Status of Mandarin demonstrative *na*: evidence from bridging

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Roadmap

Theoretical background

    Mandarin definites

    Bridging

    Definites in bridging

Experimental evidence

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Conclusion

Theoretical background

Mandarin definites

Mandarin makes definite references with two forms of descriptions:

1. Bare nouns (BN)

    (1)   gou yao guo malu.
          dog want cross road
          'The dog wants to cross the road.'

2. Demonstrative descriptions with *na* (DEM)

    (2)   na-tiao gou yao guo malu.
          na-cl   dog want cross road
          'That dog wants to cross the road.'

Mandarin *na*-descriptions

	Pointing	Modifier	Index	Bridging
BN	✗			
DEM	✓			

Unlike bare nouns, *na*-descriptions can be combined with a pointing gesture.

(3) a. na-tiao$_\rightarrow$ gou hen da. na-tiao$_\rightarrow$ gou hen xiao.
        na-cl   dog very big na-cl   dog very small
        'That dog is big, but that dog is small.'

   b. #gou$_\rightarrow$ hen da. gou$_\rightarrow$ hen xiao.
        dog   very big dog   very small
        Intended: 'The dog is big. The dog is small.'

Mandarin *na*-descriptions

	Pointing	Modifier	Index	Bridging
BN	✗	✗/✓		
DEM	✓	✓		

Na-descriptions can be combined with a modifier: relative clauses, prepositional phrases, names, and even nouns…

(4) zai   jiao de   (na-tiao) gou hen da.
      prog bark mod (na-cl)   dog very big
      'The/that dog that is barking is very big.'

(5) men hou   de   (na-tiao) gou hen da.
      door behind mod na-cl   dog very big
      'The/that dog behind the door is very big.'

Mandarin *na*-descriptions

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DEM	✓	✓		

Na-descriptions can be combined with a modifier: relative clauses, prepositional phrases, names, and even nouns...

(6)   Wangcai *(na-tiao) gou hen da.
      Wangcai na-cl   dog very big
      'That dog, Wangcai, is very big.'

(7)   kafei dian *(na-tiao) gou hen da.
      coffee shop na-cl   dog very big
      'That dog at/associated with the coffee place is very big.'

Mandarin *na*-descriptions

	Pointing	Modifier	Index	Bridging
BN	✗	✗/✓	✓	
DEM	✓	✓	✓	

Na-descriptions can be used anaphorically.

(8)   wo mai-le   yi-tiao gou[1]. (na-tiao) gou[1] hen da.
      I   buy-past one-cl dog.   na-cl   dog very big
      'I bought a dog. The/that dog is very big.'

   *more complex anaphora show preference for DEM (see discussion in
   Dayal & Jiang 2021; Jenks 2018)

Mandarin *na*-descriptions

Across languages, DEM is assumed to require more than just the NP description (Wolter 2006).

We have seen *na*-descriptions used with different linkers:

- ► Direct linker: a pointing gesture $\rightarrow$
- ► Linguistic linker: RC, PP, name, noun...
- ► Contextual linker: an index *i*

Mandarin *na*-descriptions

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Can *na*-descriptions be used without any linkers?

Mandarin *na*-descriptions

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Diagnostics: part-whole bridging!

Bridging

Two types of bridging (Clark 1975; Hawkins 1978; Schwarz 2009):

1. Part-whole bridging relies on situational uniqueness

   (9) Yesterday Jane was driving. **The steering wheel** was cold.

2. Producer-product bridging relies on relational anaphora

   (10) Jake bought a book today. **The author** is French.

Definites in bridging

Two types of bridging (Clark 1975; Hawkins 1978; Schwarz 2009):

1. Part-whole bridging relies on situational uniqueness
2. Producer-product bridging relies on relational anaphora

Some languages make morphosyntactic distinctions between …

→ uniqueness-denoting definiteness in part-whole bridging, and
→ anaphoricity-denoting definiteness in producer-product bridging.

Language	Uniqueness	Anaphoricity
English (Schwarz 2009)	the	the
Fering (Ebert 1971a)	a	di
German (Schwarz 2009)	zum	zu dem

Mandarin *na* in bridging

Two theories on Mandarin demonstratives:

1. *na*-descriptions require anaphoricity (Jenks 2018):
   → Mandarin *na* is disallowed in uniqueness-based part-whole bridging.

2. *na*-descriptions require anti-uniqueness (Dayal & Jiang 2021)
   → As English *that* constructions cannot be used as anaphora in bridging, Mandarin *na* is ruled out for the same reason.

Language	Uniqueness	Anaphoricity
Mandarin (Jenks 2018)	BN	DEM
Mandarin (Dayal & Jiang 2021)	BN	BN

Experimental evidence

Our study

Motivations:

$\rightarrow$ It is still debated whether *na* can be used in bridging.

$\rightarrow$ The limited data allow for only categorical predictions.

This study:

$\rightarrow$ *Na*-descriptions are felicitous as both uniqueness- and anaphoricity-denoting definites (c.f. Jenks 2018).

$\rightarrow$ The anti-uniqueness presupposition makes too strong a prediction for Mandarin *na* (c.f. Dayal & Jiang 2021).

Stimuli

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96 bridging sentences evenly distributed in ...

- ► bridging type   (part-whole, producer-product)
- ► anaphor noun type   (BN, DEM)
- ► antecedent noun type   (BN, DEM, INDEF)
- ► animacy of the antecedent noun   (animate, inanimate)

Example: a part-whole bridging item with DEM anaphor

(11)   qu-nian wo mai le **che**. wo zong wangji jiancha na-ge shache.
         last-year I buy asp car I always forget check na-cl brake.
         'I bought the car last year. I always forget to check that brake.'

(12)   zuo-tian wo mai le **shu**. wo hen xiang jianjian na-wei zuozhe.
         yesterday I buy asp book I very want meet na-cl author
         'Yesterday I bought the book. I really want to meet that author.'

(13)   jin-tian wo shitu kai **suo**. danshi wo zhao-budao na-ba yaoshi le.
         today I try open lock but I cannot find na-cl key asp

Stimuli

Each participant sees ...

- ► 8 **part-whole bridging**
  I bought the car last year. I always forget to check the brake.

- ► 8 **producer-product bridging**
  Yesterday I bought the book. I really want to meet the author.

- ► 8 semantically odd (contradiction; thematic mismatch)
  Jake is a married bachelor.

- ► 8 pragmatically odd (redundant information)
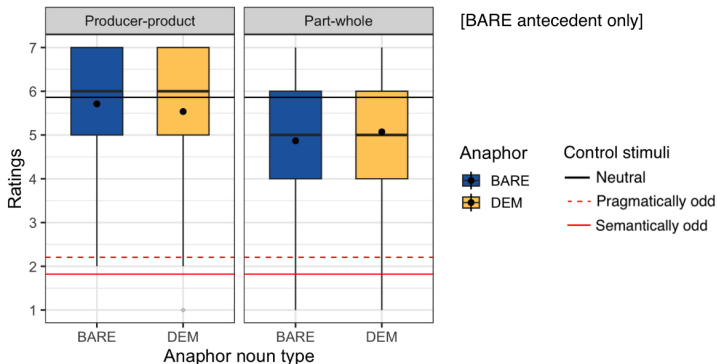 Yuki arrived. Yuki sat down. Yuki turned on her laptop.

- ► 8 neutral
  Mason thinks it's raining outside.

and rates the naturalness of these sentences on a 7-point Likert scale.

(More on the choice of instructions and control items in our study presented at ELM 2022!)

Results [n: 120; 18–64; gender-balanced]

- ► Anaphor noun type is not significant in both bridging types ($p > 0.1$).
- ► All bridging items are rated significantly higher than pragmatically/semantically odd controls ($p < 0.001$).
- ► *Na* allows both part-whole and producer-product bridging uses.

Discussion

Discussion I: previous theories of bridging

> **Our empirical observations**
> Both bare nouns and demonstrative descriptions containing *na* readily allow uniqueness-based bridging.

Himmelmann's (1996) observation
Demonstratives disallow bridging uses.

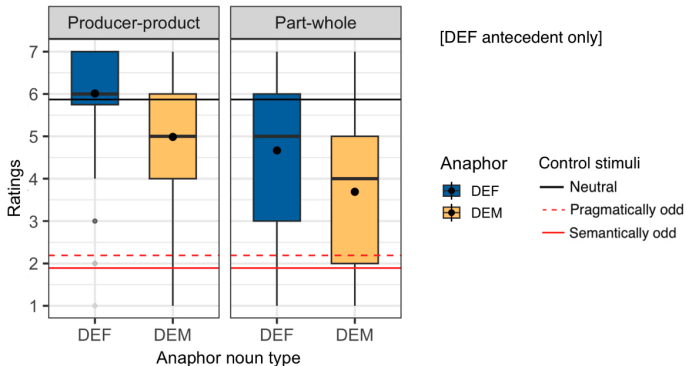Jenks's (2018) prediction
Na descriptions require anaphoricity.
DEM should be rated lower than BN in part-whole bridging.

Dayal & Jiang's (2021) prediction
Na descriptions, like English demonstratives, require anti-uniqueness.
Similar to *that*, they should be rated very low in both types of bridging.

Discussion I: English *that* in bridging [n: 120; 18−64; gender-balanced]

- ► Anaphor noun type is significant for both bridging types ($p < 0.001$).
- ► *That* is dispreferred in both part-whole and producer-product bridging.
- ► **Cross-linguistic differences are attested.**

Discussion II: another form of bridging

Mandarin *na* allows bridging without explicit linguistic antecedents.

(14)   wo jiehun le. na-ge ren   you san-tao fang.
        I   marry le na-cl person have three-cl house
        'I got married. That person (= the person I'm married to) has
        three houses.'

- ► The context (= the marrying event) uniquely identifies the referent.
- ► In contrast, English and German demonstratives disallow such use and require explicit linguistic antecedents.

Discussion III: a uniqueness-denoting *na*

	Pointing	Modifier	Index	Bridging
BN	✗	✗/✓	✓	✓
DEM	✓	✓	✓	✓

Lack of contrast between BN and DEM

- ► *na* covers more uniqueness-based definite space than BN
- ► a reanalysis of *na* as an overt counterpart of ι?

Mandarin *na* as uniqueness-denoting definite marker

- ► definite articles derive from demonstratives diachronically (Diessel 1999; Himmelmann 1996)
- ► strong definite analyzed as an intermediate stage between a deictic demonstrative and a definite article proper (Simonenko 2022)

Conclusion

Conclusion

1. We provided systematic empirical observations
   - → Mandarin *na*-descriptions are felicitous in part-whole bridging
   - → also felicitous in bridging without explicit linguistic antecedents
2. We provided a novel theoretical option
   - → The predictions of existing theories are too strong
   - → Mandarin *na* as a uniqueness-denoting definite marker

References

Clark, Herbert H. 1975. Bridging. In *Theoretical Issues in Natural Language Processing*.

Dayal, Veneeta, & Li Julie Jiang. 2021. The puzzle of anaphoric bare nouns in mandarin: A counterpoint to index! *Linguistic Inquiry* 1–20.

Diessel, Holger. 1999. *Demonstratives: Form, function, and grammaticalization*, volume 42 of *Typological Studies in Language*. Amsterdam: John Benjamins.

Ebert, Karen Heide. 1971a. Referenz, sprechsituation und die bestimmten artikel in einem nordfriesischen dialekt. Doctoral dissertation, Christian-Albrechts-Universität zu Kiel.

Hawkins, John A. 1978. Definiteness and indefiniteness: a study in reference and grammaticality prediction. *London: Croom Helm* .

Himmelmann, Nikolaus P. 1996. Demonstratives in narrative discourse: A taxonomy of universal uses. In *Studies in Anaphora*, ed. Barbara A. Fox, volume 33, 205–254. John Benjamins Publishing.

Jenks, Peter. 2018. Articulated definiteness without articles. *Linguistic Inquiry* 49:501–536.

Schwarz, Florian. 2009. Two types of definites in natural language. Doctoral dissertation, University of Massachusetts Amherst.

Wolter, Lynsey. 2006. That's that: The semantics and pragmatics of demonstrative noun phrases. Doctoral dissertation, University of Calfornia Santa Cruz.

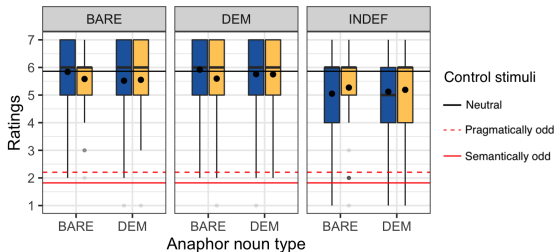# Mandarin Results [n: 120; 18–64; gender-balanced]

Part-whole

(**Main effect:** animacy;

Interaction: animacy x anaphor noun)
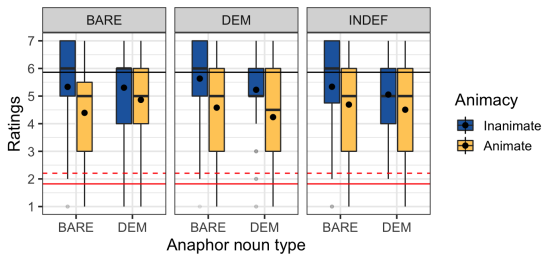
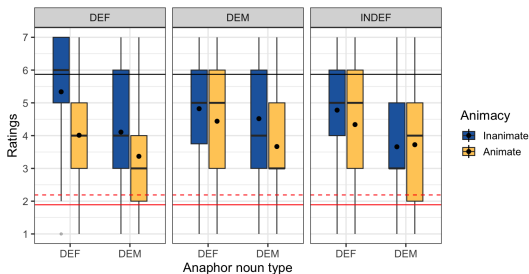Producer-product

(No significance)

English Results [n: 120; 18–64; gender-balanced]

Part-whole

(**Main effect:** animacy, anaphor noun;

Interaction: animacy x anaphor noun;

animacy x antecedent noun)

Producer-product

(**Main effect:** animacy, anaphor noun,

antecedent noun;

Interaction: animacy x anaphor noun;

animacy x antecedent noun)

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