

II - Indexed (= Strong) Definites vs Demonstratives

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The Semantics of (In)Definite DPs, with special focus on West African - Session II
18 June 2024

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Introduction: Indexed (= Strong) DEFs and Demonstratives

Opening Question

Q: How would a language with unique and indexed DEFs express the following sentence in the given context?

- (1) Context: Excited father arriving at his son's school and yelling at the school's secretary:
a. I need to talk to the headmaster!

Similarities between indexed DEFs and Demonstratives

Indexed DEFs and demonstratives (*this*, *that*) seem to have something in common:

- 1 Reference to anaphorically or exophorically accessible individuals is also possible with demonstrative markers.
- 2 In languages without an article system (e.g., Czech, Mandarin), indexed definiteness is often expressed by demonstrative elements.

Similarities between indexed DEFs and Demonstratives

1. Reference to anaphorically or exophorically accessible individuals is also possible with demonstrative markers:

(2) I have bought a dress. **The/That** dress is beautiful.

(3) In der New Yorker Bibliothek gibt es ein Buch über Topinambur. Neulich
 In the New York library exists EXPL a book about topinambur. Recently
 war ich dort und habe **in dem/ in diesem** Buch nach einer Antwort auf die
 was I there and have in the in that book for an answer to the
 Frage gesucht, ob man Topinambur grillen kann.
 question searched whether one topinambur grill can.
 'In the New York public library, there is a book about topinambur. Recently, I was there
 and searched in the book for an answer to the question of whether one can grill
 topinambur.'

Similarities between indexed DEFs and Demonstratives

2. In languages without an article system (e.g., Czech, Mandarin), indexed definiteness is often expressed by demonstrative elements:

(4) Mandarin Narrative Sequence (anaphoric reference) (Jenks 2018:510):

- a. Jiaoshi li zuo-zhe yi ge nansheng he yi ge nüsheng.
 classroom inside sit-PROG one CLF boy and one CLF girl
 'There are a boy and a girl sitting in the classroom.'
- b. Wo zuotian yudao #(na ge) nansheng.
 I yesterday meet that CLF boy
 'I met the boy yesterday.'

Similarities between indexed DEFs and Demonstratives

Q: How to account for the occurrence of DEMs and indexed DEFs in such anaphoric contexts?

DEF-Marking in Mandarin

Jenks (2018): Mandarin DEMs are indexed DEFs

Jenks (2018) proposes an analysis of Mandarin demonstratives as indexed DEF-markers.

Mandarin demonstratives occur in the typical environments licensing strong DEFs according to Schwarz (2009):

- 1 Anaphoric reference in narrative sequences; cf. (4), (5)
- 2 Anaphoric reference in donkey sentences
- 3 with product-producer bridging

Jenks (2018): Mandarin DEMs are indexed DEFs

Mandarin demonstratives occur in the typical environments licensing indexed DEFs according to Schwarz (2009):

1. Anaphoric reference de dicto:

- (5) a. You ge nuren sha le Lisi.
 have CLF woman kill LE Lisi
 'A woman killed Lisi.'
- b. Jingcha huaiyi **na** ge nuren nashihou shou le shang.
 police suspect that CLF woman at.that.moment suffer LE injury
 'Police suspect that the woman suffered an injury.' (Jenks 2018:510)

Jenks (2018): Mandarin DEMs are indexed DEFs

Mandarin demonstratives occur in the typical environments licensing indexed DEFs according to Schwarz (2009):

2. Anaphoric reference in donkey sentences (Cheng & Huang 1996, Jenks 2018:511f.)

- (6) Mei ge [you yi zhi shuiniu de] nongfu dou hui da #(na zhi) shuiniu.
every CLF have one CLF buffalo REL farmer all will hit that CLF buffalo
'Every farmer that has a buffalo hits that buffalo.' (Jenks 2018:512)

Jenks (2018): Mandarin DEMs are indexed DEFs

Mandarin demonstratives occur in the typical environments licensing indexed DEFs according to Schwarz (2009):

3. Product-producer bridging:

- (7) Paul renwei na shou shi hen youmei, jishi ta bu renshi #(na wei)
 Paul think that CLF poem very beautiful although he NEG know that CLF
 shiren.
 poet
 'Paul thinks that poem is very beautiful although he doesn't know of the poet.' (Jenks 2018:508)

Jenks (2018): Bare NPs express uniqueness

Jenks (2018): Mandarin bare NPs are uniqueness DEFs and occur in the following uniqueness contexts (following Schwarz 2009):

- 1 Larger/Global Situation
- 2 Immediate Situation
- 3 part-whole Bridging
- 4 situation-based co-variation

Jenks (2018): Bare NPs express uniqueness

Mandarin bare NPs are uniqueness DEFs:

1. Larger situation DEFs

- (8) a. **Yueliang** sheng shang lai le.
 moon rise up come LE
 'The moon has risen.' (Chen 2004:1165)
- b. (**#Na/#Zhe ge**) Taiwan (de) **zongtong** hen shengqi.
 that/this CLF Taiwan MOD president very angry
 'The president of Taiwan is very angry.' (Jenks 2018:507)

Jenks (2018): Bare NPs express uniqueness

Mandarin bare NPs are uniqueness DEFs:

2. Immediate situation DEFs

- (9) Hufei he-wan-le **tang**.
 Hufei drink-finish-LE soup
 'Hufei finished the soup.' (Jenks 2018:507)

3. Part-Whole Bridging

- (10) Chezi bei jingcha lanjie le yinwei mei you tiezhi zai **paizhao**
 car PASS police intercept LE because NEG have sticker at license.plate
 shang.
 on
 'The car was intercepted by the police because there wasn't a sticker on the license plate.' (Jenks 2018:508)

Jenks (2018): Bare NPs express uniqueness

Mandarin bare NPs are uniqueness DEFs:

4. Situation-based co-variation

- (11) Obama mei dao yi ge chengshi ta dou gen (#zhe wei) shizhang
 Obama every arrive one CLF city he all with this CLF mayor
 ji anmi an.
 meet
 'In every city that Obama visited, he met with the mayor (of that city).' (Jenks 2018:516, based on Schwarz 2009:192)

Summary: DEF-marking in Mandarin

The distribution of zero-marking and DEM-marking in Mandarin mirrors that of weak and strong/indexed forms in Fering and German: Mandarin demonstrative forms are indexed DEF-markers!

| Context | Fering | Mandarin |
|----------------------------|-----------|----------|
| Anaphoric sequences | strong d- | DEM |
| Donkey anaphora | strong d- | DEM |
| Product-Producer | strong d- | DEM |
| Larger situation | weak a | Bare NP |
| Immediate situation | weak a | Bare NP |
| Situation binding | weak a | Bare NP |
| Part-Whole | weak a | Bare NP |

Table: NPs in uniqueness and anaphoric definite contexts

A further constraint: Does DEM mark non-uniqueness?

Dayal & Jiang (2022) observe a further constraint on the distribution of demonstratives in Mandarin Chinese:

DEM-markers do not occur with all instances of anaphoric reference:

(12) Jiaoshi li zuo zhe yi ge nansheng he yi ge nüsheng.
classroom inside sit PROG one CL boy and one CL girl

'A boy and a girl are sitting in the classroom.'

a. **Nüsheng** zuo zai **nansheng** pangbian.
girl sit DUR boy side

'The girl is sitting next to the boy.'

b. Wo zuotian yudao #(na ge) nansheng.
I yesterday meet that CL boy

'I met the boy yesterday.' (D&J 2022:160)

A further constraint: Does DEM mark non-uniqueness?

Dayal & Jiang's Observation

- Bare NPs can be anaphoric if they refer back to the unique NP-referent in a given discourse situation; cf. (12-a):
Uniqueness in s
- DEM NPs are used anaphorically if they occur in sentences that refer to new situations, potentially containing other instances of the NP-kind; cf. (12-b):
Non-uniqueness in s, indexation to salient antecedent

A further constraint: Does DEM mark non-uniqueness?

Dayal & Jiang's Conclusion

Mandarin DEMs are NOT indexed DEFs, but demonstrative markers proper:
They check for non-uniqueness of the NP-referent; cf. also Robinson (2005)

(13) (slightly adapted from D&J 2022:158)

$$a. \quad [[\text{DEM}]] = \lambda s. \lambda P_{\langle s, et \rangle}. \lambda y: \exists s' [s \leq s' \wedge |P(s')| > 1. \iota z [P(s)(z) \wedge z=y]$$

$$b. \quad [[\text{DEF}_{indexed}]] = \lambda s. \lambda P_{\langle s, et \rangle}. \lambda y: |P(s) \cap \lambda x. x=y| = 1. \iota z [P(s)(z) \wedge z=y]$$

DEM-markers have the same denotation as indexed DEFs, thereby accounting for the observable parallels in distribution. They differ in their presuppositional content, though, by only checking for non-uniqueness as opposed to being uniquely pre-mentioned!

Indexed DEF or DEM?

We will come back to a conceptual problem with (13-a) and to the question of what is the correct analysis of demonstrative elements in Mandarin.

For now, let us take a look at Akan (Kwa), the most widely spoken language in Ghana.

DEF-marking in Akan

Akan

- Akan is a Kwa language (Niger-Congo)
- mainly spoken in southern Ghana
- about 10 million native speakers



African Languages Map, Wikipedia (edited).

Akan

The conventional wisdom on Akan DEFs (A&M 2013, Schwarz 2013)

- 1 The Akan DEF-determiner *nɔ* (or *nó*) in (14-a) marks indexed/strong definiteness:
- 2 This is first and foremost shown by the occurrence of DEF-marking in narrative sequences, cf. (15), and
- 3 by its absence on NPs with globally unique reference

Akan

1. The Akan DEF-marker must be used for anaphoric reference:

- (14) a. Kòfí hú-ù ɔtɔmfɔ nɔ
 Kofi see-PST blacksmith DEF
 'Kofi saw the blacksmith.'
- b. Kòfí hú-ù ɔtɔmfɔ
 Kofi see-PST blacksmith
 'Kofi saw a blacksmith.' (Arkoh Matthewson 2013: 11)
- (15) Kofi tɔ-ɔ pɛn. Na pɛn nɔ yɛ fitaa
 Kofi buy-PST pen Na PST DEF COP white
 'Kofi bought a pen. The pen was white.' (Owusu 2022:13)

⇒ ...but recall that the licensing of DEF in anaphoric contexts is inconclusive, as it can be modelled on either analysis of DEF!

Akan

2. The DEF-marker is typically absent with NPs with globally unique reference:

(16) Kofi re-hwɛ ewia.

Kofi PROG-watch sun

'Kofi is looking at the sun.' (Owusu 2022:13)

(17) Armstrɔŋ nyí nyímpá áà ó-dzí-ì kán tu-u kɔ-ɔ ɔsìrán dɔ

Armstrong is person REL 3SG.SUBJ-eat-PST first uproot-PST go-PST moon top

'Armstrong was the first person to fly to the moon.' (Arkoh and Matthewson 2013:2)

Akan

3. *Nó* occurs on NPs with anaphoric reference in contexts that violate uniqueness:

- (18) Búùkùú bí wɔ Swédúr búùkùú kɔ.rábiá hɔ ɔ-fà hemndònúm hu
 book INDEF at Swedru library there REL 3SG.SUBJ-take hemndonum self
 Nànsá yí mɔ-kɔ-ɔ hɔ kɔ-hwɛ-ɛ búùkùú nɔ mù dɛɛ
 three.day this 1SG.SUBJ-go-PST there go-look-PST book DEF in COMP
 mó-hú dɛɛ wó-dzì
 1SG.SUBJ-see COMP 3PL-SUBJ.eat
 'At the Swedru library, there is a (certain) book about the leaf (hy mndònúm).
 Recently I visited there to see if I find in the book that the leaf (hy mndònúm) is
 edible.' (Arkoh & Matthewson 2013:16)

Akan

4. ... and in bishop-sentences, which resemble Donkey-sentences in featuring anaphoric pick-up of a salient indefinite referent from the antecedent clause:

- (19) Se ɔsuányí tsìw sika áà ɔ-kɔ àsuáfɔ à-fufɔr hɔn
 if minister plug money REL 3SG.SUBJ-go ministers PL-new 3PL.POSS
 sɪkàsɛm.hʊ.ntutuí mù dʊ á wɔ-kánfɔ ɔsuányí nʊ yé
 budget in on PART 3PL.SUBJ-praise minister DEF well
 'If a minister cut the budget of other ministers, the minister is well praised.' (Arkoh & Matthewson 2013:17)

⇒ ...again, the licensing of DEF in anaphoric contexts is inconclusive, as it can be modelled on either analysis of DEF!

Akan

5. Moreover, the arguably show up in product-producer licensing (Schwarz 2013)

- (20) Àsáw nɔ yɛ-ɛ ohín nɔ fɛw árá mà ɔ-kyɛ-ɛ ɔkyɛfɛ nɔ
 dance DEF do-PST chief DEF beautiful just COMP 3SG.SUBJ-give-PST trainer DEF
 àdzí
 thing
 'The dance was so beautiful that the chief gave the trainer a gift.' (Arkoh & Matthewson 2013:15)

Schwarz' (2013) Conclusion:

- 1 Akan *nó* is a strong DEF-determiner
- 2 It is licensed iff there is a unique contextually salient individual of the NP-type,
- 3 In which case it refers to this unique contextually salient individual.

Akan

BUT... Schwarz (2013) ignores a few datapoints from A&M (2013)...

- The *nó*-marker is obligatory in larger situation uniqueness contexts, cf. (21). These work exactly the same as contexts of global uniqueness; see also A&M (2013) and Bombi (2018) for discussion.

(21) **Okàsámáfó nó** bε-bá sèèséí árá, éntí yε-n-twɛn kàkrá.
 speaker DEF FUT-come now just so we-IMP-wait little
 'The speaker will arrive soon, so let's wait a little while.' (Amfo 2007:146, as cited in Arkoh & Matthewson 2013:12)

Akan

BUT... Schwarz (2013) ignores a few datapoints from A&M (2013)...

- Moreover, *nó* also seems to show up in part-whole bridging, cf. (23). This is another context featuring uniqueness-based DEFs!

(22) Kwàmi twá-à dùá nũ nhyírén nũ à-mpurũw
 Kwame cut-PST tree DEF flowers DEF PERF-fall.off
 'When Kwame cut the tree the flowers did not fall off.' (Arkoh & Matthewson 2013:15)

nó as a uniqueness-based DEF-marker? Bombi (2018)

The obligatory occurrence of *nó* in contexts typically associated with uniqueness definiteness, and the inconclusive status of DEFs in anaphoric contexts lead Bombi (2018) to analyse *nó* as a uniqueness DEF-marker!

Akan

nó as a uniqueness-based DEF-marker? Bombi (2018)

The uniqueness-DEF analysis receives further support from the fact that *nó* is sometimes licit on NPs referring to globally unique entities, cf. (23):

(23) Context: Afia is sitting on a bus, when a woman she doesn't know sits down beside her. The woman says:

a. Àwìà **nó** ré-bɔ ɛnnɛ.

sun DEF PROG-hit today

'The sun is shining today.' (Bombi 2018:150)

⇒ Notice, though, that the English paraphrase is also good with the demonstrative *that*.
Reference to different sun-instantiations?

Akan

nó as a demonstrative marker? Owusu (2022)

1. Owusu (2022) objects to empirical claims that *nó* is licit on NPs referring to globally unique entities, such as *president*, *sun* etc.; see also (16) and (17) above!

(24) Context: A newscaster in Ghana is talking about the Ghanaian president

a. ɔmanpanin (*nó) be-bleme obi.

president DEF FUT-blame someone

'The president will blame someone.' (Owusu 2022:17)

Akan

nó as a demonstrative marker? Owusu (2022)

2. The following data suggest that *nó* is only licit on globally unique NPs when these are re-interpreted with non-unique reference.

(25) The beginning of a documentary on the solar system ...

- a. Awia (**nó*) yɛ nsoroma.
 sun DEF COP star
 'The sun is a star.' (Owusu 2022:43)

(26) A parent is showing a child a book on the solar system. They open a page with a picture of the sun...

- a. Awia (*nó*) yɛ nsoroma.
 sun DEF COP star
 'The sun is a star.' (Owusu 2022:43)

Akan

nó as a demonstrative marker? Owusu (2022)

3. Finally, Owusu (2022) shows that *nó* is absent from NPs with superlative modification, which have unique reference by their superlative status:

(27) Context: Tour guide giving general information about tourist sites in Ghana:

- a. Bepɔ (#*nó*) a ε-wa paa wɔ Ghana ne Afadjato.
 mountain DEF REL 3SG-tall very be.located Ghana COP Afadjato
 'The tallest mountain in Ghana is Afadjato.' (Owusu 2022:44)

Akan

Nó as a demonstrative?

Owusu (2022): *nó* marks reference to a salient entity and NON-uniqueness, cf. Dayal and Jiang (2022) on Mandarin:

$$(28) \quad [[\textit{nó}]] = \lambda s. \lambda P_{\langle s, et \rangle}. \lambda y: \exists s' [s \leq s' \wedge |P(s')| > 1. \iota z [P(s)(z) \wedge z = y]$$

This accounts for

- 1 the occurrence on non-uniquely-denoting NPs with anaphoric reference
- 2 the absence of *nó* on NPs with globally unique reference, including superlative NPs
- 3 and, possibly, for the occurrence of *nó* in larger situation contexts, **even though it is not clear why these can be uttered out-of-the-blue...**

Akan

However, Owusu's analysis is not without problems either:

Problems for the DEM-analysis

- 1 The superset-condition in (28) makes the non-uniqueness condition effectively vacuous - For most things in the world there will be a super-situation containing more than one individual of the NP-type: ***nó* should be licensed across the board**
- 2 *nó* does not have the same distribution as the proper demonstrative *saa...nó*; cf. (29-ab):

- (29) a. #Abofra ***nó*** nim adeε paa εna abofra ***nó*** abɔn. [Akan]
 child DEF know thing INT CONJ child DEF not.smart
intended: 'This child is smart, and that child is not smart.' (Owusu 2022: 22, ex.28)
- b. ***Saa*** abofra ***nó*** nim adeε paa εna ***saa*** abofra ***nó*** abɔn. [Akan]
 DEM child DEF know thing INT CONJ DEM child DEF not.smart
 'This child is smart, and that child is not smart.' (Owusu 2022: 22, ex.28)

Overview - Analyses of *nó*

| Context | Indexed DEF | Unique DEF | DEM |
|---------------------------------------|----------------|----------------|----------------|
| Anaphoric sequences: <i>nó</i> | okay | okay | okay |
| Donkey anaphora: <i>nó</i> | okay | okay | okay |
| Product-Producer: <i>nó</i> | okay | okay | ?? |
| Global situation: <i>#nó</i> | okay | problem | okay |
| Larger situation: <i>nó</i> | problem | okay | ?? |
| Immediate situation: <i>nó</i> | okay | okay | okay |
| Situation binding: <i>?nó</i> | ?? | ?? | ?? |
| Part-Whole: (<i>nó</i>) | problem | okay | problem |
| No parallel with DEM | okay | okay | problem |

Table: Predictive power of *nó*-analyses

⇒ The most popular analysis of Akan *nó* as an indexed DEF-marker fares worst with respect to the empirical diagnostics!

Overview - Analyses of *nó*

Back to the uniqueness analysis, Bombi (2018)

- The only problem for Bombi's (2018) of *nó* as a uniqueness DEF-marker is its restricted or illicit occurrence on NPs with globally unique lexical reference (*sun, moon, president*) and with superlatives.
- The incompatibility with lexically unique NPs could be accounted for if the relevant NPs are directly-denoting proper names, or quasi-proper names of type $\langle e \rangle$!
- Akan *nó* is illicit with proper names.
- This leaves the absence of *nó* on superlatives as a potential problem.

⇒ So the uniqueness analysis is still a serious contender on the market - at least it does not fare worse than the others...

Conclusion Akan *nó*

- Schwarz's (2013) cross-linguistic overview of DEF-marking leaves out some problematic data for the indexed DEF-analysis of Akan *nó*
- Owusu's (2022) analysis of *nó* as a demonstrative marker suffers from conceptual problems and from the fact that *nó* differs from other DEM-markers in the language - this could be fixed, however.
- The unique DEF-analysis accounts for all of the data (on the assumption that globally uniquely referring NPs are proper names in Akan), except for the superlative data ...

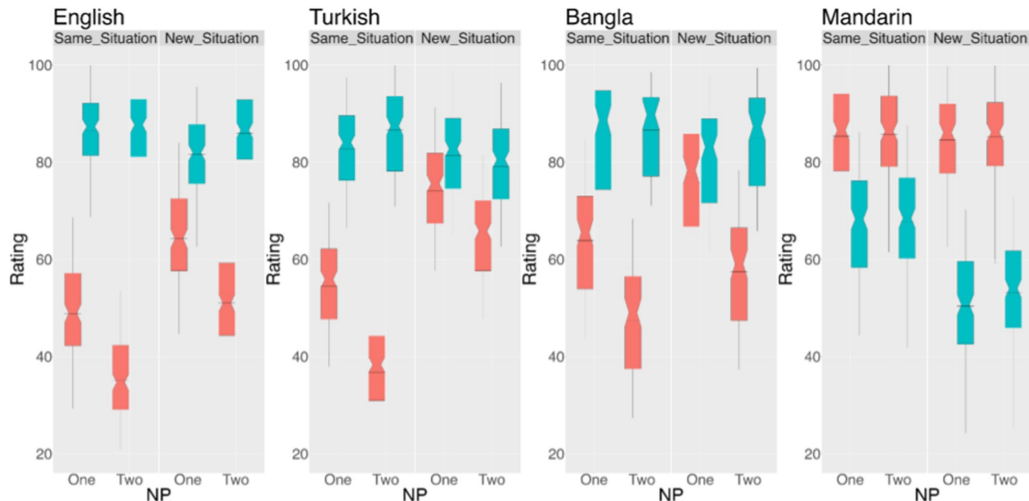
⇒ **Work in progress by Carla Bombi...**

More on Mandarin DEM (Saha et al. 2024)

More on Mandarin DEM, Saha et al. (2024)

- Saha et al. (2024) present surprising results of a recent experiment of the anaphoric potential of Mandarin DEM-markers, when compared to DEM-markers in English, Turkish and Bangla.
- **2x2-design: situation (same vs. new) vs number of NPs (one vs. two):**
 - (30) [OneNP A boy]/ [TwoNP A boy and a girl] entered the classroom.
 - a. The/That boy sat down in the front row. (Same Situation)
 - b. I had noticed the/ that boy at a coffee shop yesterday. (New Situation)
- The results show that Mandarin DEM-markers do not behave like their counterparts in the three other languages, but rather like indexed DEF-markers, **as proposed by Jenks (2018)**

More on Mandarin DEM, Saha et al. (2024)



Conclusion/Outlook

Conclusion

- Jenks (2018) analysed Mandarin DEM-markers as indexed DEFs
- Dayal & Jiang (2022) propose a different analysis of Mandarin DEMs in terms of non-uniqueness and indexed reference
- Owusu (2022) extends this analysis to the Akan DEF-marker *nó*, which is often analysed in terms of indexed definiteness (Schwarz 2013, A&M 2013)
- Akan *nó* differs from proper demonstratives
- An analysis of *nó* as a uniqueness DEF also gives a good coverage of the available data, and seems to fare better than the analysis as an indexed DEF proposed by Schwarz (2013)
- Mandarin demonstrative markers behave like indexed DEFs in experimental settings (Saha et al. 2024)

Indexed DEFs \neq proper Demonstratives!
although they have some meaning component(s) in common

Homework Assignment

i. Please analyse the following two sentences on a Schwarzian analysis involving a unique and indexed DEF-marker, respectively:

(31) Context: At a linguistic conference:

a. **The plenary speaker has arrived.**

(32) We invited a plenary speaker, and **the plenary speaker was excellent.**

ii. Why would the strong DEF-marker in Austro-Bavarian be ruled out in the superlative example (33), cf. Wiltschko (2012)?

(33) da/ #dea hecste Beag
 the_{uniq} the_{indexed} highest mountain
 the highest mountain

iii. Are DEMs compatible with superlatives?

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