegeman, 281–337. Dordrecht: Kluwer Academic.

# References III

Rizzi, Luigi, & Giuliano Bocci. 2017. Left periphery of the clause: primarily illustrated for Italian. In *The Wiley Blackwell Companion to Syntax, Second Edition*, ed. Martin Everaert & Henk C. Riemsdijk, 1–30. Wiley, 1 edition. URL https://onlinelibrary.wiley.com/doi/10.1002/9781118358733.wbsyncom104.

Simpson, Andrew, & Zoe Wu. 2002. IP-Raising, Tone Sandhi and the Creation of S-Final Particles: Evidence for Cyclic Spell-Out. *Journal of East Asian Linguistics* 11:67–99. URL http://www.jstor.org/stable/20100816.

Wurmbrand, Susi, & Magdalena Lohninger. 2023. An implicational universal in complementation: theoretical insights and empirical progress. In *Propositional Arguments in Cross-Linguistic Research: Theoretical and Empirical Issues*, ed. Jutta Hartmann & Angelika Wöllstein, 183–229. Tübingen: Gunter Narr Verlag.

Zhang, Niina Ning. 2019. Sentence-final aspect particles as finite markers in Mandarin Chinese. *Linguistics* 57:967–1023. URL https://www.degruyter.com/document/doi/10.1515/ling-2019-0020/html.