LIN6049
Advanced semantics: puzzles in meaning

2024-2025

Luisa Martí

Week 12

Today

General feedback on puzzle 7

Quantifiers, part 2

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Task: provide a semantics for the null D of Atara Imere that takes account of its specificity

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Task: provide a semantics for the null D of Atara Imere that takes account of its specificity

As always: not just provide a description of the data, but **provide it within the context of our theory**

That is: take our previous semantics for it and modify it/add to it appropriately, with proper justification

General feedback on puzzle 7

(2) Atara Imere

[There was a storm in the middle of the ocean, there were many boats there. A boat has sunk. Someone in the village knows which one it is, though I don't:]

Te-paki ee-jiro

SG-boat 3SG.NONFUT-sink

'A boat sank'

(3) Atara Imere

[There was a storm in the middle of the ocean, there were many boats there. A boat has sunk, but nobody knows which one]

#Te-paki ee-jiro

SG-boat 3SG.NONFUT-sink

'A boat sank'

General feedback on puzzle 7

not enough to say: “with this null D, somebody needs to know the referent”

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that’s only the very beginning!

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you need to consider how to incorporate this into the theory. Is it part of the presupposition? Of the assertion? Or is it a felicity condition? Why?

General feedback on puzzle 7

proposal for Atara Imere's null D defended in class in week 5: ambiguous

'D_{indef} NP VP'
Presupposition: —
Assertion: {x: x is an NP in s} ∩ {x: x VPs in s} ≠ ∅

'D_{defw} NP VP'
Presupposition: |{x: x is an NP in s}| = 1.
Assertion: {x: x is an NP in s} ∩ {x: x VPs in s} ≠ ∅

'D_{defs} NP VP'
Presupposition: |{x: x is an NP in the discourse situation}| = 1.
Assertion: {x: x is an NP in the discourse situation} ∩ {x: x VPs in s} ≠ ∅

General feedback on puzzle 7

How do add to this picture/modify it on the basis of the new examples?

General feedback on puzzle 7

How do add to this picture/modify it on the basis of the new examples?

Is something added to/changed in the three denotations? Why (not)?

General feedback on puzzle 7

How do add to this picture/modify it on the basis of the new examples?

Is something added to/changed in the three denotations? Why (not)?

What is that something? Does it affect presuppositions, assertions? Is it a felicity condition? Why?

General feedback on puzzle 7

Would you need more examples than those provided to justify all of your choices?

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Would you need more examples than those provided to justify all of your choices?

If I ask this question, it’s likely that you do!

General feedback on puzzle 7

Would you need more examples than those provided to justify all of your choices?

If I ask this question, it's likely that you do!

Say what those examples would look like, what you'd need to check/have evidence for

Quantifiers

So far, not a lot of action in the assertive component

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‘A NP VP’

Presupposition: —

Assertion: {x: x is an NP in s} ∩ {x: x VPs} ≠ ∅

Quantifiers

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‘A NP VP’

Presupposition: —

Assertion: {x: x is an NP in s} ∩ {x: x VPs} ≠ ∅

Quantifiers

So far, not a lot of action in the assertive component

‘The_{W} NP VP’

Presupposition: |{x: x is an NP in s}| = 1

Assertion: {x: x is an NP in s} ∩ {x: x VPs} ≠ ∅

Quantifiers

So far, not a lot of action in the assertive component

‘The$_S$ NP VP’

Presupposition: |{x: x is an NP in the discourse situation}| = 1

Assertion: {x: x is an NP in the discourse situation} ∩ {x: x VPs} ≠ ∅

Quantifiers

So far, not a lot of action in the assertive component

‘[That NP]$_{\rightarrow L}$ VP’

Presupposition: |{x: x is an NP in s and x is in L in s and speaker points at L in s and L is not close to the speaker in s}| = 1

Assertion: {x: x is an NP in s and x is in L in s and speaker points at L in s and L is not close to the speaker in s} ∩ {x: x VPs in s} ≠ ∅

Quantifiers

So far, not a lot of action in the assertive component

‘This$_R$ NP VP’

Presupposition: —

Assertion: {x: x is an NP in s} ∩ {x: x VPs in s} ≠ ∅

Felicity condition: {x: x is an NP in s and x is noteworthy in s} ≠ ∅

Quantifiers

So far, the assertive component has required the intersection of the NP-set and the VP-set not to be empty

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But that’s not the only type of requirement you can have in an assertion

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But that’s not the only type of requirement you can have in an assertion

Quantifiers show more of the variety of the requirements that assertions can impose

Quantifiers

(1) Every student cycled to school

(2) No student cycled to school

(3) Most cats have blue eyes

(4) Lee found few fleas in the house

(5) Sue bought at least five books at the bookstore

Quantifiers

(1) Every student cycled to school

Quantifiers

(1) [$_{QP}$ Every [$_{NP}$ student]] [$_{VP}$ cycled to school]

Quantifiers

(1) $[_{QP}$ Every $[_{NP}$ student]] $[_{VP}$ cycled to school]

‘Every NP VP’

Presupposition: —

Assertion: {x: x is an NP in s} ⊆ {x: x VPed in s}

Quantifiers

(2) No student cycled to school

‘No NP VP’

Presupposition: —

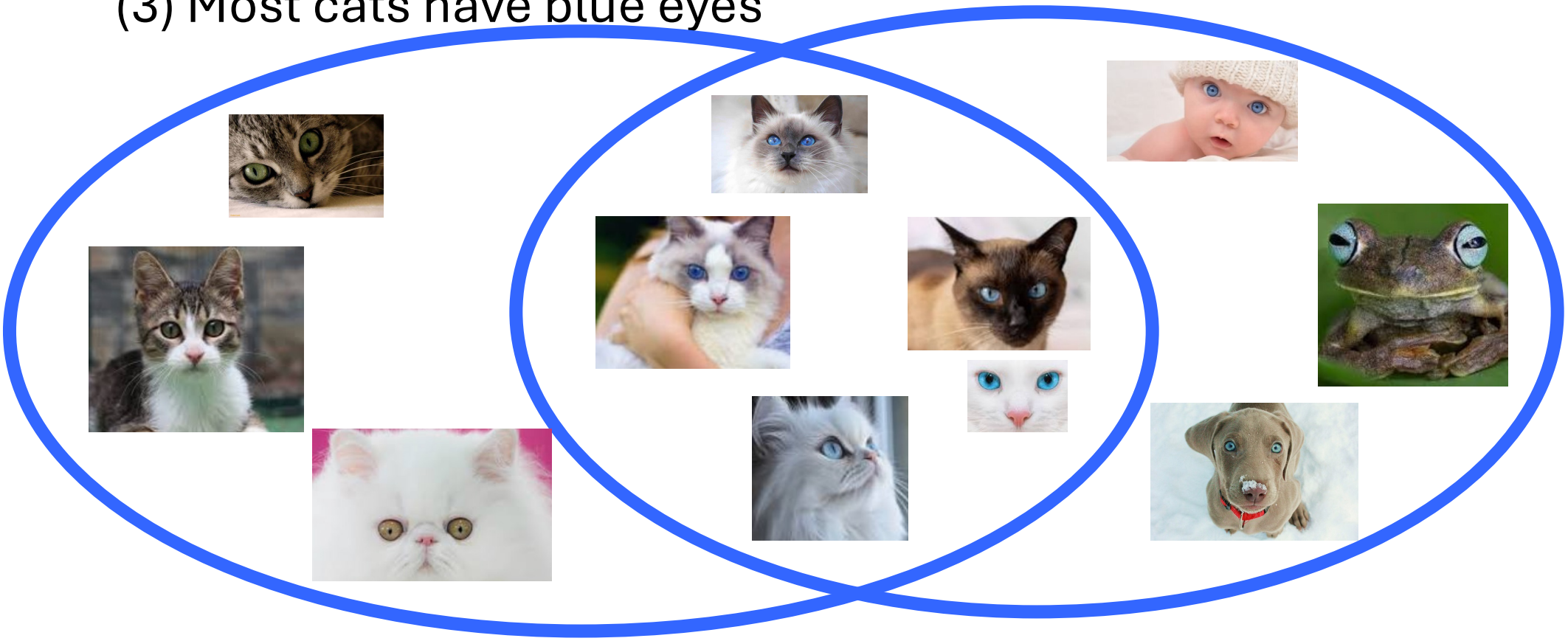
Assertion: {x: x is an NP in s} ∩ {x: x VPed in s} = ∅

Quantifiers

(3) Most cats have blue eyes

Quantifiers

(3) Most cats have blue eyes



Quantifiers

(3) Most cats have blue eyes

‘Most NP VP’

Presupposition: —

Assertion: $|\{x: x \text{ is an NP in } s\} \cap \{x: x \text{ VPs in } s\}| >$

$|\{x: x \text{ is an NP in } s\} - \{x: x \text{ VPs in } s\}|$

Quantifiers

(4) Lee found few fleas in the house

Quantifiers

(4) Lee found few fleas in the house

“the number of fleas Lee found in the house is small”

Quantifiers

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“the number of fleas Lee found in the house is small”

cardinal

Quantifiers

(4) Lee found few fleas in the house

"the number of fleas Lee found in the house is small"

cardinal

(6) [Context: a new insecticide is being tested, and we're counting how many fleas survived]

Few fleas survived

Quantifiers

(4) Lee found few fleas in the house

“the number of fleas Lee found in the house is small”

cardinal

(6) [Context: a new insecticide is being tested, and we’re counting how many fleas survived]

Few fleas survived

“few of the fleas survived”

Quantifiers

(4) Lee found few fleas in the house

"the number of fleas Lee found in the house is small"

cardinal

(6) [Context: a new insecticide is being tested, and we're counting how many fleas survived]

Few fleas survived

"few of the fleas survived" proportional

Quantifiers

(7) There are few fleas in the house

Quantifiers

(7) There are few fleas in the house only cardinal

Quantifiers

‘Few$_C$ NP VP’

Presupposition: —

Assertion: **|**{x: x is an NP in s} **∩** {x: x VPs in s}**| < n**

Quantifiers

‘Few$_C$ NP VP’

Presupposition: —

Assertion: **|**{x: x is an NP in s} **∩** {x: x VPs in s}**| < n**

‘Few$_P$ NP VP’

Presupposition: —

Assertion: **|**{x: x is an NP in s} ∩ {x: x VPs in s}**| <**
|{x: x is an NP in s} **–** {x: x VPs in s}**|**

Quantifiers

‘Few_C NP VP’

Presupposition: —

Assertion: $|\{x: x \text{ is an NP in } s\} \cap \{x: x \text{ VPs in } s\}| < n$

(4) Lee found few fleas in the house

Quantifiers

‘Few_C NP VP’

Presupposition: —

Assertion: $|\{x: x \text{ is an NP in } s\} \cap \{x: x \text{ VPs in } s\}| < n$

(4) Lee found few fleas in the house ≈

few [fleas] [are such that Lee found them in the house]

Quantifiers

‘Few$_C$ NP VP’

Presupposition: —

Assertion: |{x: x is an NP in s} ∩ {x: x VPs in s}| < n

(4) Lee found few fleas in the house ≈

few [fleas] [are such that Lee found them in the house]

the object quantifier is
“extracted out” to the left

Quantifiers

(5) Sue bought at least five books at the bookstore

at least five [books] [are such that Sue bought them at the bookstore]

Quantifiers

(5) Sue bought at least five books at the bookstore

at least five [books] [are such that Sue bought them at the bookstore]

‘At least five NP VP’

Presupposition: —

Assertion: $|\{x: x \text{ is an NP in } s\} \cap \{x: x \text{ VPs in } s\}| \geq 5$

Summary so far

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Quantifiers require us to use more of set theory in order to understand their meaning than just intersection and the empty set

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Quantifiers require us to use more of set theory in order to understand their meaning than just intersection and the empty set

In order to write our meaning recipes for quantifiers in such a way that quantifiers in both subject and object position are accounted for, it is useful to think of object quantifiers as “extracted out to the left”

“Extracting out to the left” and quantifier scope

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“Extracting out to the left” may sound weird, but it actually helps a lot

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Not just in allowing us to smoothly provide one recipe for both subject Qs and object Qs

“Extracting out to the left” and quantifier scope

“Extracting out to the left” may sound weird, but it actually helps a lot

Not just in allowing us to smoothly provide one recipe for both subject Qs and object Qs

It also allows us to understand so-called quantifier scope!

Quantifier scope

(8) A boy read every book

Quantifier scope

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Quantifier scope

(8) A boy read every book

Two readings:

Quantifier scope

(8) A boy read every book

Two readings:

a boy >> every book

“There is a boy who read every book”

Quantifier scope

(8) A boy read every book

Two readings:

a boy >> every book

“There is a boy who read every book”

every book >> a boy

“Every book is such that a boy read it”

“For every book, there is a boy who read it”

Quantifier scope

(8) A boy read every book

Two readings:

a boy >> every book

“There is a boy who read every book”

every book >> a boy

“Every book is such that a boy read it”

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every book extracted out to the left

Quantifier scope

scope ambiguities

(8) A boy read every book

Two readings:

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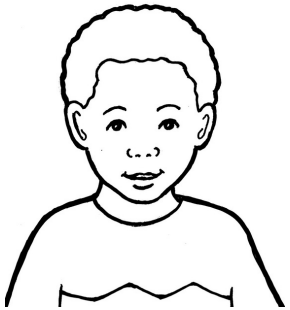

a boy >> every book

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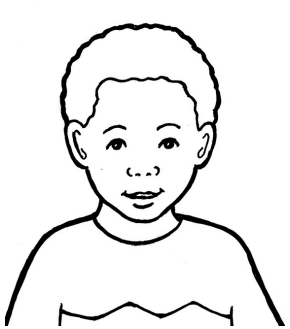

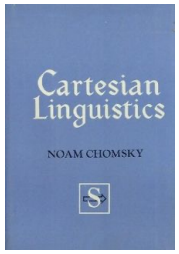

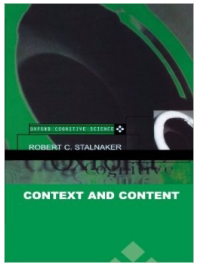

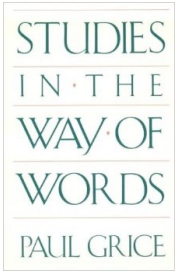

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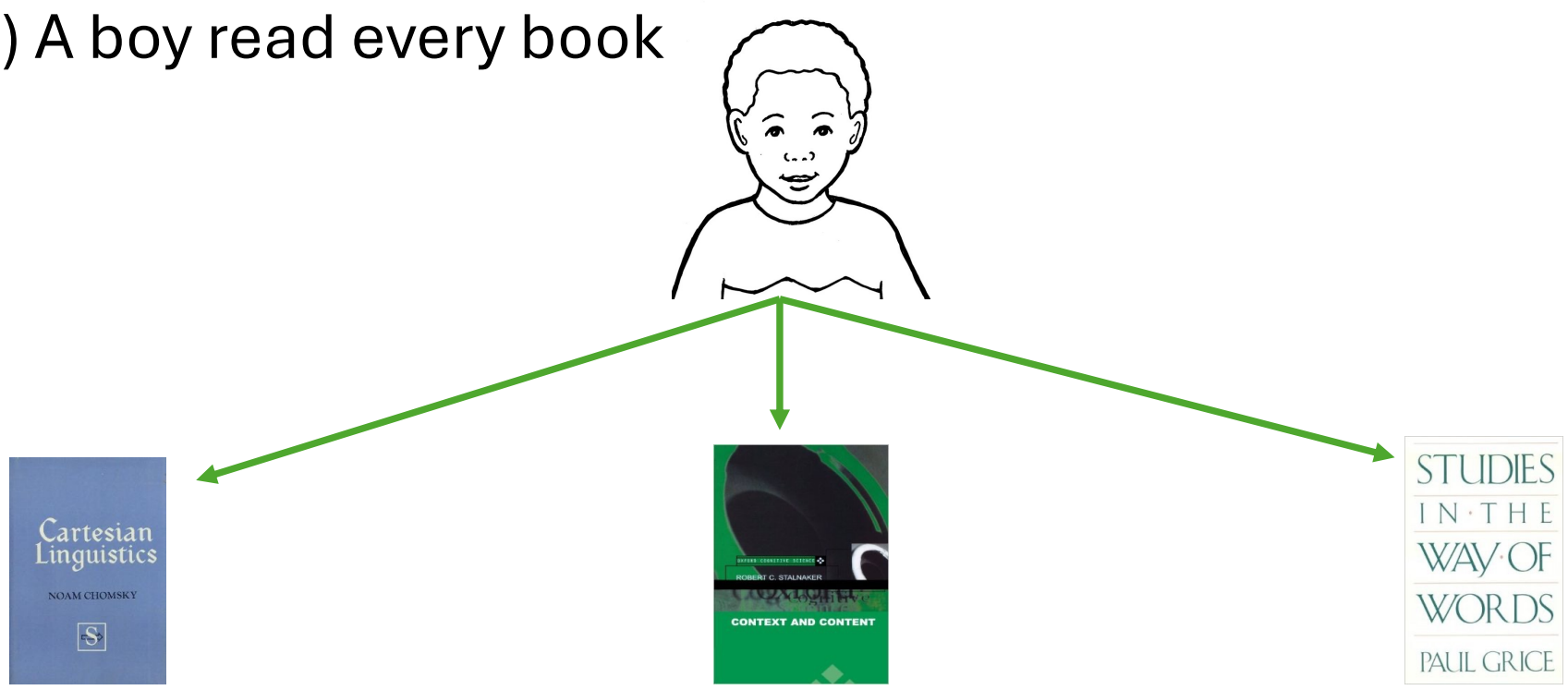

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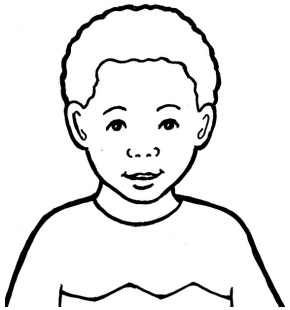

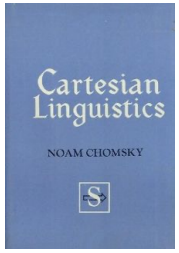

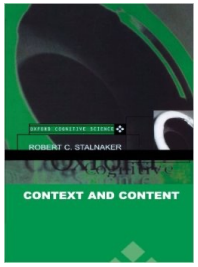

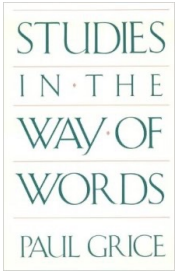

every book >> a boy

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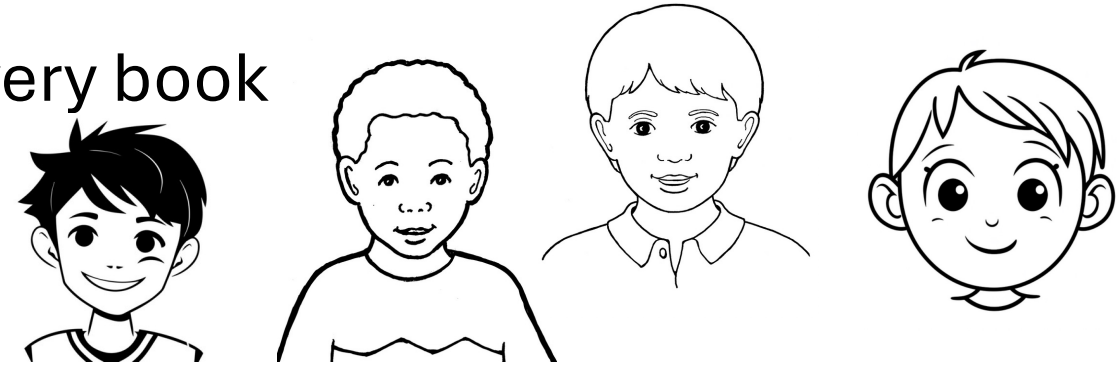

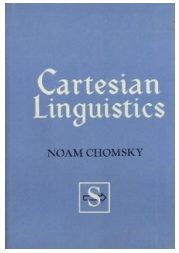

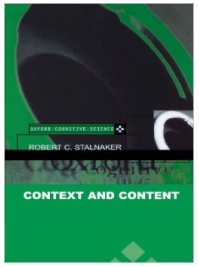

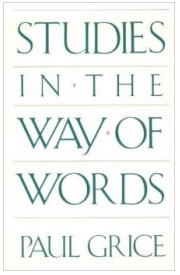

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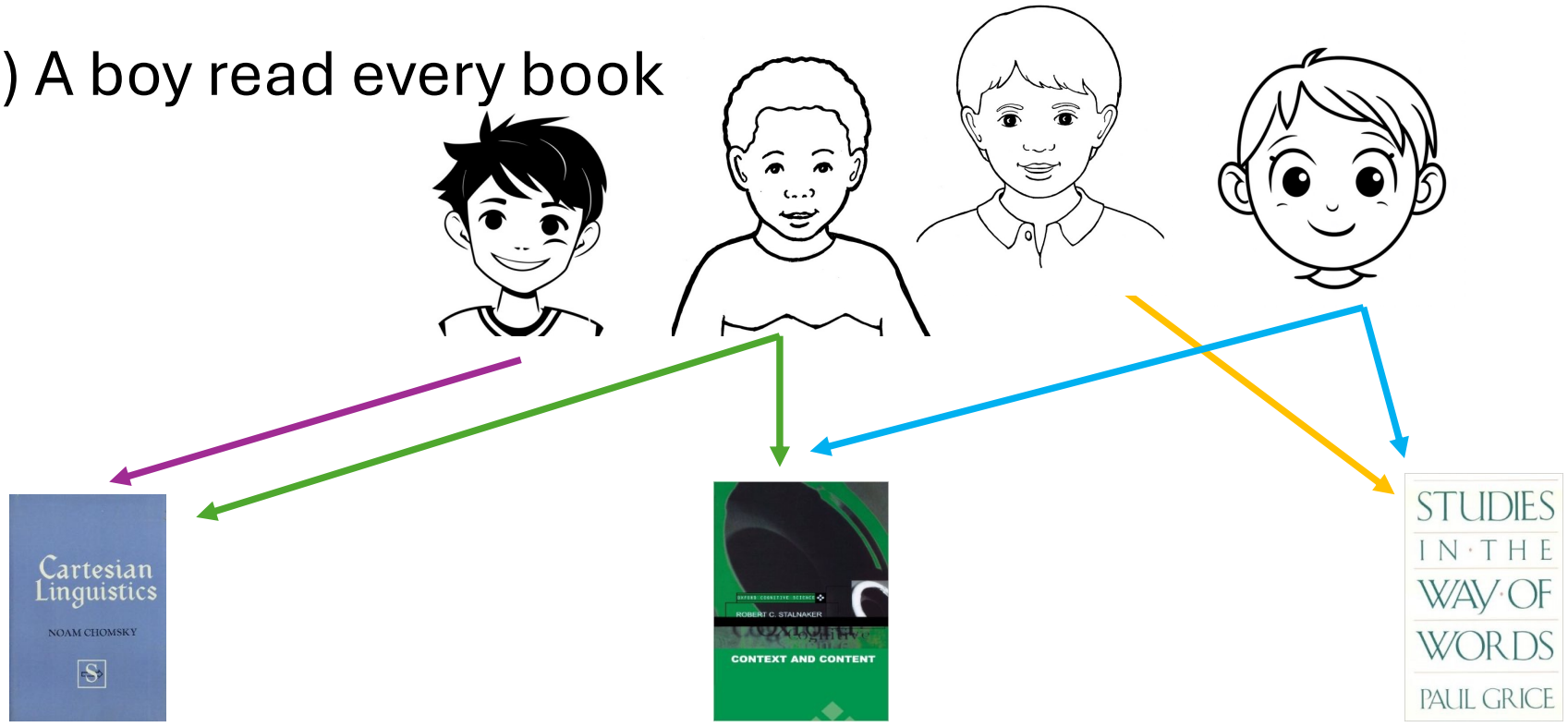


every book >> a boy

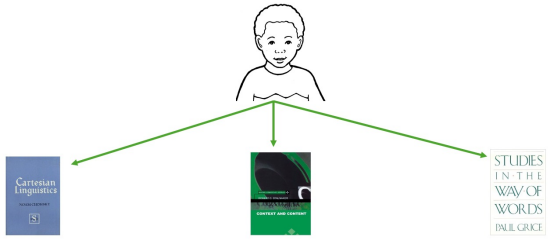
(8) A boy read every book

But is the sentence really ambiguous?

Quantifier scope

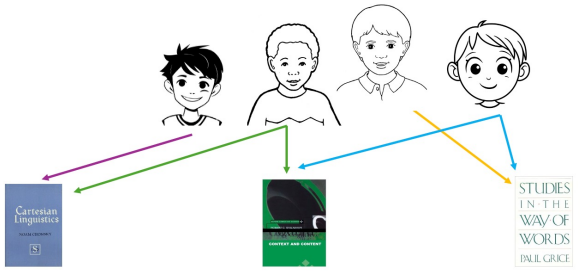
(8) A boy read every book

a boy >> every book



“There is a boy who read every book”

every book >> a boy

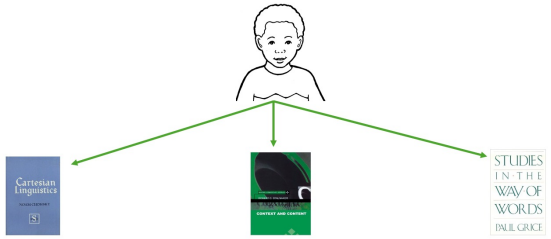


“Every book is such that a boy read it”

Quantifier scope

(8) A boy read every book

a boy >> every book



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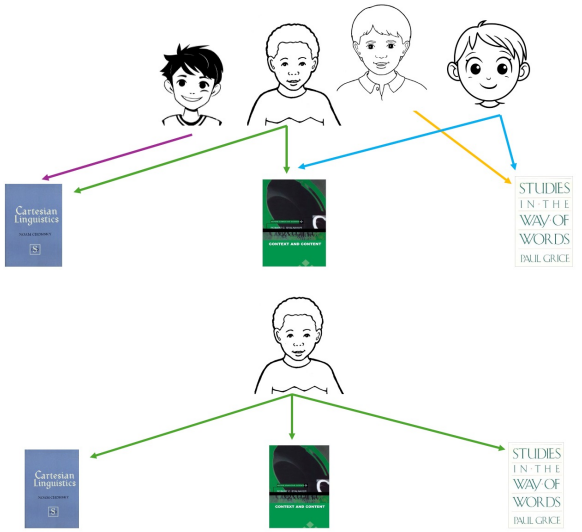


“Every book is such that a boy read it”

Quantifier scope

(8) A boy read every book

Do scope ambiguities really exist?

Quantifier scope

To speak of true ambiguity, we must find a situation that makes Reading 1 true and Reading 2 false, and another situation that makes Reading 1 false and Reading 2 true

Quantifier scope

To speak of true ambiguity, we must find a situation that makes Reading 1 true and Reading 2 false, and another situation that makes Reading 1 false and Reading 2 true

Only then can we be sure that there is a real ambiguity

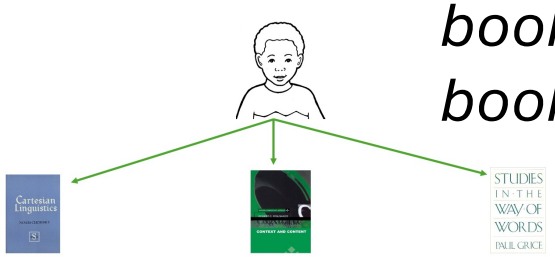
Quantifier scope

we can't find a situation where *a boy* >> *every book* is true but *every book* >> *a boy* is false

(8) A boy read every book

a boy >> *every book*

"There is a boy who read every book"



every book >> *a boy*

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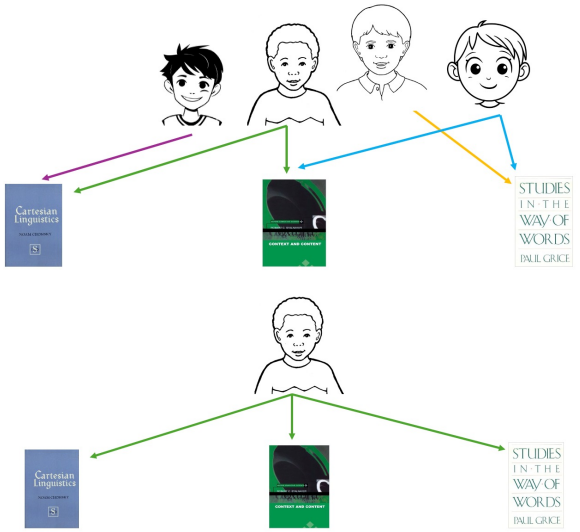


Quantifier scope

If scope ambiguities don’t exist, then “extracting out to the left” might be convenient for the way we cash out our semantics for quantifiers, but it is not justified independently

Quantifier scope

If scope ambiguities don’t exist, then “extracting out to the left” might be convenient for the way we cash out our semantics for quantifiers, but it is not justified independently

However, quantifier scope ambiguities *do* exist. It’s just that you can’t see them with certain quantifier combinations!

Quantifier scope

(9) Exactly half of the girls speak a foreign language

Quantifier scope

(9) Exactly half of the girls speak a foreign language

exactly half of the girls >> a foreign language

“exactly half of the girls speak some foreign language or other”

Quantifier scope

(9) Exactly half of the girls speak a foreign language

exactly half of the girls >> a foreign language

“exactly half of the girls speak some foreign language or other”

a foreign language >> exactly half of the girls

“a foreign language is such that exactly half of the girls speak it”

Quantifier scope

(9) Exactly half of the girls speak a foreign language

exactly half of the girls >> a foreign language

a foreign language >> exactly half of the girls

Quantifier scope

(9) Exactly half of the girls speak a foreign language

exactly half of the girls >> a foreign language

Sophia

Rosa
Miriam
Anna

Eve

Ava

a foreign language >> exactly half of the girls

Sophia

Rosa

Miriam

Anna

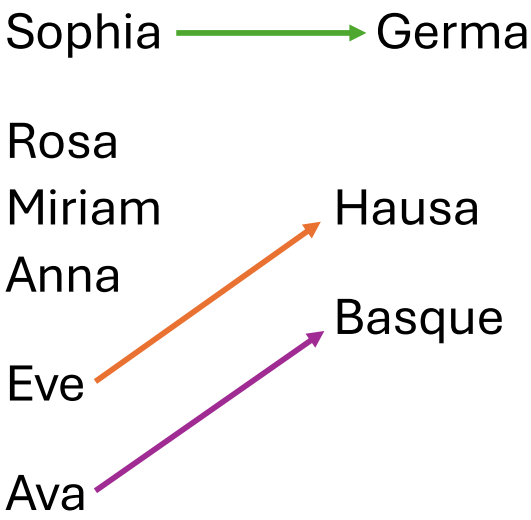
Eve

Ava

Quantifier scope

(9) Exactly half of the girls speak a foreign language

exactly half of the girls >> a foreign language



a foreign language >> exactly half of the girls

Sophia

Rosa

Miriam

Anna

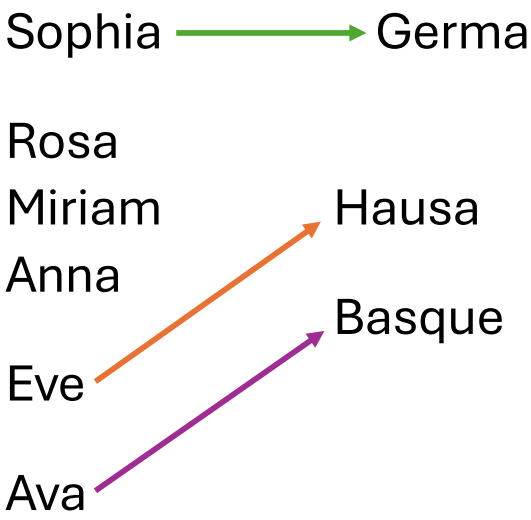
Eve

Ava

Quantifier scope

(9) Exactly half of the girls speak a foreign language

exactly half of the girls >> a foreign language



a foreign language >> exactly half of the girls

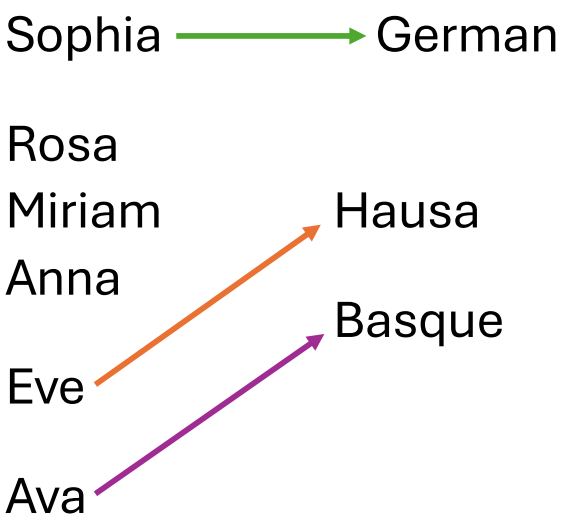
Sophia
Rosa
Miriam
Anna
Eve
Ava

Hausa
Basque
Korean
Frisian

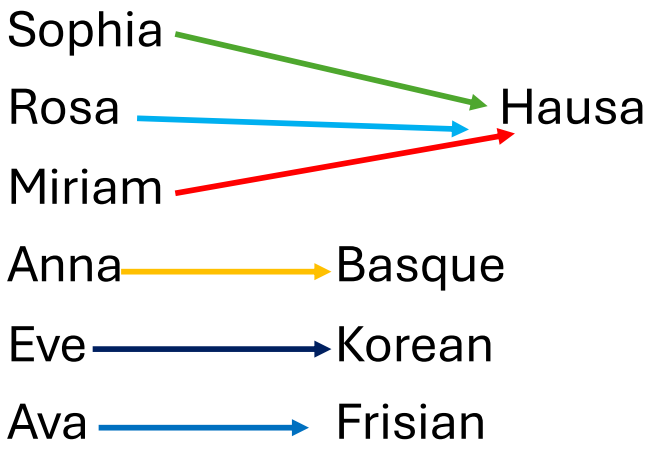
Quantifier scope

(9) Exactly half of the girls speak a foreign language

exactly half of the girls >> a foreign language



a foreign language >> exactly half of the girls



Quantifier scope

Quantifier scope ambiguities are real then!

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You just can’t see them with certain pairs of quantifiers

Quantifier scope

Quantifier scope ambiguities are real then!

You just can’t see them with certain pairs of quantifiers

“Extracting out to the left” is more than just useful

Quantifier scope

Quantifier scope ambiguities are real then!

You just can’t see them with certain pairs of quantifiers

“Extracting out to the left” is more than just useful. It is doing work for us, since it allows us to account for scope ambiguities

Puzzle 9

More on scope ambiguities