Introduction
000

Diagnosing inner aspect *le*
000000

Proposal
00000000

Concluding remarks
00

Telicizing with inner aspect *le*
Partitivity and the definiteness constraint

Yenan Sun, Lawrence Y. L. Cheung
The Chinese University of Hong Kong
{yenansun, yllcheung}@cuhk.edu.hk

GLOW IN ASIA XIII
The Chinese University of Hong Kong
Aug 4 -7, 2022

Outline

1 Introduction

2 Diagnosing *le*₃ (inner aspect *le*) with new evidence

3 Proposal: Inner *le* selects non-culminating accomplishments

4 Concluding remarks

Introduction
○●○

Diagnosing inner aspect *le*
○○○○○○

Proposal
○○○○○○○○

Concluding remarks
○○

Different uses of *le* in Mandarin Chinese

(1) wo he   le$_1$ yi-ping   jiu   le$_2$.
     I   drink PERF one-bottle wine SFP

     'It is now the case that I drank a bottle of wine (contrary what one may assume)'

- Postverbal *le$_1$*: perfective marker which manipulates the relation between Event Time and Topic Time (Smith 1997; Klein 1994; Sybesma 1999; Lin 2006)
- Sentence-final *le$_2$*: current relevance of the changed state, "contrary to expectation" (Li and Thompson 1989; Soh 2009; Guo 2015; Fan 2021)

Introduction
○○●

Diagnosing inner aspect *le*
○○○○○○

Proposal
○○○○○○○○

Concluding remarks
○○

A relatively less discussed use: *le* in irrealis contexts

(2) kuaidian he   le zhe-ping jiu!
     quick   drink LE this-bottle wine
     'Drink up this bottle of wine quickly!'   (Imperatives)

(3) ta   dasuan chi le zhe-ge xigua.
     she plan   eat LE this-CL watermelon
     'She plans to eat up this watermelon.'   (Under control verbs/deontic/dynamic modals)

- Phase complement (Chen 1957; Ma 1983; Kimura 1983; Fan and Chan 2022)
- Resultative (Sybesma 1997)
- Quantity marker (Wang 2018)

Introduction
○○●

Diagnosing inner aspect *le*
○○○○○○

Proposal
○○○○○○○○

Concluding remarks
○○

A relatively less discussed use: *le* in irrealis contexts

(2) kuaidian he   le zhe-ping jiu!
    quick   drink LE this-bottle wine
    'Drink up this bottle of wine quickly!'   (Imperatives)

(3) ta   dasuan chi le zhe-ge xigua.
    she plan   eat LE this-CL watermelon

    'She plans to eat up this watermelon.'   (Under control verbs/deontic/dynamic modals)

- Phase complement (Chen 1957; Ma 1983; Kimura 1983; Fan and Chan 2022)
- Resultative (Sybesma 1997)
- Quantity marker (Wang 2018)

⇒ How do we know this postverbal use is NOT perfective le_1?

Introduction
ooo

Diagnosing inner aspect *le*
●ooooo

Proposal
oooooooo

Concluding remarks
oo

Outline

1. **Introduction**

2. **Diagnosing *le*$_3$ (inner aspect *le*) with new evidence**

3. **Proposal: Inner *le* selects non-culminating accomplishments**

4. **Concluding remarks**

Introduction
ooo

Diagnosing inner aspect *le*
o●oooo

Proposal
ooooooooo

Concluding remarks
oo

① Selective: Only with transitive verb + referential theme objs

- *le* in irrealis contexts

(4) *wo dasuan pao le bu.
    I plan run LE foot
    Int: 'I plan to run'

(5) *kuaidian qu le tushugan.
    quick go LE library
    'Go to the library quickly!'

(6) *ni bixu he le yi-sheng jiu.
    you must drink LE one-liter wine
    'You must drink a liter of wine.'

(7) ni bixu he le zhe-ping jiu.
    you must drink LE this-bottle wine
    'You must drink up this bottle of wine.'

- Typical perfective le_1

(8) gangcai wo pao le bu.
    just.now I run PERF foot
    'I ran just now'   (**intransitive**)

(9) wo qu le tushuguan.
    I go PERF library
    'I went to the library'   (**non-theme obj**)

(10) wo he le yi-sheng jiu.
     I drink PERF one-liter pear
     'I drank a liter of wine.'   (**non-ref obj**)

(11) wo he le zhe-ping jiu.
     I drink PERF this-bottle wine
     'I drank this bottle of wine.'   (**ref theme obj**)

Introduction
000

Diagnosing inner aspect *le*
000●000

Proposal
00000000

Concluding remarks
00

② **Related to telicity instead of viewpoint**

- This use of *le* forces the telic reading of the predicate, quite like other phase complements (see Ma 1983; Sybesma 1997; Fan and Chan 2022)

  (12) a. wo dasuan he   zhe-ping jiu.
            I   plan   drink this-bottle wine

            'I plan to drink (some of) this bottle of wine.'   (Without *le*: atelic)

        b. wo dasuan he   {le/wan/diao} zhe-ping jiu.
            I   plan   drink LE/finish/off   this-bottle wine

            'I plan to drink up this bottle of wine.'   (With *le*: telic)

  Context: There are three minutes before the dinner is ready. I ask you what you plan to do during this short time.   ⇒ (12-a): ✓; (12-b): #

Introduction
000

Diagnosing inner aspect *le*
000●00

Proposal
00000000

Concluding remarks
00

Do not encode perfective viewpoint

- This use of *le* does not require event realization within the topic time:

  (13) wo dasuan xianzai he   le zhe-ping jiu.
        I   plan   now   drink LE this-bottle wine

        'I plan to drink up this bottle of wine now.'   EventTime $\not\subseteq$ **now**

- Typical perfective meaning: EventTime $\subseteq$ TopicTime

  (14) wo { zuotian , * xianzai } he   le   yi-sheng jiu.
        I   yesterday now   drink PERF one-liter wine

   'I drank a liter of wine {yesterday, *now}'   EventTime $\subseteq$ **yesterday**

                                        Impossible: EventTime $\subseteq$ **now**

Introduction
○○○

Diagnosing inner aspect *le*
○○○○●○

Proposal
○○○○○○○○

Concluding remarks
○○

Inner aspect *le* (*le*$_3$)

- Outer aspect: relation between the eventuality time and the topic time
- Inner aspect: temporal constituency of the eventuality (Smith 1997; Travis 2010; Sybesma 2017; Luo and Zhang 2020)

(15)

Introduction
○○○

Diagnosing inner aspect *le*
○○○○○○●

Proposal
○○○○○○○○

Concluding remarks
○○
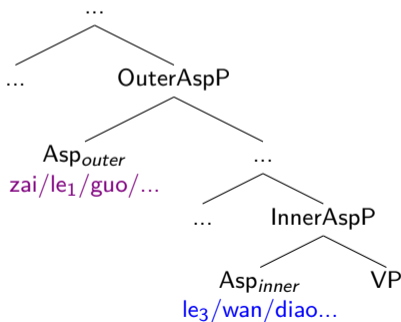
Puzzle: Why the definiteness constraint of inner *le*?

- Not all inner aspects have this constraint:

  (16) wo dasuan (shi-miaozhong) he   wan   yi-ping   jiu.
        I   plan   ten-second   drink finish one-bottle wine
        'I plan to drink up one bottle of wine (in ten seconds)'

  (17) ni   jintian bixu he   diao yi-sheng jiu.
        you today must drink off   one-liter wine
        'You must drink up a liter of wine today'

- Existing formal analyses of inner aspects CANNOT directly extend to inner *le*:
  - *wan* "complete" (Luo and Zhang 2020): zoom in the final subpart of an event
  - *diao* "off" (Gu 2022): maximalization over patient

Introduction
000

Diagnosing inner aspect *le*
000000

Proposal
●0000000

Concluding remarks
00

Outline

1. **Introduction**

2. **Diagnosing *le*₃ (inner aspect *le*) with new evidence**

3. **Proposal: Inner *le* selects non-culminating accomplishments**

4. **Concluding remarks**

Introduction
ooo

Diagnosing inner aspect *le*
oooooo

Proposal
o●oooooo

Concluding remarks
oo

In a nutshell

Inner aspect le_3 forces the telic reading in a particular way (different from *wan* and *diao*):

(18) $\llbracket le_3 \rrbracket = \lambda P_{\langle d, vt \rangle} \lambda e. P(d_{max})(e)$

- selects non-culminating accomplishments (NCAs) [1] (i.e. gradable property of events);
    - $\rightarrow$ Contain a telo but do not entail culmination under perfective
    - ✓ Incremental theme verb (*he* "drink", *chi* "eat")/causative verb (*guan* "close", *mai* "sell")
    - ✓ Definite (/specific) theme object
- manipulates the degree variable to the maximal value (i.e. closed scale)

---

[1] Tai (1984); Soh and Kuo (2005); Koenig and Chief (2008); Zhang (2020); Martin et al. (2021)

Introduction
○○○

Diagnosing inner aspect *le*
○○○○○○

Proposal
○○●○○○○○

Concluding remarks
○○

Having a definite (/specific) object is crucial in licensing NCAs

✓ Typical incremental theme predicates (Soh and Kuo 2005; Zhang 2020)

(19) zuotian Mali he   le   zhe-ping jiu,   dan mei he   wan.
     yesterday Mary drink PERF this-bottle wine, but not drink finish
     'Yesterday Mary drank of <u>this bottle of wine</u>, but didn't finish it'   (✓ definite obj)

(20) zuotian Mali he   le   yi-sheng jiu   #dan mei he   wan.
     yesterday Mary drink PERF one-liter wine but not drink finish
     Int: 'Yesterday Mary drank <u>a liter of wine</u>, but didn't finish it'   (✗ non-ref obj)

✓ See appendix A for the same pattern with other NCAs involving causative verbs

Introduction
000

Diagnosing inner aspect *le*
000000

Proposal
0000●000

Concluding remarks
00

Proposal

Follow Zhang's (2020) analysis of NCAs: its source is PART$_{inc}$

- *he zhe-ping jiu* "drink (of) this bottle of wine"

(21)

$$VP_{\langle d,vt\rangle}$$
$$\lambda d\lambda e.drink'(e) \wedge partof_\Delta(\mathbf{a})(e) = d$$

he$_{\langle v,t\rangle}$
$\lambda e.drink'(e)$

PartP$_{\langle vt,dvt\rangle}$

PART$_{inc\,\langle e,\langle vt,dvt\rangle\rangle}$
$\lambda x\lambda P_{\langle v,t\rangle}\lambda d\lambda e.P(e) \wedge partof_\Delta(x)(e) = d$

DP$_e$
$\iota x[Atom_{bottle}(wine_k, x) \wedge |x| = 1]$
$\Rightarrow \mathbf{a}$

the degree d: d-portion of the theme is changed in e

zhe-ping jiu

Introduction
○○○

Diagnosing inner aspect *le*
○○○○○○

Proposal
○○○○●○○○

Concluding remarks
○○

Proposal

Follow Zhang's (2020) analysis of NCAs: its source is PART$_{inc}$

- *he zhe-ping jiu* "drink (of) this bottle of wine"

(21)

$\text{VP}_{\langle d,vt \rangle}$
$\lambda d \lambda e.drink'(e) \wedge partof_\Delta(\mathbf{a})(e) = d$

$\text{he}_{\langle v,t \rangle}$
$\lambda e.drink'(e)$

$\text{PartP}_{\langle vt,dvt \rangle}$

$\text{PART}_{inc \langle e,\langle vt,dvt \rangle \rangle}$
$\lambda x \lambda P_{\langle v,t \rangle} \lambda d \lambda e.P(e) \wedge partof_\Delta(x)(e) = d$

DP_e
$\iota x[Atom_{bottle}(wine_k, x) \wedge |x| = 1]$
$\Rightarrow \mathbf{a}$

zhe-ping jiu

the degree d: d-portion of the theme is changed in e

$\exists$-closure over d when nothing binds it: $\lambda e.\exists d[drink'(e) \wedge partof_\Delta(\mathbf{a})(e) = d]$ (atelic)

Introduction
000

Diagnosing inner aspect *le*
000000

Proposal
00000●000

Concluding remarks
00

- Inner aspect le_3 selects gradable properties of events (with a closed scale) and saturates the degree variable with d_{max}

(22)

$$\text{Asp}_{\text{inner}}\text{P}$$
$$\lambda e.drink'(e) \wedge partof_\Delta(\mathbf{a})(e) = d_{max} \text{ (telic)}$$

le_3
$\lambda P_{\langle d,vt \rangle}\lambda e.P(d_{max})(e)$

$\text{VP}_{\langle d,vt \rangle}$
$\lambda d\lambda e.drink'(e) \wedge partof_\Delta(\mathbf{a})(e) = d$

he PART$_{inc}$ zhe-ping jiu

Introduction
000

Diagnosing inner aspect *le*
000000

Proposal
00000●00

Concluding remarks
00

Definiteness constraint can be explained

- Non-referential objects cannot combine with PART$_{inc}$ because

  "It is impossible to track the parts of something if something is not uniquely identifiable"
  (Piñón 2008; Zhang 2020)

- This constraint is mirrored in the partitive *of* construction (Selkirk 1977; Jackendoff 1977: 113; Ladusaw 1982: 62).

  (23)   some of { this bottle of wine /*a liter of wine / this pear / *three pears ... }

  See Appendix B for the composition of *he yi-sheng li* "drink one liter of wine" and why it must be telic

Introduction
○○○

Diagnosing inner aspect *le*
○○○○○○

Proposal
○○○○○○●○

Concluding remarks
○○

Extending to NCAs that are NOT incremental theme predicates

- Many NCAs do not involve an incremental consumption/deconstruction of the theme

  (24) kuaidian guan le zhe-shan meng!
        quick   close LE this-CL   door
        'Close this door up quickly!'   *Incremental change on a path*

  (25) ni   bixu sell le zhe-liang che.
        you must sell LE this-CL   car
        'You must sell this car.'   *Change of ownership seems to be non-incremental*

- Wrong prediction: It is always the entire portion of the theme that is affected → telic

  (26) ⟦guan PART$_{inc}$ zhe-shan meng⟧$=\lambda e.\exists d[close'(e) \wedge partof_\Delta(⟦\text{this door}⟧)(e) = d]$

  (27) ⟦mai PART$_{inc}$ zhe-liang che⟧$=\lambda e.\exists d[sell'(e) \wedge partof_\Delta(⟦\text{this car}⟧)(e) = d]$

Introduction
000

Diagnosing inner aspect *le*
000000

Proposal
00000000●

Concluding remarks
00

Generalized *partof*$_\Delta$

- *partof*$_\Delta$ takes an entity x and an event e and returns <u>the degree to which x is affected</u>
→ Different ways of building the scale:
  - chi PART$_{inc}$ zhe-ge li $\approx$ "do eating on this pear"

    (28) d_1 $< ... d_2$ $< ... d_{max}$
           5% of this pear eaten   50% of this pear eaten   100% of this pear eaten

  - guan PART$_{inc}$ zhe-shan meng $\approx$ "do closing on this door"

    (29) d_1 $< ... d_2$ $< ... d_{max}$
           this door 5% closed   this door 50% closed   this door 100% closed

  - mai PART$_{inc}$ zhe-liang che $\approx$ "do selling on this car"

    (30) d_1 $< ... d_2$ $< ... d_{max}$
           advertise this car   sign contract for this car   trade of this car completed

- Part of x is affected $\Rightarrow$ Partial affectedness on x is realized

Outline

1. **Introduction**

2. **Diagnosing *le₃* (inner aspect *le*) with new evidence**

3. **Proposal: Inner *le* selects non-culminating accomplishments**

4. **Concluding remarks**

Introduction
000

Diagnosing inner aspect *le*
000000

Proposal
00000000

Concluding remarks
0●

Concluding remarks

Two contributions:

- Confirm the existence of le_3 (as inner aspect) with novel evidence
- Provide a formal semantic analysis of inner *le* to capture its definiteness constraint

Implications:

- Inner aspects "telicize" a predicate in various ways:
  - *wan* "complete" (Luo and Zhang 2020): zoom in the final subpart of an event
  - *diao* "off" (Gu 2022): maximalization over patient
  - Inner *le*: the theme being affected to the maximal degree
- Generalize the partitive analysis of non-culminating accomplishments in Zhang (2020)
  - Correlation with the object's referentiality
- Other constructions that exhibit a similar definiteness constraint (e.g. *ba*-construction)

Thank you!

Questions/Comments are welcome in Q&A

EMAIL: yenansun@cuhk.edu.hk
yllcheung@cuhk.edu.hk

Appendix A: More on the definiteness constraint with NCAs

✓ Predicates involving simple causative verbs can have non-culminating readings as well (Koenig and Chief 2008; Martin 2020)

(31)   Gradable:

Mali guan le   na-shan men, dan mei guan shang.
Mary close PFV that-CL door but not close up
'Mary closed that door, but it didn't get closed up'   (partial change)

(32)   Non-gradable:

Mali   mai le   na-liang che (?liang.ci), dan dou mei mai chuqu.
Mary sell PFV that-CL car two.time   but all   not sell out
'Mary did selling on that car (twice), but it didn't get sold.'   (failed attempt/zero change)

✓ Those predicates cannot have non-culminating readings with non-referential objects as well

(33) Gradable:

Mali guan le shan men, #dan mei guan shang.
Mary close PFV CL door but NEG close up
Int 'Mary closed a door, but it didn't get closed up' (✗ indefinite obj)

(34) Non-gradable:

Mali mai le liang che, #dan mei mai chuqu.
Mary sell PFV CL car but not sell out
Int 'Mary did selling on that car, but it didn't get sold.' (✗ indefinite obj)

Indefinite objs can have referential interpretations as well

- Classic examples (Smith 1997; Soh and Kuo 2001)

(35)   wo xie   le   yi-feng xin,   keshi mei xie   wan.
      I   write PERF one-CL letter but   not write finish
      'I wrote (some of) a letter, but I didn't finish it'   (Indefinite but specific)

Force a non-specific reading:

(36)   a.   wo xie   le   feng xin, #keshi mei xie   wan.
          I   write PERF CL   letter but   not write finish
          'I wrote a letter, but I didn't finish it'
      b.   wo xie   le   san-feng xin, #keshi mei xie   wan.
          I   write PERF three-CL letter   but   not write finish
          'I wrote three letters, but I didn't finish them'

Indefinite objs can have referential interpretations as well

- Indeed, inner *le* can co-occur with indefinite objects when their specific interpretations is made salient by modification etc.

(37) wo dasuan he   le [$_{ModP}$ naer de] yi-ping jiu.
      I   plan   drink LE   there DE yi-bottle wine
      'I plan to drink up a bottle of wine there.'

(38) wo dasuan chi le [$_{RelC}$ Mali song de] san-ge li.
      I   plan   eat LE   Mary send DE 3-CL   pear
      'I plan to eat three pears given by Mary.'

Appendix B: Composition of *he yi-sheng jiu* (see Zhang 2020; Kennedy 2012)

$$\text{VP}_{\langle v,t \rangle}$$

$\lambda x \lambda e. drink'(e) \wedge^{\cup} wine_k(x) \wedge \text{LITER}_\Delta(x)(e) = 1 \Rightarrow \lambda e. \exists x[drink'(e) \wedge^{\cup} wine_k(x) \wedge \text{LITER}_\Delta(x)(e) = 1]$

(by Event Identification and $\exists$-closure)

$\text{V}_{\langle v,t \rangle}$
he
$\lambda e. drink'(e)$

$\text{MeasureP}_{\langle e,vt \rangle}$
$\lambda x \lambda e.^{\cup} wine_k(x) \wedge \text{LITER}_\Delta(x)(e) = 1$

Measure'
$\lambda k \lambda x \lambda e.^{\cup} k(x) \wedge \text{LITER}_\Delta(x)(e) = 1$

NP
$wine_k$
jiu

Num
yi

Measure
$sheng_{inc}$
$\lambda d \lambda k \lambda x \lambda e.^{\cup} k(x) \wedge \text{LITER}_\Delta(x)(e) = d$
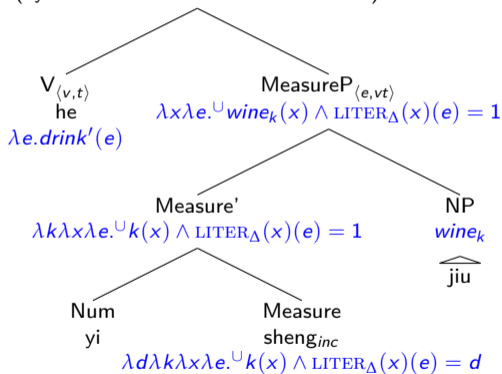
LITER_Δ measures how many liters of substance denoted by a noun phrase are changed in an event

$\Rightarrow$ Incompletive reading is NOT allowed: the degree is saturated by the numeral

Selected References

Chen, Gang. 1957. Beijinghua li lou he le de qubie [The distinction between lou and le in Beijing Mandarin]. *Zhongguo Yuwen* 12:33–34.

Fan, Xiaolei. 2021. *Putonghua le_1 le_2 de yufa yizhixing [The grammatical heterogeneity of le_1 and le_2 in Mandarin]*. Beijing: Peking University Press.

Fan, Xiaolei, and Kin Wing Kevin Chan. 2022. Xianggang Yueyu zo de yufa tedian: Yu Beijinghua le_1 [Grammatical properties of zo in Hong Kong Cantonese: A comparative study with le_1 in Beijing Mandarin]. *Language and Linguistics* 23:371–410.

Gu, Qianping. 2022. Telicization in Mandarin Chinese. *Journal of Linguistics* 1–33.

Guo, Rui. 2015. Time reference and its syntactic effects in mandarin chinese. *Chinese Teaching in the World* 29:435–449.

Jackendoff, Ray. 1977. *X syntax: A study of phrase structure*. MIT press.

Kennedy, Christopher. 2012. *The composition of incremental change*, 103–121. Oxford: Oxford University Press.

Kimura, Hideki. 1983. Guanyu buyuxing ciwei "zhe" he "le" [The "zhe" and "le" with the phase-complement nature]. *Yuwen Yanjiu [Linguistic Research]* 22–30.

Klein, Wolfgang. 1994. *Time in language*. New York: Routledge.

Koenig, Jean-Pierre, and Lian-Cheng Chief. 2008. Scalarity and state-changes in mandarin (and other languages). *Empirical issues in syntax and semantics* 7:241–262.

Ladusaw, William. 1982. Semantic constraints on the english partitive construction. In *Proceedings of the west coast conference on formal linguistics*, 231–242. Stanford: CSLI.

Li, Charles N, and Sandra A Thompson. 1989. *Mandarin chinese: A functional reference grammar*. Universtiy of California Press.

Lin, Jo-Wang. 2006. Time in a language without tense: The case of Chinese. *Journal of Semantics* 23:1–53.

Luo, Qiongpeng, and Anqi Zhang. 2020. The architecture of the perfective viewpoint aspect in mandarin. In *CLS 56 Digital Repository Program*.

Ma, Xiwen. 1983. Guanyu dongci 'le' de ruohua xingshi/lou/ [on the weakened form lou of the verb le]. *Zhongguo Yuyan Xuebao [Chinese Linguistics: The Journal of Linguistic Society of China]* 1:1–14.

Martin, Fabienne. 2020. Aspectual differences between agentive and non-agentive uses of causative predicates. In *Perspectives on causation*, 257–294. Springer.

Martin, Fabienne, Hongyuan Sun, Jinhong Liu, and Hamida Demirdache. 2021. Why one can kill rasputin twice in mandarin. In *Proceedings of Sinn und Bedeutung*, volume 25, 618–635.

Piñón, Christopher. 2008. Aspectual composition with degrees. In *Adjectives and adverbs: Syntax, semantics, and discourse*, ed. L. McNally and C. Kennedy. Oxford: Oxford University Press.

Selkirk, Elisabeth O. 1977. Some remarks on noun phrase structure. In *Formal syntax*, ed. Peter Culicover, Thomas Wasow, and Adrian Akmajian, 285–316. New York: Academic Press.

Smith, Carlota S. 1997. *The Parameter of Aspect*, volume 43. Netherlands: Springer.

Soh, Hooi Ling. 2009. Speaker presupposition and mandarin chinese sentence-final-le: a unified analysis of the "change of state" and the "contrary to expectation" reading. *Natural Language & Linguistic Theory* 27:623–657.

Soh, Hooi Ling, and Jenny Yi-Chun Kuo. 2005. Perfective aspect and accomplishment situations in mandarin chinese. In *Perspectives on aspect*, 199–216. Springer.

Sybesma, Rint. 1997. Why chinese verb-le is a resultative predicate. *Journal of East Asian Linguistics* 6:215–261.

Sybesma, Rint. 1999. *The Mandarin VP*. Dordrecht: Kluwer.

Sybesma, Rint. 2017. Aspect, inner. *Encyclopedia of Chinese language and linguistics* 1:186–193.

Tai, James H.-Y. 1984. Verb and times in chinese: Vendler's four categories. In *Papers from the parasession on lexical semantics*, ed. Veena Mishra David Testen and Joseph Drogo, 289–296. Chicago: Chicago Linguistic Society.

Travis, Lisa deMena. 2010. *Inner aspect*. Springer.

Wang, Chen. 2018. The syntax of le in mandarin chinese. Doctoral Dissertation, Queen Mary University of London.

Zhang, Anqi. 2020. Referentiality, individuation and incompletive readings. *Journal of East Asian Linguistics* 29:435–468.