Reference makers in discourse

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The Determinacy Scale:
A competition mechanism for anaphoric expressions

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Definite expressions

PRONOUNS	DEFINITES	DEMONSTRATIVES
flexible	unique	rigid
bound	familiar	anti-unique

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Interchangeable:

(1) I met a linguist. {She / The linguist / That linguist} looked happy.

But with notable differences:

(2) a. Every girl$_i$ thinks Mary likes her$_i$.
b. #Every girl$_i$ thinks Mary likes the girl$_i$.

(3) a. Every time I visit Seoul, I talk to the mayor.
b. Every time I visit Seoul, I talk to that mayor.

(4) a. The author of *The Vegetarian* came to give a talk.
b. #That author of *The Vegetarian* came to give a talk.

Definite expressions

PRONOUNS	DEFINITES	DEMONSTRATIVES
flexible	unique	rigid
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- Different mechanisms assumed:

(5) $[\![\text{she}_i]\!]^g$ = g(i), if g(i) is female

(6) $[\![\text{the linguist}]\!] = \iota x.\ \text{linguist}(x)$

(7) $[\![\text{that linguist}_{\rightarrow}]\!]$ =

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Shared building blocks:

- uniqueness
- familiarity
- existence
- content

Definite expressions

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Shared building blocks, different mechanisms:

	$[\![\text{she}_i]\!]^g$	[[the linguist]]	$[\![\text{that linguist}_{\rightarrow}]\!]$
uniqueness	g(i)	ι	$\rightarrow$
familiarity	g(i)	(g(i))	$\rightarrow$
existence	g(i)	ι	$\rightarrow$
content	ϕ presupposed	NP	NP + $\rightarrow$

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Alternatives:

- PRONOUNS as (elided) DEF [Bi and Jenks 2019; Elbourne 2005; Heim 1990; Neale 1988]
- PRONOUNS as short DEF [von Heusinger 2002; Postal 1966; Royer 2022; Schlenker 2005]
- DEM as marked DEF [Dayal and Jiang 2021; Elbourne 2008; King 2001; Wolter 2006]
- DEF carrying indices like PRONOUNS [Heim 1983; Schwarz 2009]
- PRONOUNS, DEF, DEM with uniform structure [Elbourne 2008; Roberts 2003]

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This talk: A variant of the uniform view

This talk

Part 1

ϕ of PRO and NP of DEF make the same contribution

- ϕ of pronouns and NP of a definite show parallel properties:
  - can be bound or free
  - backgrounded in referential uses
  - can be at-issue/asserted under QUD focus

	⟦she⟧	⟦the linguist⟧
uniqueness familiarity existence	one underlying mechanism; RM	
content	ϕ	NP restriction

This talk

Part 2

Closer look at the `RM`

- 2-dimensional: separation of CONTENT and REFERENCE domains
- Sentence subject to C-QUD and R-QUD
- Choice of label has implications on content of R-QUD
  which derives pragmatic effects
- differences due to stress and focus

This talk

Part 3

DEM adds another layer

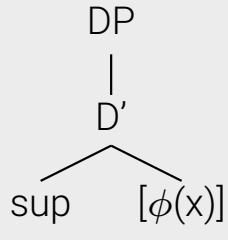
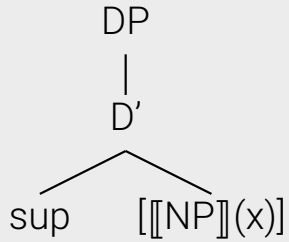
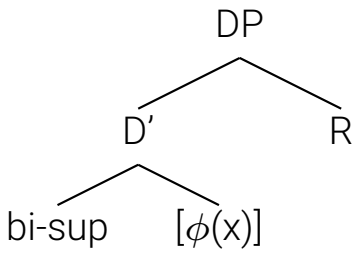
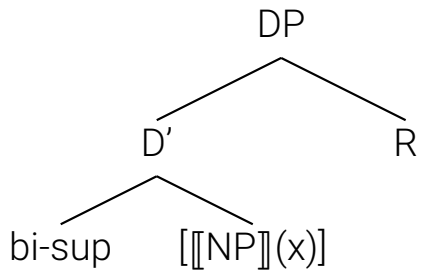
- A binary RM combining two kinds of restrictions: descriptive vs. iconic

	ϕ**(x)**	⟦**NP**⟧**(x)**
[unary]	ϕ	⟦NP⟧
	it	*the book*
[binary]	$\phi + \mathrm{R}$	⟦NP⟧ + R
	that	*that book*

- Same RM mechanism but with more tendency to answer R-QUD

pronouns

DEF vs. PRONOUNS

	ϕ**(x)**	⟦**NP**⟧**(x)**
[unary]		
	it	*the book*
[binary]		
	that	*that book*

1. **Distinction is not clear**
2. **Semantic contribution is the same**

1. Distinction is not clear

What are pronouns?

(focusing on 3rd person pronouns) English: *she, he, they, it, ...*

- But in other languages:

  → Distinction is not so clear [Himmelmann 1996]

  → Many languages lack 3rd person pronouns [Ahn 2019]

  - Korean and Japanese lack 3rd person pronouns
  - Mandarin 3rd person pronoun is not fully productive [Sun 2006]
  - Hindi uses demonstratives for 3rd person

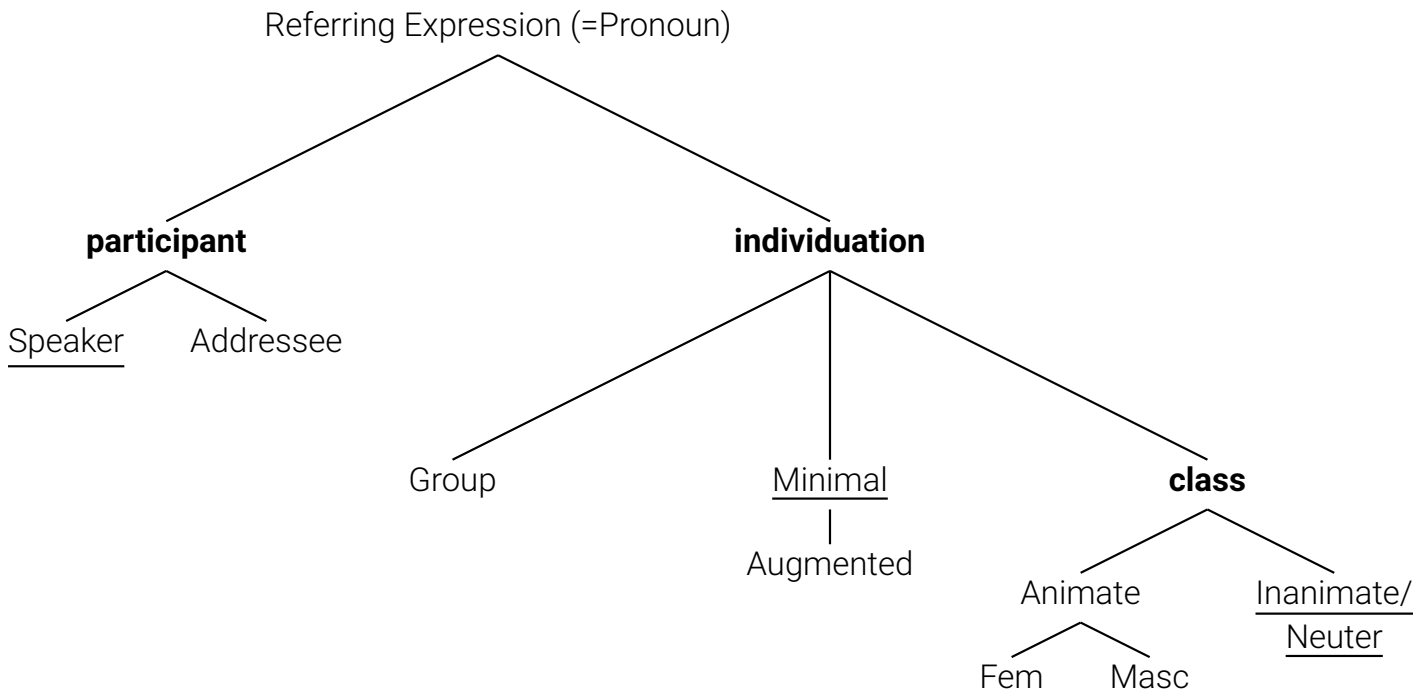
3rd person pronouns

Pronouns are traditionally assumed to be universal across languages (Greenberg 1963), *but:*

- 3rd person pronouns differ fundamentally from 1st and 2nd person pronouns in that they are more restricted [Harley and Ritter 2002, a.o.]
- Forchheimer (2014):
  - many languages have no 3rd person pronoun and use demonstratives instead
  - unlike 1st and 2nd person, 3rd person is much more subject to objective subdivisions such as class, gender, and location
- Harley and Ritter (2002): Morphological geometry of features
  - 1st and 2nd person: **participant**
  - 3rd person: **individuation**

Lacking pronouns

A morphosyntactic feature geometry [Harley and Ritter 2002:p.487]



- languages can lack either the **participant** or the **individuation** node
  - The lack of distinct 3rd person pronoun: lacking the individuation node

Pronouns as featural definites

Universal Feature Hierarchy [Noyer 1992]

person > number > gender > class

Pronouns as featural definites

Universal Feature Hierarchy [Noyer 1992]

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What is a pronoun?

a featural definite that relies on primitive features

- primitive features: [Harley and Ritter 2002]
  - in phonology: physical properties [±sonorant], etc.
  - in morphology: cognitive properties person/number/gender/animacy
- class features: intermediate between primitive features vs. lexical items
- definite description: relies on the lexical item NP

‘Pronouns’ of other languages: featural definites

1. Relying on NPs

[Korean, Vietnamese]

(8) a. kyay (ku-ay: that-**kid**)
b. anh ay (**older.brother** DEM)

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2. Arbitrary noun classes

[Bantu languages]

(9) ɲɛ́ (pron.cl1); yɔ́ (pron.cl9)

	Basaá pron	Tunen pron
1sg	*mɛ̀*	*mìàŋó*
2sg	*wɛ̀*	*àŋó*
1pl	*ɓěs*	*b^{w}ə̀sú*
2pl	*ɓee*	*b^{w}ə̀nú*
cl. 1	*ɲé*	*wéy*
cl. 2	*ɓɔ́*	*b^{w}ə̀bú*
cl. 3	*wɔ́*	*múit*
cl. 4	*ŋwɔ́*	*mít*
cl. 5	*jɔ́*	*nét*
cl. 6	*mɔ́*	*mát*
cl. 7	*yɔ́*	*yét*
cl. 8	*gwɔ́*	*bét*
cl. 9	*yɔ́*	*mɛ́t*
cl. 10	*yɔ́*	*mít*
cl. 13	*cɔ́*	*túɛ́t*
cl. 14		*búɛ́t*
cl. 19	*hyɔ́*	*hít*

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3. Primitive features

[Thai, (Kazakh, Hindi)]

- Thai: *kăo* (animate) vs. *man* (inanimate)
- Kazakh and Hindi:

(10) a. *ol* (animate); NP for inanimate
b. *vo* (animate); NP for inanimate

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Pronouns as featural definites

Definite descriptions to pronouns forms a gradient scale:

[use of open class NPs] → [noun classes] → [closed-class features]

Distinction between a pronoun and a definite description is not so clear in terms of their morphosyntax.

(11) Korean

a. kyay (ku-ay: 'that child'): makes use of a noun
b. ku-pwun ('that CL_{hon}'): doesn't make use of a noun
Is this a pronoun?

Pronouns develop from demonstrative descriptions [Himmelmann 1996].

2. Semantic contribution is the same

Pronouns and definites in English have similar semantic contributions

- Obvious in intersentential, free uses:

(12) I met a linguist. {She / The linguist} looked happy.

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Pronouns and definites in English have similar semantic contributions

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  (12) I met a linguist. {She / The linguist} looked happy.

- What about bound uses?

  (13) a. Every girl$_i$ likes her$_i$ hat. ok
  b. Every girl$_i$ likes the girl$_i$'s hat. ?

Closer look

In order to detect ϕ = NP, we need to separate entity* and descriptive uses.

- Pronouns often discussed for their entity uses
- DEF often discussed for their descriptive uses

entity uses *('referential')	**descriptive uses**
not asserted, projected, not-at-issue	asserted, accommodated, at-issue

Upon closer look, we see that:

- When given, NP is backgrounded just like ϕ
- When new/at-issue, ϕ can also be asserted

ϕ vs. NP: entity uses

Backgrounded nature of ϕ [Sudo 2012]

1. Not straightforwardly rejectable

(14) a. She is drinking coffee.
b. Every kid drank her coffee. No that's not true

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2. Not negated by exhaustive operators

(15) Exactly one student criticized herself.

- means:
  - Only one student criticized herself
  - That student is female
  - No one else (female or not) criticized self

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3. Projects out of disjunction (even when the other disjunct entails it)

   (16) #Either Jin is really a boy, or {he, she} hangs out with boys. [Yanovich 2010]

ϕ vs. NP: entity uses

Backgrounded nature of NP in referential DEF

1. Not straightforwardly rejectable

(17) a. The linguist is drinking coffee.
b. Every linguist drank the coffee that I made for the linguist.

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(18) (Did anyone from the conference complain about the poster dimension?)
Only one student complained that the poster dimensions provided by the conference didn't fit the student's printer.

- means:
  - Only one entity complained about their printer
  - That entity is student
  - No one else (student or not) complained

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3. Projects out of disjunction (even when the other disjunct entails it)

   (19) #Either Jin is really a linguist, or {the linguist, the astronomer} is smart.

ϕ vs. NP: descriptive uses

Restrictive uses of NP

(20) I saw two students yesterday. The linguistics major was talking to the psychology major.

(21) In a QP defense, the student presents and the advisor asks questions.

ϕ vs. NP: descriptive uses

Restrictive uses of NP

(20) I saw two students yesterday. The linguistics major was talking to the psychology major.

(21) In a QP defense, the student presents and the advisor asks questions.

Restrictive uses of ϕ ('associative anaphora', 'bridging')

(22) I saw a couple yesterday. HE was holding a bus ticket and SHE was holding a plane ticket. [Himmelmann 1996]

(23) In every 1960s marriage it was understood that he should take out the garbage and she should wash the dishes. [Roberts 2023 LSA]

ϕ vs. NP: descriptive uses

Another place where ϕ is asserted

(24) a. Ambassador Wyler was on the news. Do you know her personally?
b. I don't know HER personally, because this Ambassador Wyler you're talking about is Hal, not Kate.

- Similar examples described in terms of local accommodation of ϕ-presupposition

(25) Rafael did not stop using Mac, because he never owned a Mac.
a. Rafael did not [previously own a Mac $\wedge$ stop using Mac], because ...

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a. Rafael did not [previously own a Mac $\wedge$ stop using Mac], because ...

Similar pattern for NP

(26) I don't know the LINGUIST personally, because she is an astronomer.

*Note: prosodic marking is necessary; possibly metalinguistic

ϕ vs. NP summary

ϕ and NP show same interpretative properties:

1. **in entity uses:** not asserted, projected, not-at-issue
2. **in descriptive uses:** asserted, at-issue

Implication

ϕ in a pronoun and an NP in a definite description are fed into the same mechanism in unary uses.

[closed-class features] → [noun classes] → [open class NPs]

unary	⟦she⟧	⟦the linguist⟧
uniqueness familiarity existence	one underlying mechanism; RM	
content	ϕ	NP restriction

What is `RM`? The underlying mechanism

What is RM?

unary	⟦she⟧	⟦the linguist⟧
uniqueness familiarity existence	one underlying mechanism; RM	
content	ϕ	NP restriction

We need something that...

- takes ϕ and NP information
- requires that the entity has those properties
- returns that entity to be an argument for predicates
- allows {ϕ, NP} information to be backgrounded or asserted

What is the underlying mechanism?

Many options:

- ι with restrictions [Ahn 2019, also von Heusinger 2002; Postal 1966, a.o.]

(27) a. $\iota x.\phi(x)$
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Uniqueness might be too strong.

(28) When a bishop meets a bishop, he blesses him.

- Even in the minimal situation, there is no unique male entity
- Note that this is an issue for definites as well:

(29) When a bishop meets a bishop, the guy blesses the guy.

What is the underlying mechanism?

Many options:

- (anaphoric) presupposition [Sudo 2012]

(30) a. $[\![\text{She is happy}]\!]_A$ = happy(x)
b. $[\![\text{She is happy}]\!]_P$ = female(x)

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- accounts for behavior under exhaustive operators

(31) Only one student criticized herself.

a. Only one student criticized Jin. She was aggressive.

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- accounts for behavior under exhaustive operators

(31) Only one student criticized herself.

a. Only one student criticized Jin. She was aggressive.

- valuation from context [Bassi 2021]

(32) [[She is happy]]=

a. at syntax: $[_{1:[]}x]$ is happy
b. at PF: $[_{1:sg,fem}x]$ is happy

What is the underlying mechanism?

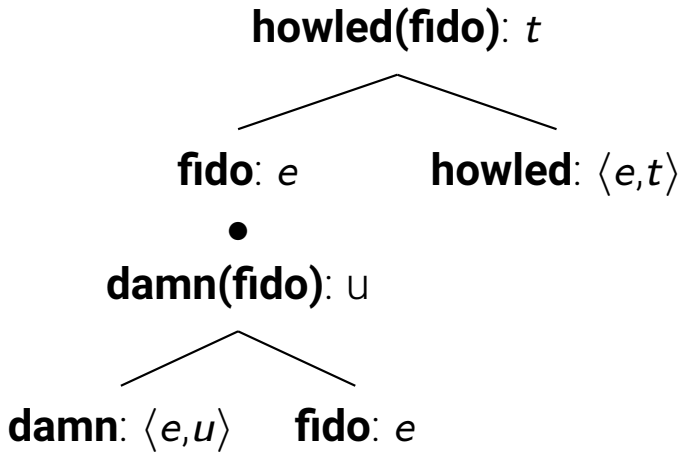
Many options:

- use-conditional, not-at-issue content [Gutzmann and McCready 2014]

(33) a. $[\![\text{She is happy}]\!]^{TC}$ = happy(x)
b. $[\![\text{She is happy}]\!]^{UC}$ = female(x)

(34) This damn dog howled the whole night. [Gutzmann 2012: p4]

a. $(34)^{t}$ = {w: the dog howled in w}
b. $(34)^{u}$ = {c: cS feels negatively about the dog in c_w}
c. <howled(fido), {damn (fido)}>



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- Used to derive not-at-issue content
  - expressives
  - supplements
  - honorifics

But ϕ and NP can address questions

- Supplements cannot be used to answer questions:

(36) Where does your grandmother live?
a. #My grandmother, who lives in Seoul, is celebrating her birthday.

- ϕ and NP can:

(37) Who helped Jin?
a. {SHE / The LINGUIST} helped Jin.

2-dimensional semantics

Proposal 1: 2-dimensional semantics separating **CONTENT** vs. **REFERENCE**

- In addition to 2-dimensional semantics proposed for:
  - asserted content and presupposed content
  - truth-conditional content and use-conditional content
- Tapping into a distinction of content and reference:

> Stalnaker 1977: two ways a world (situation) variable is used when a sentence is uttered. Situation variables associated with the main predicate determine the truth value of the proposition, while situation variables associated with nominal constituents fix the reference of referential expressions to establish what proposition has been uttered.

> Chierchia 2020: predicates introduce discourse referents, and the mapping of them to familiar entities is separated from introduction of discourse referents

Analysis

2-dimensions of a sentence

1. CONTENT-related domain: determines truth of the predicate given entities (in variables or thematic roles) [like Bassi 2021]

   (38) $[\![\text{The linguist}_7 \text{ helped her}_8.]\!]^{\text{CONT}}$

   a. 1 iff g(7) helped g(8)
   b. 1 iff $\exists e.\text{help}(e) \wedge \text{agent}(e) = 7 \wedge \text{beneficiary}(e) = 8$

2. REFERENCE-related domain: takes care of the labels (speaker-oriented)

   (39) a. $[\![\text{the linguist}]\!]^R$ = linguist(g(7)) / linguist(agent(e))
   b. $[\![\text{her}]\!]^R$ = female(g(8)) / female(agent(e))

- The reference domain is not set to presupposition or use-condition
- Instead, C and R are just two dimensions of a sentence.

Analysis (cont.)

Why do we want C and R to have equal statuses? **QUD sensitivity**

- Every sentence is assumed to answer some question (Question Under Discussion; Roberts 1996)
- Observation: Either C or R can be at-issue depending on the QUD:

(40) What did the linguist do to the philosopher?

a. The linguist HELPED her.

(41) Who helped her?

a. The LINGUIST helped her.

Analysis (cont.)

Proposal 2: Each sentence answers two questions:

a. C-QUD: What happened between the entities {d_1, d_2, ...}?

b. R-QUD: Who did that?

Implications:

- Questions are analyzed as partitions based on possible answers:

  (42) ⟦What did Jin eat?⟧ = {Jin ate **Jin Ramen**, Jin ate **tuna sushi**, ...}

- The R-QUD reflects partitions based on the label the speaker chooses:

  (43) ⟦Who helped her?⟧ = ⟦Which (out of r_1, r_2, ...) holds of x?⟧

  a. ⟦her?⟧ = {female(x), male(x),...}

  b. ⟦the linguist?⟧ = {linguist(x), philosopher(x),...}

Analysis (cont.)

...can be extended to other kinds of labels

(44) *the idiot*: R-QUD partitioned based on attitude

a. ⟦the idiot?⟧ = {positive(x), negative(x)}

positive	negative

(45) *anh ay* in Vietnamese: R-QUD partitioned based on kinship

a. ⟦anh ay?⟧ =

brother	sister	aunt	niece	...

(46) *ku-pwun*: r-QUD partitioned based on status
(honorific pronoun in Korean)

a. ⟦ku-pwun?⟧ = {high(x), low(x)}

high	low

Deriving the UC inference

UC inference derived indirectly through R-QUD

- R-QUD is derived from speaker's choice of label

(47) a. 'she': [Which one, {female, male} was the agent?]
b. 'the idiot': [Which one, {positive, negative} was the agent?]

- R-QUD is thus speaker-oriented: shows how the speaker is partitioning the set of referents in the conversation
- When backgrounded, R-QUD contributes a projected inference that the speaker thinks the referent is {female, linguist, idiotic, high in status, etc.}

Derives:

- UC-inference of honorificity with honorific labels
- UC-inference of expressives and epithets
- uniformly treats ϕ and NP as speaker-oriented labels (misdescription cases)

Analysis (cont.)

When R-QUD is foregrounded, the label is at-issue (along with content?)

(48) a. The LINGUIST helped her.
   (i) CONT: $\exists e.\text{help}(e) \wedge \text{agent}(e) = 8 \wedge ...$
   (ii) REF: linguist(8)

- R-QUD foregrounded: Which one, {linguist, philosopher} did that?
  - *the NP* focuses NP; results in non-NP alternatives [Ahn 2019; Saha et al. 2023]
  - generalizing to all labels

(49) HE was holding a bus ticket

a. $[\![(49)]\!]^{\text{CONT}} = \exists e.\text{hold}(e) \wedge \text{agent}(e) = 7 \wedge \exists y.\text{bus-ticket}(y) \wedge ...$

b. $[\![(49)]\!]^{\text{REF}} = \text{male}(7)$

Signaling R-QUD

One can signal the use of R-QUD-foregrounding labels in the discourse by introducing the labels.

- These would allow arbitrary partitions of referents

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- These would allow arbitrary partitions of referents

[Ahn, Kocab, Davidson, in review]

(50) I saw this poet, who was from Pennsylvania, and this linguist, who was from New York, at the conference last night. **My fellow Pennsylvanian** greeted me kindly, but **the New Yorker** seemed upset about something.

a.

from PA	from NY

(51) I saw this poet, who I will call A, and this linguist, who I will call B, at the conference last night. **A** greeted me kindly, but **B** seemed upset about something.

a.

A	B

ASL loci as introducing R-QUD partitions

ASL loci

[Ahn, Kocab, Davidson, in review]:

IX_A in referential expressions are spatial modifiers used like labels

(52) a. SOL IX_A JIN IX_B SIT CLASS.
b. IX_A DANCE.

(53) a. $[\![IX_{LOC}]\!] = \lambda o.\lambda x.R(x, o)$
b. $[\![IX_A]\!] = [\![IX_{LOC}]\!](A) = [\lambda o.\ \lambda x.\ R(x,o)](a) = \lambda x.\ R(x,a)$
'associated with location a' (where a is the location represented by A)

- In using loci, the signer introduces arbitrary partition for the R-QUD
  Which one, {A, B} danced?

- Related works:
  - Joyce 2019: Loci use imply contrast
  - Schlenker et al. 2013: Sign languages make indices overt
    → **Sign languages make labels overt**

Analysis - summary

Main ideas:

- Sentences carry CONTENT and REFERENCE meanings
- They correspond to C-QUD and R-QUD, respectively
- When R-QUD is backgrounded, ϕ and NP are not-at-issue, given, projected
  When R-QUD is foregrounded, ϕ and NP are asserted and contrasted
- Partitions can be introduced in discourse quite freely
- Analysis can extend to other labels including epithets, honorifics, names, quasi-names, nicknames, etc.

Implications

Implications:

1. All labels are speaker-oriented. REFERENCE domain only contributes information about how the speaker is partitioning their reference space, which then have implications on the R-QUD.

- **uniqueness as an epiphenomenon.**
  - R-QUD backgrounded: subsumed under anaphora

    (54) Everyone who bought a sage plant bought 8 others with {it / the s.p.}.
    a. C-QUD: What did they buy along with x_7?

  - R-QUD foregrounded: contrast and alternatives

    (55) The LINGUIST helped.
    a. alternatives: {linguist, philosopher, astronomer, ...}

Implications

2. Deriving difference from QUD-sensitivity.

Why do pronouns and definites differ in their distribution/meaning?

- Pronouns tend to be unstressed
  $\rightarrow$ C-QUD foregrounded.

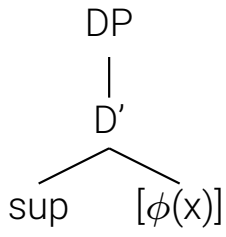
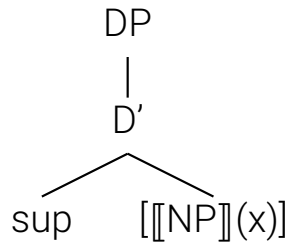
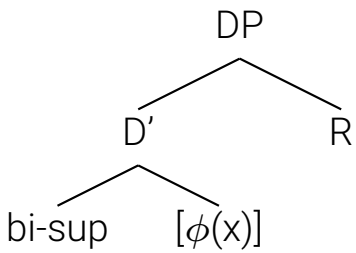
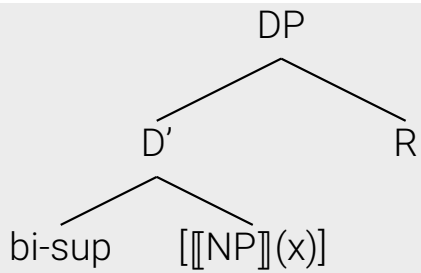
(56) Only Mary$_F$ did her homework.

a. Possible R-QUDs:
   (i) Who did her$_7$ homework?
   (ii) Who$_i$ did their$_i$ homework?

b. Impossible R-QUD:
   (i) Whose homework did Mary do? (*Q-A Congruence)

demonstratives

Demonstratives

	ϕ**(x)**	⟦**NP**⟧**(x)**
[unary]		
	it	*the book*
[binary]		
	that	*that book*

Demonstratives

Demonstrative description *that F*

- deictic uses: contains a **linker** to an actual world entity

  (57) that linguist$_{\rightarrow}$

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Demonstrative description *that F*

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  (57) that linguist$_{\rightarrow}$

- linker replaced with something else

  (58) that linguist behind the door

  (59) that hero who kills the dragon [Wolter 2006]

  (60) Sol that linguist [possible in Mandarin, Korean; Yu 2023]

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  (60) Sol that linguist [possible in Mandarin, Korean; Yu 2023]

- linker covert; anaphoric

  (61) I met a linguist$_i$. That linguist$_i$ looked happy.

Demonstratives as binary definites

Demonstratives carry something else

- Wolter 2003: 'the referent of the definite description is determined on the basis of its descriptive content alone, while the referent of a demonstrative description is not.' (p.20)
- Ebert 2017: for demonstratives, both gesture and description are at-issue
- Demonstratives carry an additional restriction
  [King 2001, Wolter 2003, Elbourne 2005, Nowak 2019, a.o.]:

(62) $[\![\text{the F}]\!] = \iota x.\ F(x)$

(63) $[\![\text{that F}]\!] = \iota x.\ F(x) \wedge G(x)$

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[Q] What is this additional element?
[A] Deixis! a linker to the actual world

Demonstratives and linkers

Demonstratives carry a linker to the actual world

Not just the regular context-dependence, but...

- ‘clearly inbuilt contextual variables’ [Levinson 2004]
- a demonstration [Roberts 2002]
- something that is fixed to context rigidly [Kaplan 1989]

(64) If I visit Korea next year, I will talk to that guy[→ ].

Demonstratives as modality linkers

Demonstratives carry a linker to the actual world

Deictic information becomes **restrictive** and **at-issue** [Ebert 2019; Ebert et al. 2020]

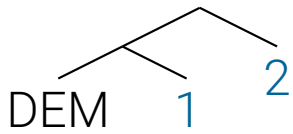
(65) a. #[The computer]$_{\rightarrow A}$ is new, but [the computer]$_{\rightarrow B}$ is old.
b. [That computer]$_{\rightarrow A}$ is new, but [that computer]$_{\rightarrow B}$ is old.

Same with depictions

(66) QUD: I have two tables, one rectangular and one circular.
Which table did you see?
a. #I saw the[circle] table, but not the[rectangular] table.
b. I saw this[circle] table, but not this[rectangular] table.

Implementation

Demonstrative as an operator linking description and linker [Ahn 2022]



- 1: the description: NP, ϕ-features
- 2: content from actual world (pointing, gesture, etc.)

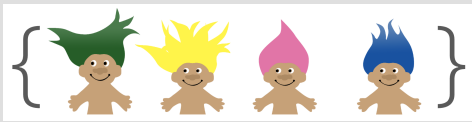
Why separate the two?

- Gestural information often does not enter at-issue, restrictive content
  [Ebert et al. 2020; Esipova 2018, 2019; Schlenker 2015; Zlogar and Davidson 2018]
- General restriction against freely combining descriptive content with iconic content [Davidson 2023]

Demonstratives as modality linkers

Description vs. depiction

[Davidson 2023]

description	**depiction**
partitioning of possible worlds ⟦troll⟧ = {x|x is a troll} 	about a particular event or referent 'I found a troll$_{[\text{pointy-hair-gesture}]}$.' 

Demonstratives as modality linkers

Description vs. depiction [Davidson 2023]

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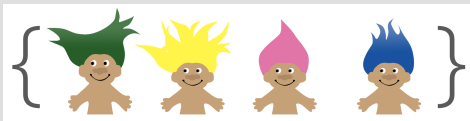
partitioning of possible worlds ⟦troll⟧ = {x|x is a troll} 	about a particular event or referent 'I found a troll$_{[\text{pointy-hair-gesture}]}$.' 

restrictions on depiction

- Depictive content is incompatible with partitioning semantics:

(67) I didn't see trolls.

(68) ?I didn't see trolls$_{[\text{pointy-hair-gesture}]}$. [related work: Zlogar and Davidson 2018]

Demonstratives as modality linkers

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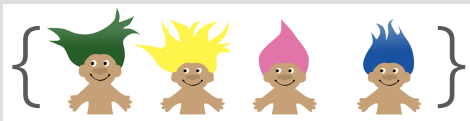
partitioning of possible worlds ⟦troll⟧ = {x|x is a troll} 	about a particular event or referent 'I found a troll$_{[\text{pointy-hair-gesture}]}$.' 

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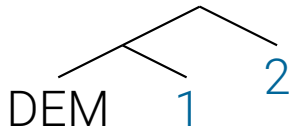
compare with a descriptive/linguistic modifier:

(69) I didn't see trolls with a pointy hair.

Demonstratives as modality linkers

Demonstrative as an operator linking description and linker



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Demonstratives as modality linkers

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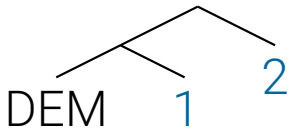


- 1: the description: NP, ϕ-features
- 2: content from actual world (pointing, gesture, etc.)

$\rightarrow$ allows depictive content to compose with the descriptive content:

(70) ?I didn't see trolls$_{[\text{pointy-hair-gesture}]}$

(71) I didn't see trolls like this$_{[\text{pointy-hair-gesture}]}$.

(72) I didn't see these$_{[\text{pointy-hair-gesture}]}$ trolls.

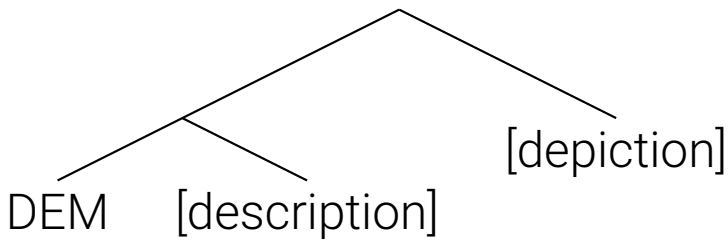
Demonstratives as modality linkers

ONLY demonstratives link description with depiction

Unique Modality Hypothesis (Ahn 2022): Semantic composition across modalities banned without a lexical operator

*modality: not spoken vs. signed; but descriptive vs. depictive

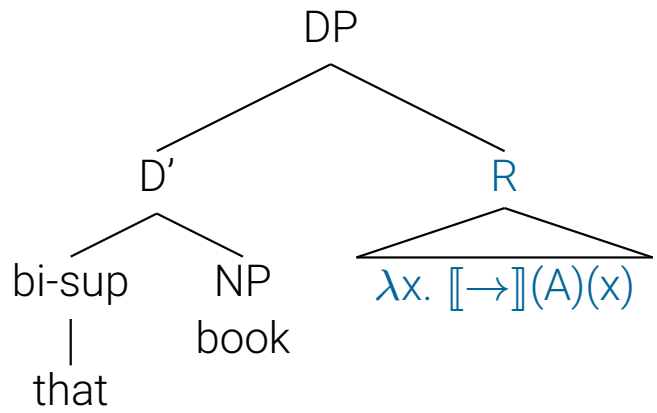
- DEM: lexical operator



(73) $[\![\text{bi-sup}]\!] = \lambda P.\ \lambda R_{\gamma}.\ \iota x{:}\forall y\ [P(y) \wedge R_{\gamma}(y) \leftrightarrow y \sqsubseteq x]$

Deictic use

⟦that book$_{\rightarrow A}$⟧ =



bi-sup [λx. entity(x) ∧ ⟦book⟧(x)] [λx. ⟦→⟧(A)(x)]

- ⟦→⟧ = λy. λx. R_1(x,y)
  - *y*: location (demonstratum)
  - R_1: free variable over relations between *x* and *y* (identical to, looks like, located in, sounds like, ...)

‘the maximal entity *x* that is a book and is located at A’

*[Ahn 2022] Rigidity as an epiphenomenon (***A*** fixed in the utterance context)

Non-deictic uses

What about non-deictic, non-depictive uses of demonstratives?

- R still picks out a particular

(74) that linguist behind the door — y=location

(75) that hero who kills the dragon — $y=\iota x.\text{k-t-d}(x)$

(76) Sol that linguist — y=Sol

$$[\![\rightarrow]\!] = \lambda y.\lambda x.R_1(x,y)$$

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Treating non-deictic demonstratives as still requiring a particular-selecting *R*

- DEM: two pieces of information needed to resolve the referent

DESCRIPTION + **DEPICTION**

- DEPICTION can be replaced with words, if particular-selecting

DESCRIPTION + $_{\text{DESCRIPTION-OF}}$**DEPICTION**

Kind-denoting demonstratives

Demonstratives can take **particular-selecting** rigid, iconic information and incorporate it into **kind-denoting** descriptions.

(77) That dolphin$_{\rightarrow}$ will be extinct soon.

a. pointing to: 

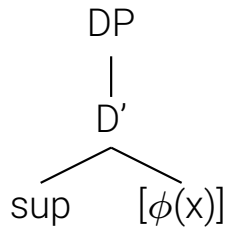
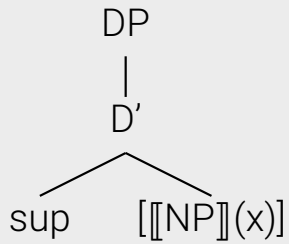
b. referring to: `Southern Resident Orcas`

(78) These computers$_{[big]}$ evolved into these computers$_{[flat]}$.

a. content: big vs. flat shapes

b. referring to: big computer kinds and flat computer kinds

Interim summary: DEM vs. DEF

	ϕ(x)	⟦NP⟧(x)
[unary]		
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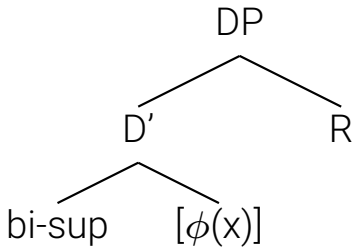
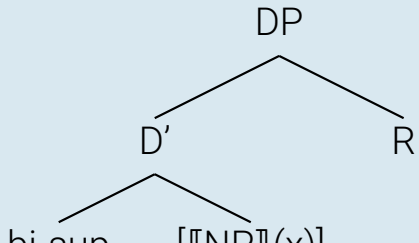
[binary]		
	that	*that book*

- DEM adds another layer of restriction (deixis, gesture, etc.)
- We can extend to pronouns; the only difference is that instead of NP we have conventionalized features

Going back to C and R domains

What does this mean for C and R domains?

- I've argued that pronouns and definites are subject to the same RM mechanism.
- What about demonstratives?

(79) {She/The linguist/That linguist} looks happy.

(80) Only one linguist liked the book that the philosopher introduced to that linguist.

→ suggests that the same should apply.

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→ suggests that the same should apply.

But demonstratives tend to stress the *R*:

- Saha et al. 2023: demonstratives place focus on indices
- this paper: demonstratives place focus on *R*

Which in turn foregrounds the R-QUD

Unary vs. Binary definites

DEM can define the at-issue, relevant property in R

When the linker hosts a relative clause, it defines who the intended referent is

(81) [THAT hero] [who KILLS the dragon] [will INHERIT the kingdom] [Wolter 2003]

(82) Those who read never fail. [similar ex in Elbourne 2013]
(compare with *Those people who read never fail*)

- What is at-issue is R-QUD: Agent of ‘inherit’: hero-who-kills-dragon

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Correlatives

- Related phenomena in other languages: **correlatives**
- Bhatt 2003: Correlatives require demonstratives

(83) [jo sale-par hai] [Maya us CD-ko khari:d-egi:]
Rel sale-on be.Prs Maya.F Dem CD-Acc buy-Fut.F
'Maya will buy the CD that is on sale.'
(Lit. 'What is on sale, Maya will buy that CD.') [Hindi]

Part 3: Summary

Arguments

1. Demonstratives add an *R* restriction to the definite expression
2. *R* tends to be stressed, thus foregrounding the R-QUD

Further questions

- Anti-uniqueness: R-QUD takes NP as given, only contrasts *R* [related to Saha et al. 2023]
- When focus is not there, demonstrative is not rigid, contrastive, or anti-unique [Jiayuan Chen, in prep]

Conclusion

Summary

1 ϕ of pronouns = NP of definites

- typologically forms a gradient scale
- parallel semantic contribution

2 RM: CONTENT and REFERENCE division

- separating WHAT and WHO
- relating to two types of QUD which can be backgrounded or foregrounded
- partition of R-QUD derives speaker-oriented implications

3 Demonstratives add another layer

- 4-way distinction
- R is often focused, thus foregrounding R-QUD

Implications

minimal semantics.

- pronouns, definites, and demonstratives just contribute content
- ι, presupposition, rigidity not necessary in the denotation

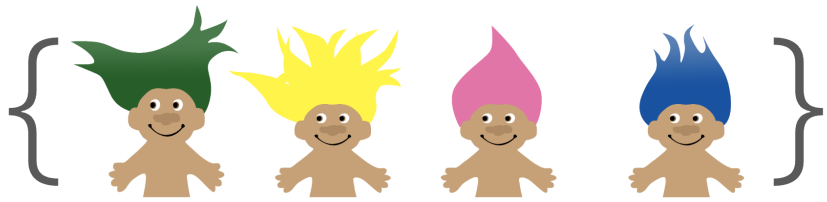
differences come from elsewhere.

- The difference we usually associate with these expressions is due to conventional/frequent focus patterns

content vs. reference.

- a more powerful mechanism for keeping track of referents
  (index with features [Sudo 2012], UC content [Gutzmann and McCready 2014])

Thank you!



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