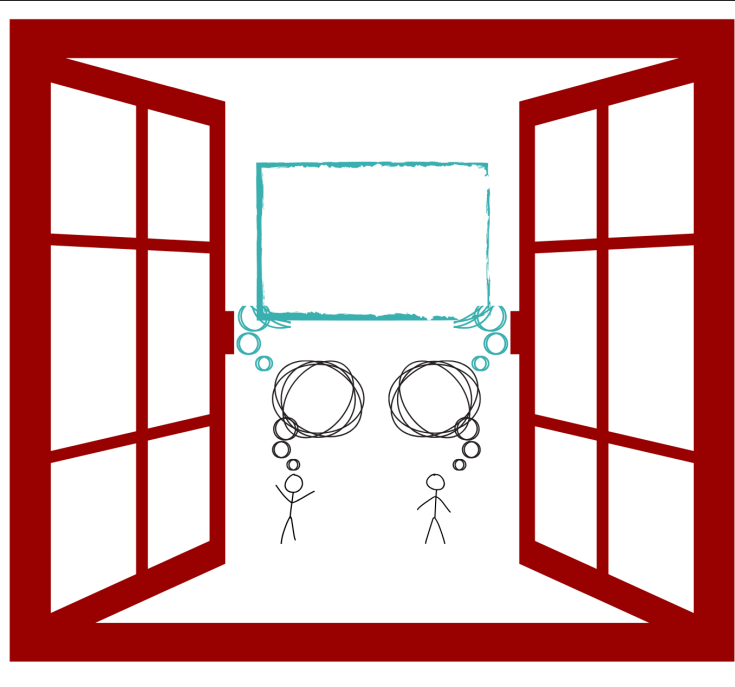


Université Paris Nanterre
April 24th 2024
Colloque Common Ground



Early management of common ground

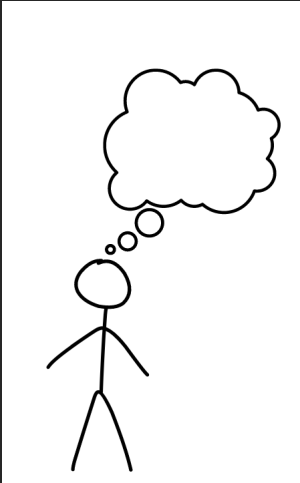
Lessons from L1 acquisition of interactional language

Martina Wiltschko &
ICREA,
Universitat Pompeu Fabra

Johannes Heim
University of Aberdeen



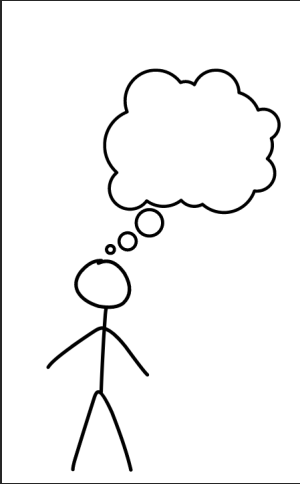
Interactional language



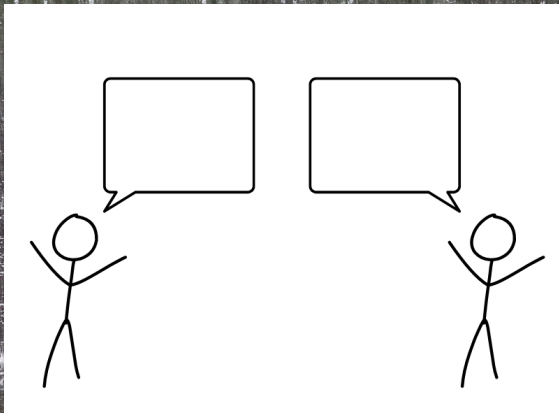
(1) a. It's raining really hard.



Interactional language

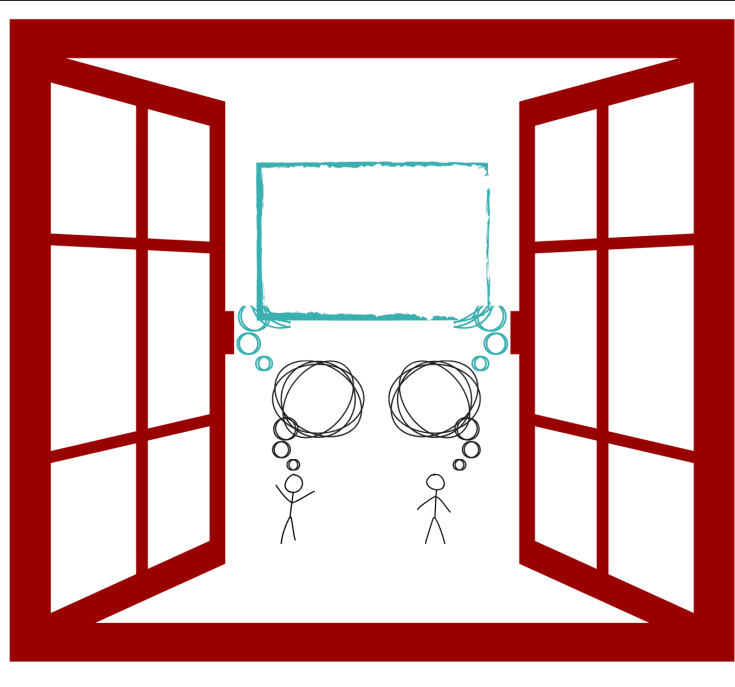


- (1) a. It's raining really hard.
- b. **Wow**, it's raining really hard.
- c. **Oh**, it's raining really hard.
- d. It's raining really hard, **eh**?
- e. It's raining really hard, **huh**?
- f. **But Charlie**, it's raining really hard.
- g. It's raining really hard, **Charlie**.



Language changes in interaction

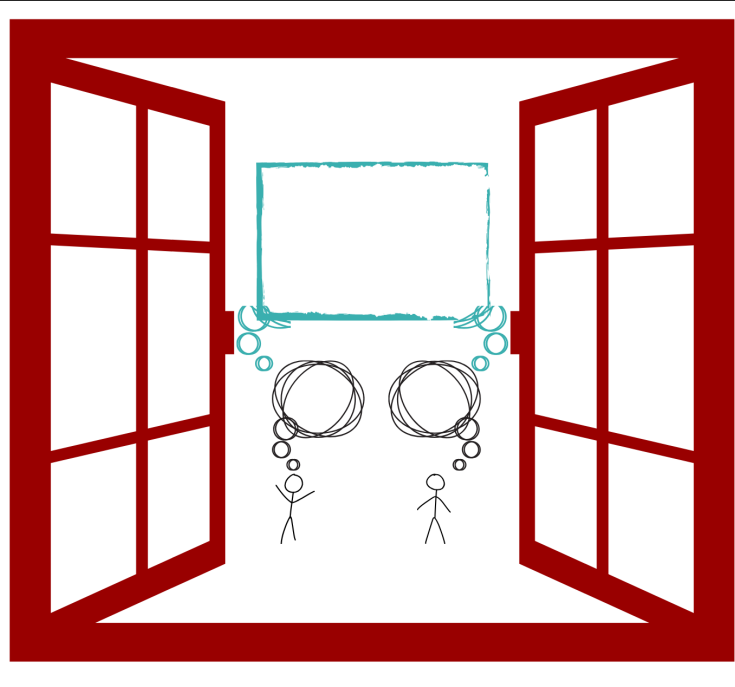
Overview



Goal

i(nteractional) language as a window into the development of Common Ground (CG) in children

Overview



Background

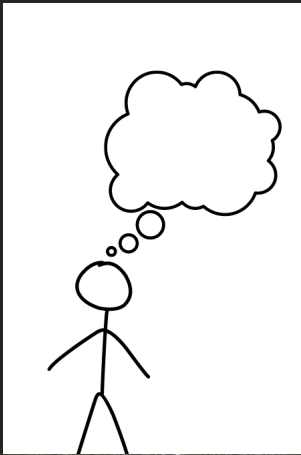
- i-language in adults
- the logic of linguistic thought (propositional grammar)
- The logic of linguistic interaction (interactional grammar)
- and how to model it
 - the interactional spine hypothesis (ISH)
- Implications of the ISH
 - for CG
 - for language development

A case study of the acquisition of huh

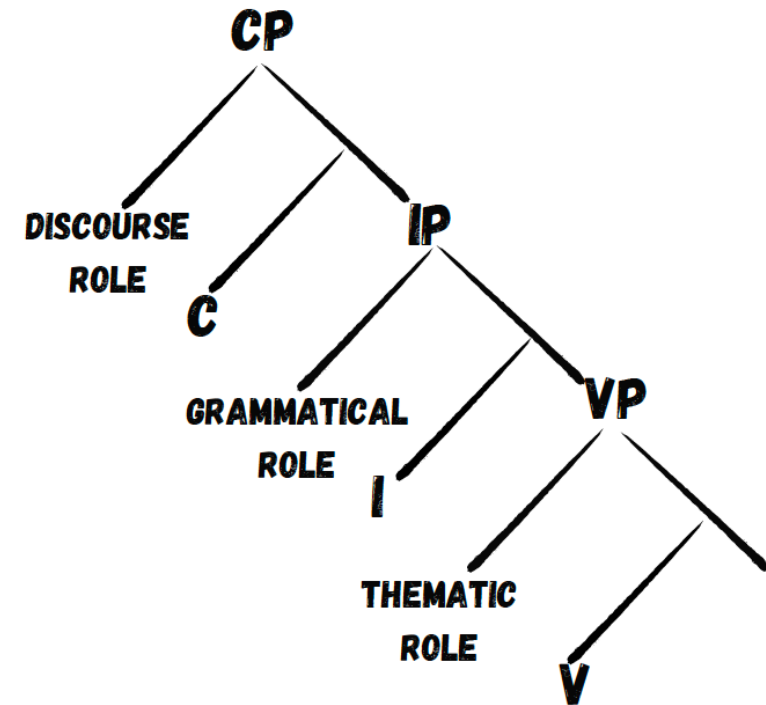
- The target: *huh* in adult use
- Stage 1: managing interaction
- Stage 2: a generalized ground (common by default)
- Stage 3: a separation of speaker and addressee ground
- Stage 4: from child to adult

Conclusion

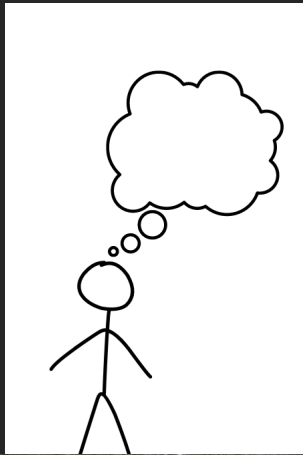
The logic of linguistic thought



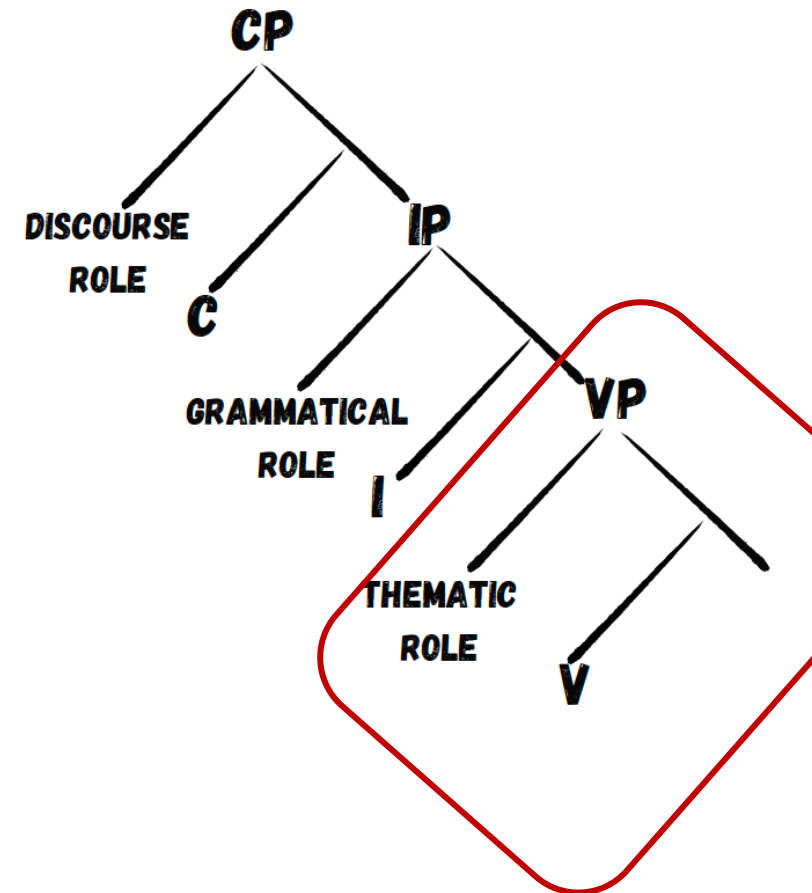
- (1) a. It's **raining** (really hard)
b. I am **walking** (in the rain)
c. I **hear the rain**.
d. **What** do you hear ___ ?
e. **The rain**, I can hear it.



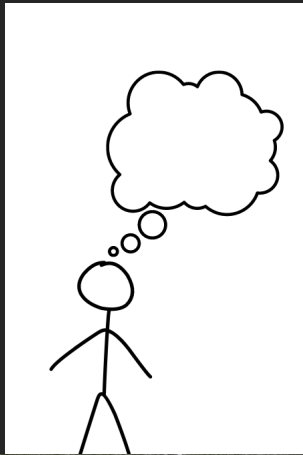
The logic of linguistic thought



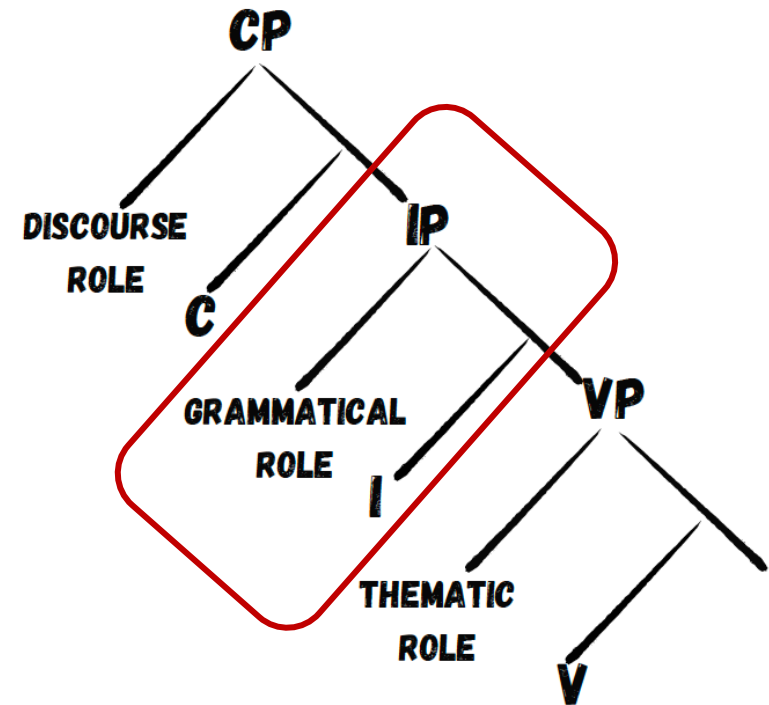
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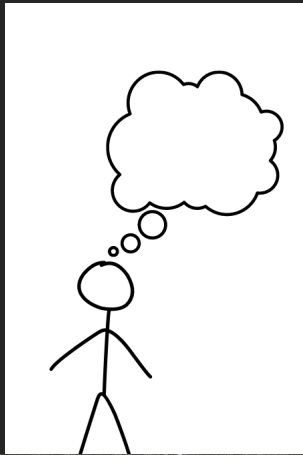
The logic of linguistic thought



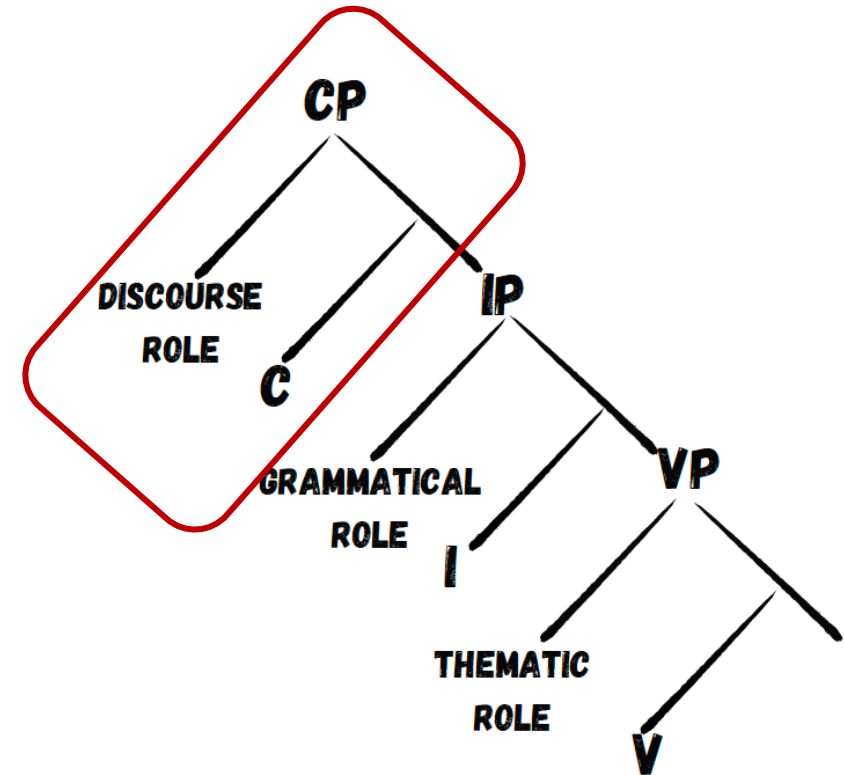
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The logic of linguistic thought



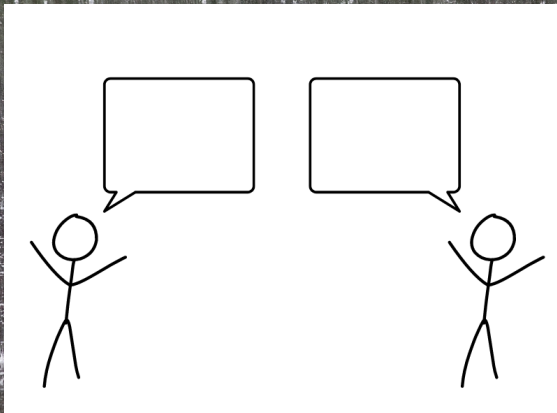
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The logic of linguistic interaction

- (1) a. It's raining really hard.
b. **Wow**, it's raining really hard.
c. **Oh**, it's raining really hard.

p = novel

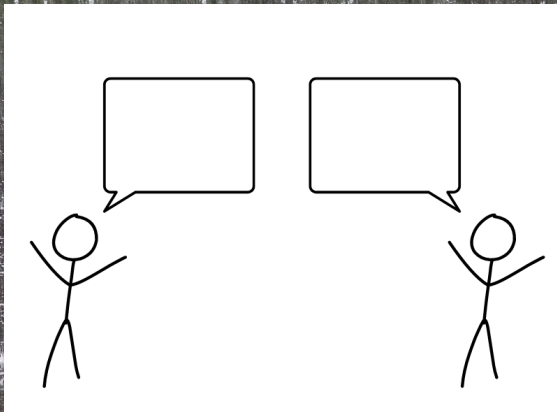


The logic of linguistic interaction

- (1) a. It's raining really hard.
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p = novel

Confirm p!



The logic of linguistic interaction

- (1) a. It's raining really hard.
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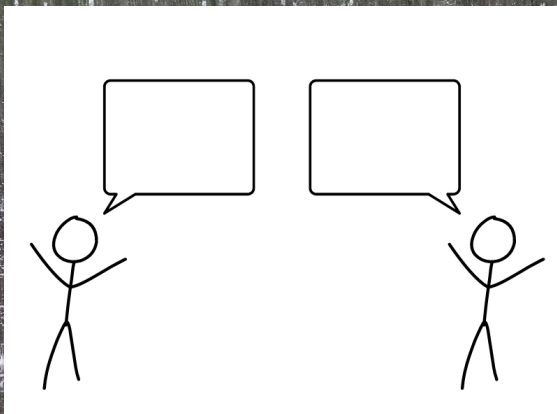
p = novel

Confirm p!

p = relevant for YOU

[i-language [p-language] i-language]

- How p relates to epistemic states
- How Utt relates to turn-taking



The logic of linguistic interaction

I: It's raining really hard.

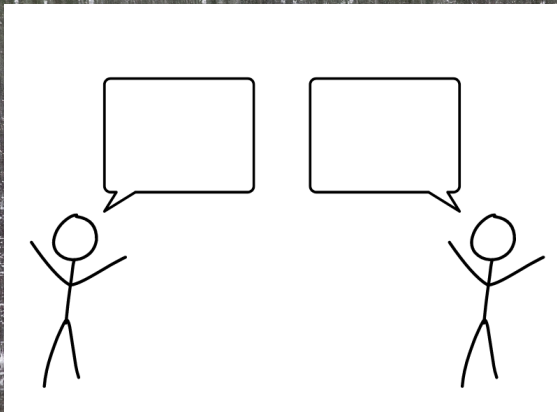
R1: **Yeah yeah.** = p is **old**

R2: **Yes?** = p is **novel**
(and I want more info, reconfirm!)

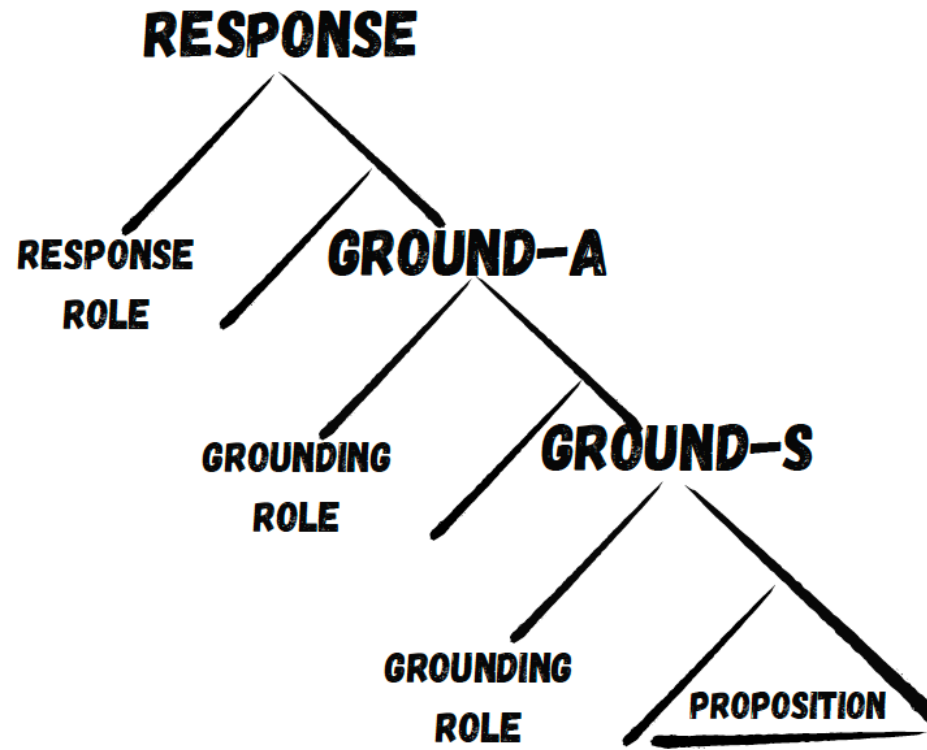
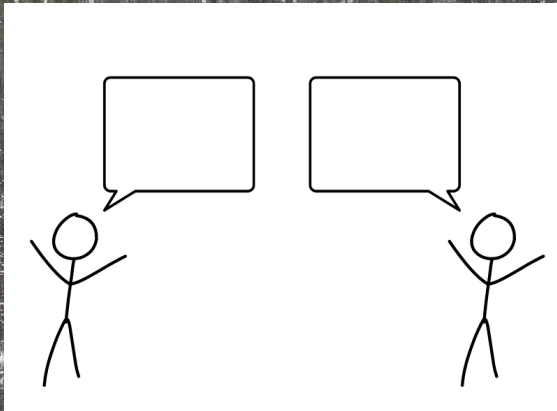
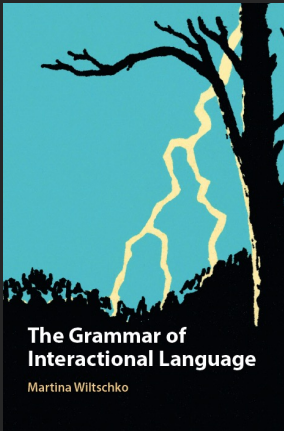
R3: **Oh!** = p is **novel**
(and I'm ready to commit)

[i-language [p-language] i-language]

- How p relates to epistemic states
- How Utt relates to turn-taking



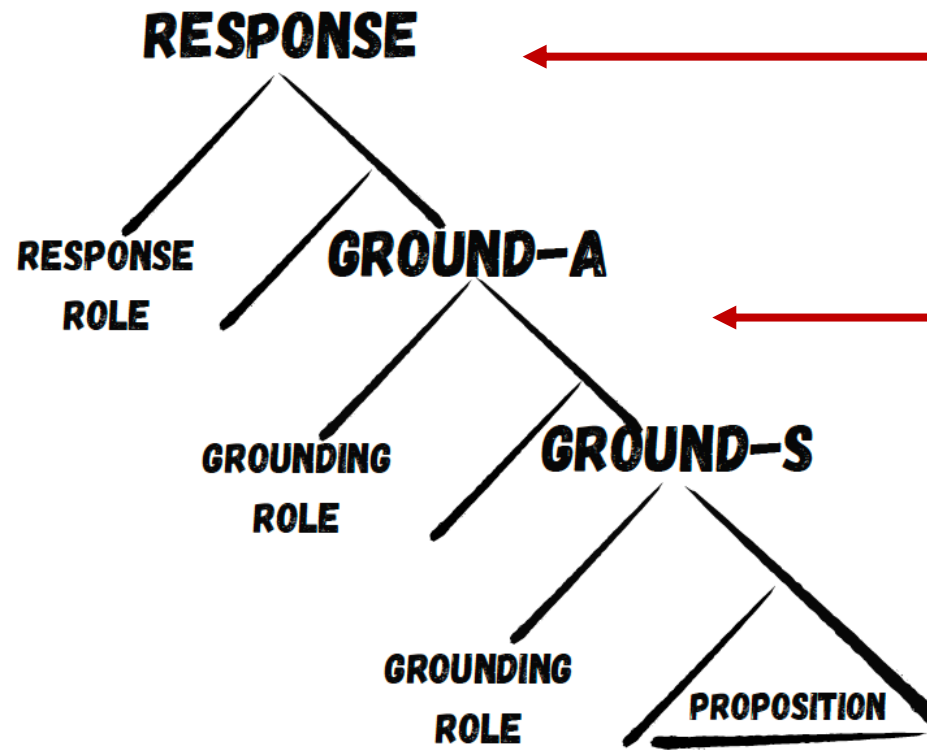
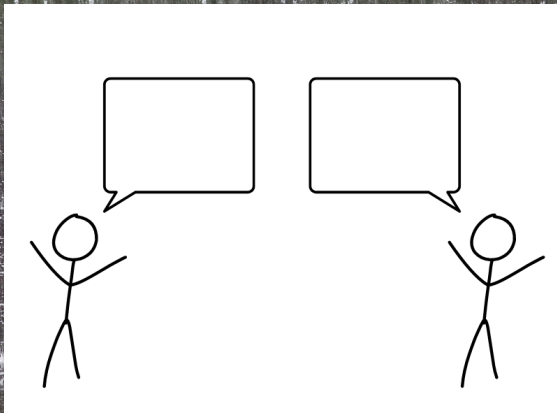
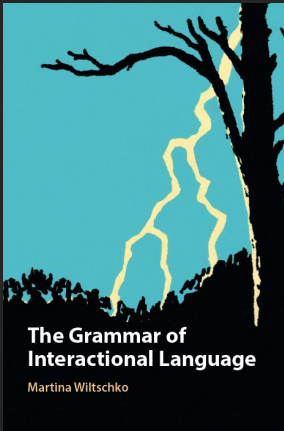
Modelling linguistic interaction



[i-language [p-language] i-language]

- How p relates to epistemic states
- How Utt relates to turn-taking

Modelling linguistic interaction



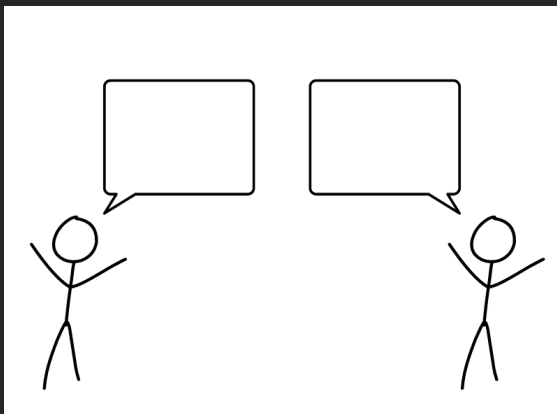
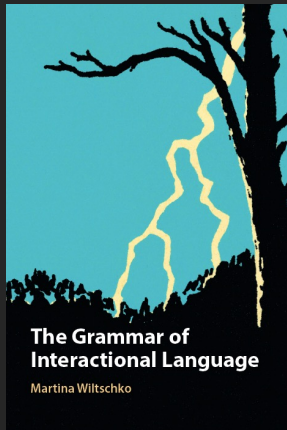
How Utt relates to turn-taking

How p relates to epistemic states

The interactional spine hypothesis

Wiltschko 2021

Modelling linguistic interaction



3 types of vocatives

Call Vocative:

Hey **Charlie!** The chameleon chased the butterfly.

Address Vocative:

Charlie, the chameleon chased the butterfly.

The chameleon chased the butterfly, **Charlie**

Inverse Vocative:

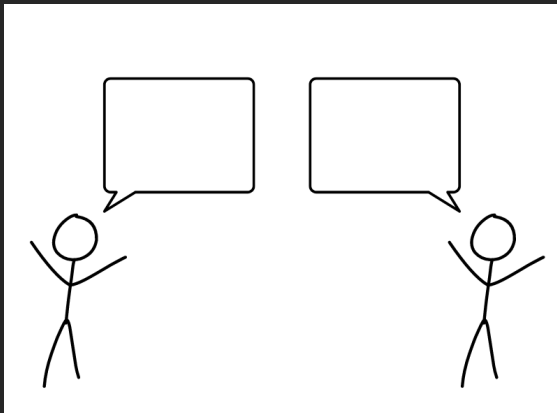
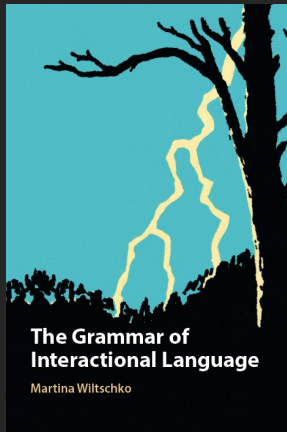
(The elder brother addresses his little female sibling)

Abi-si, ayakkablar-ım-ı getir-ir-mi-sin?

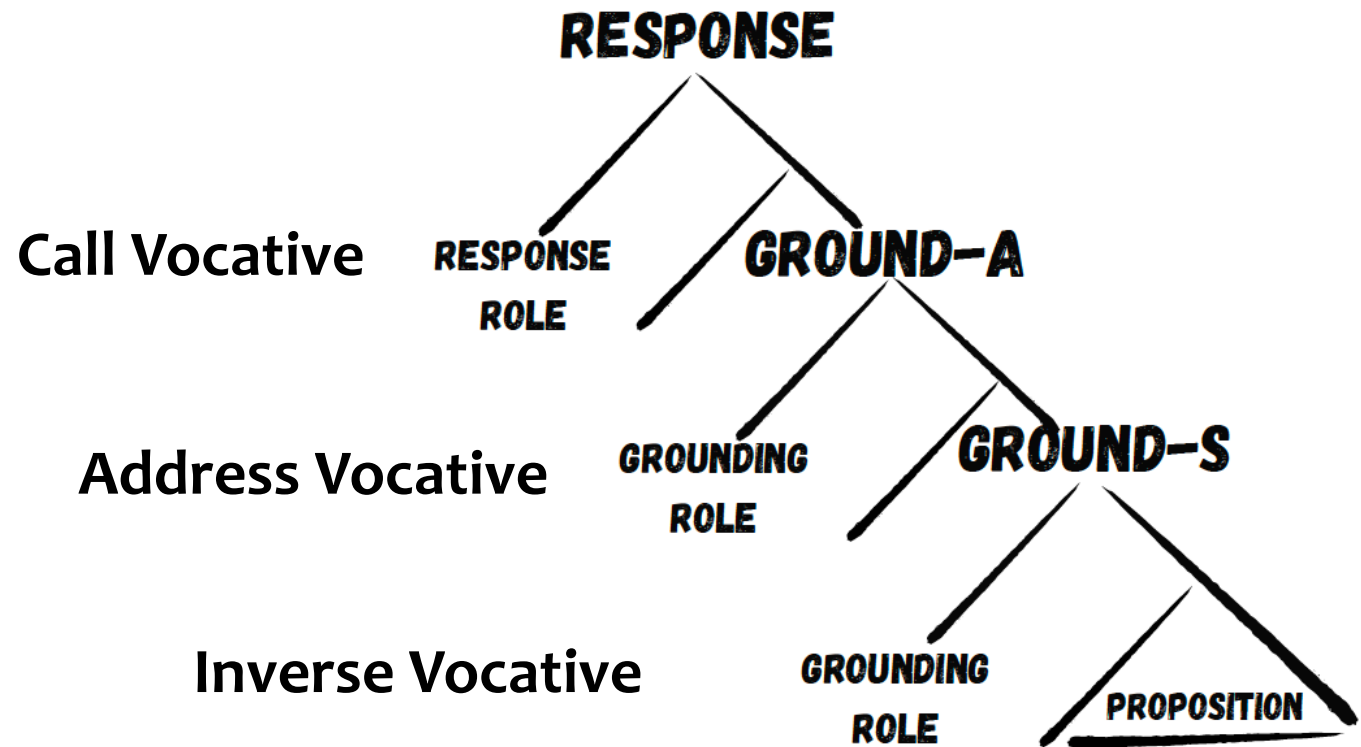
brother-3SG shoes-1SG-ACC fetch-AOR-Q-2SG

‘[Her] brother, can you fetch my shoes? (from *İntihar*, a novel)

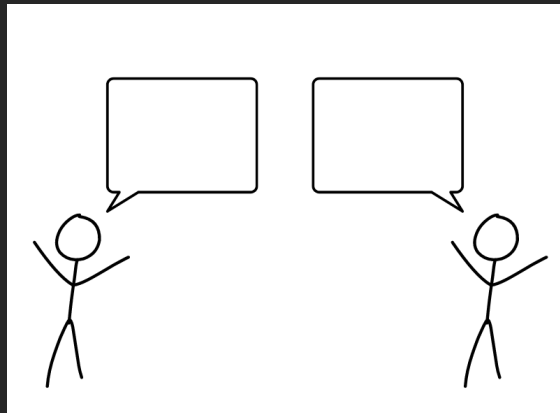
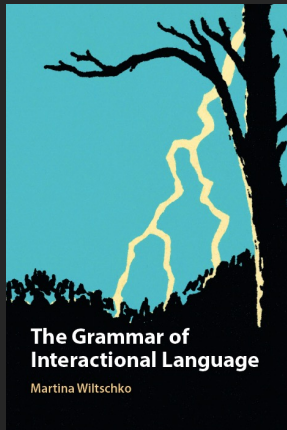
Modelling linguistic interaction



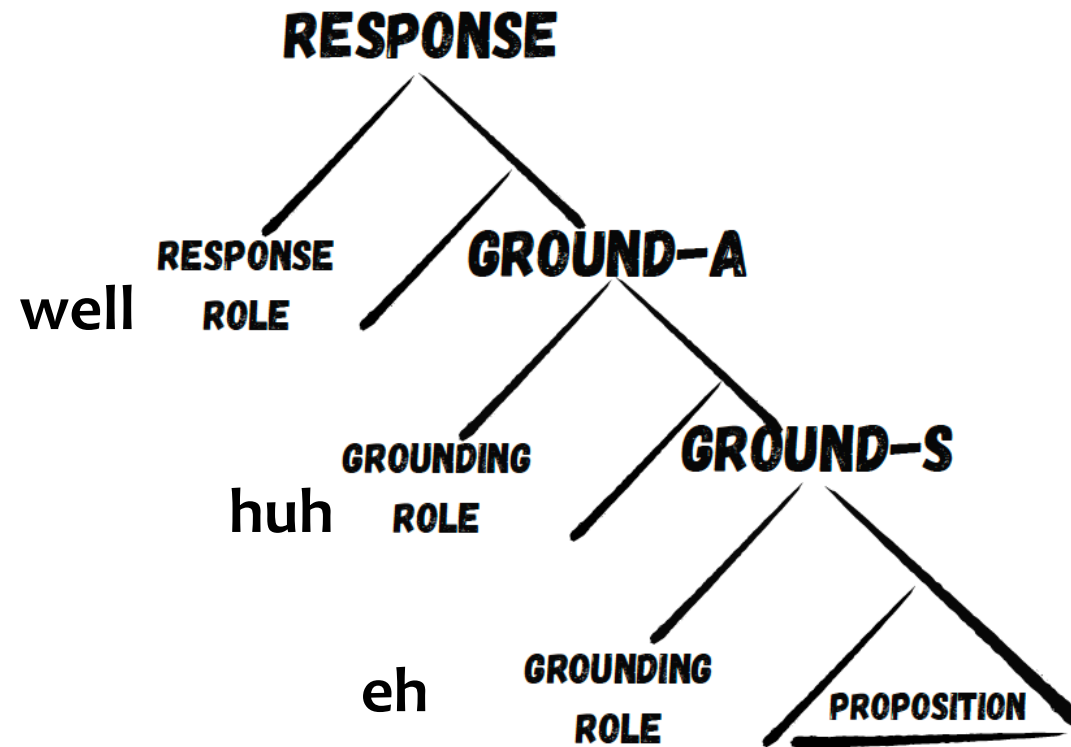
3 types of vocatives



Modelling linguistic interaction

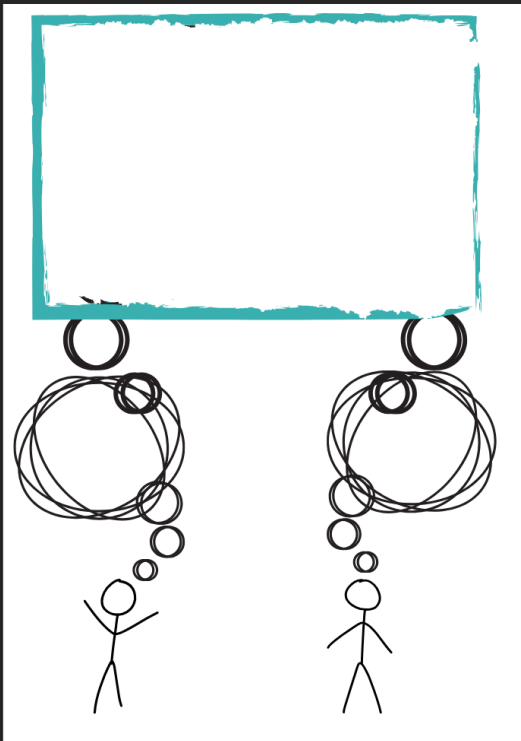


speaker/hearer-oriented units of i-language

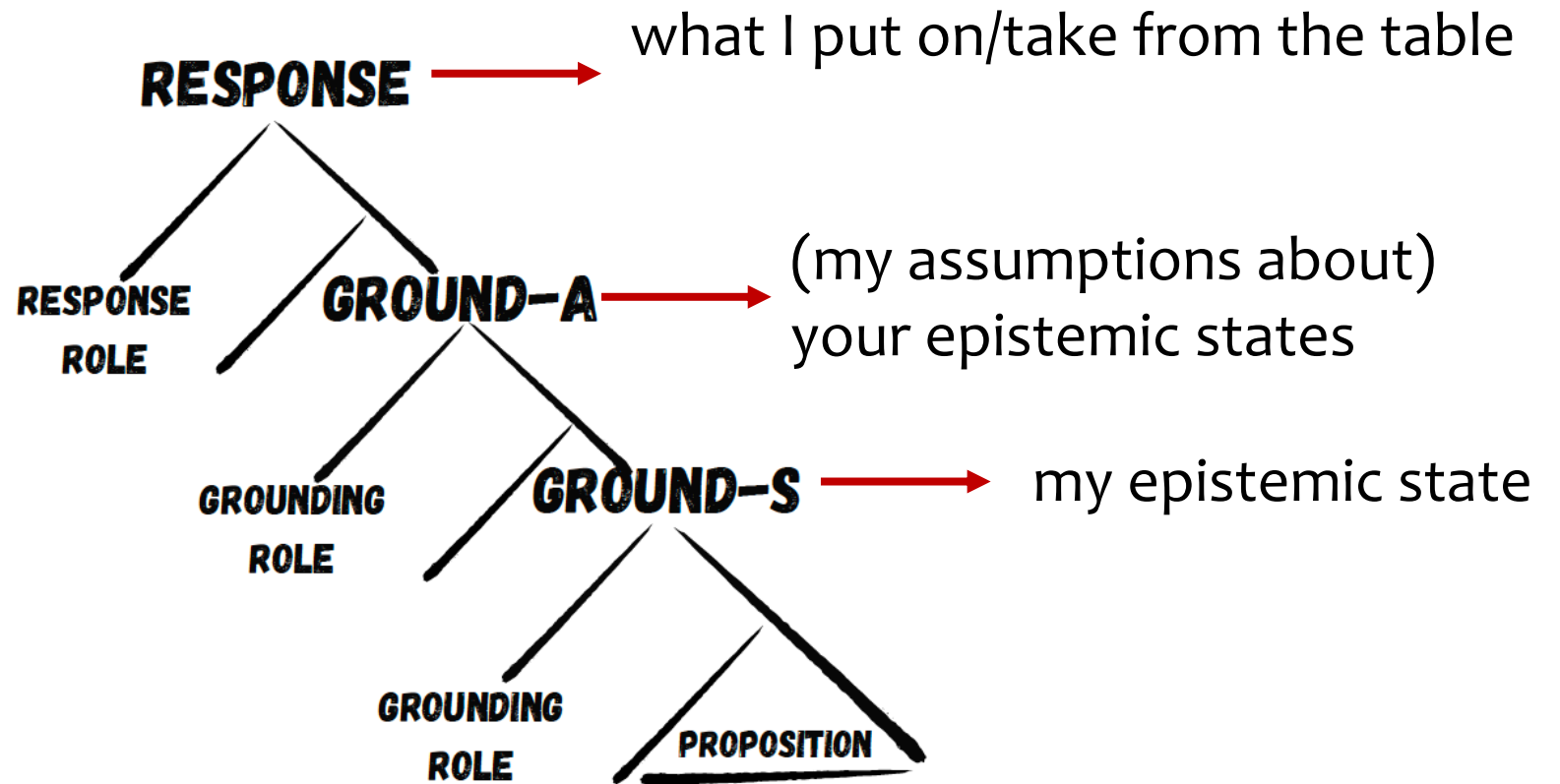


Implications of the ISH

for Common Ground

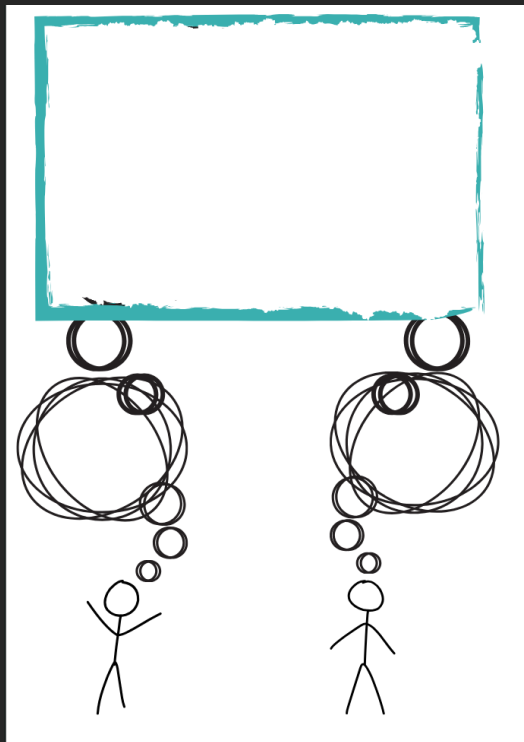


What grammar encodes

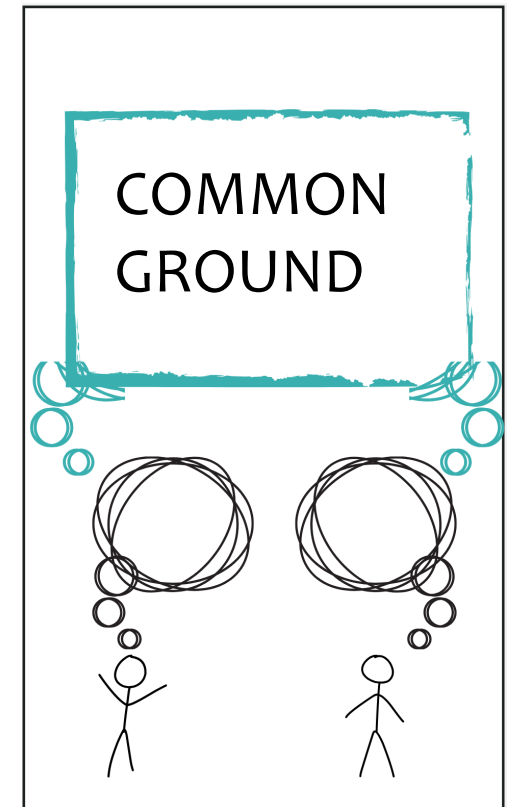
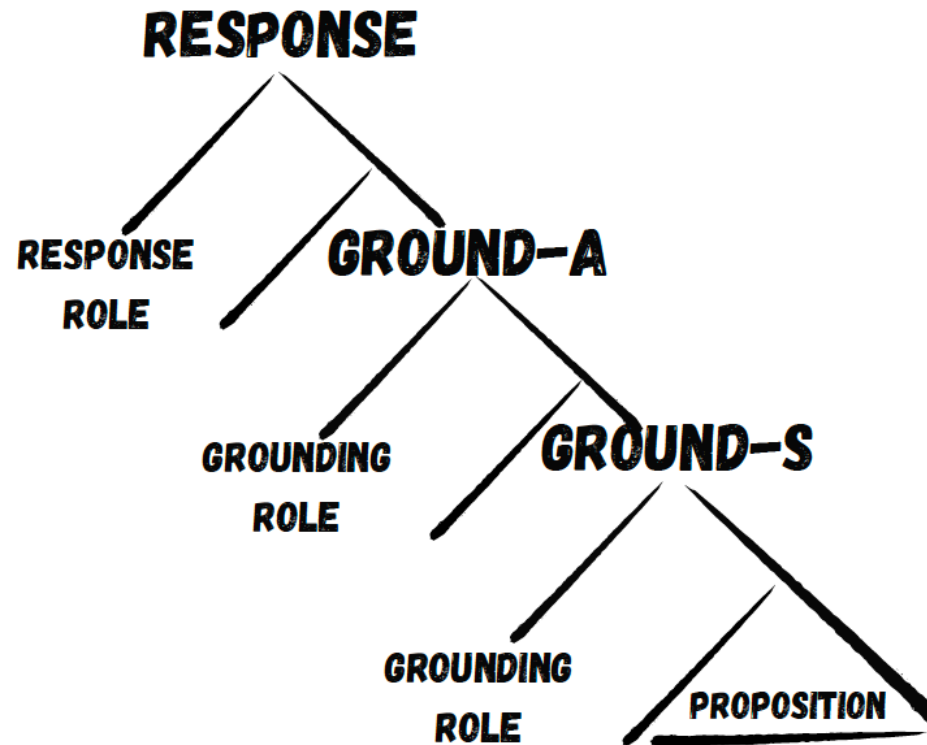


Implications of the ISH

for Common Ground



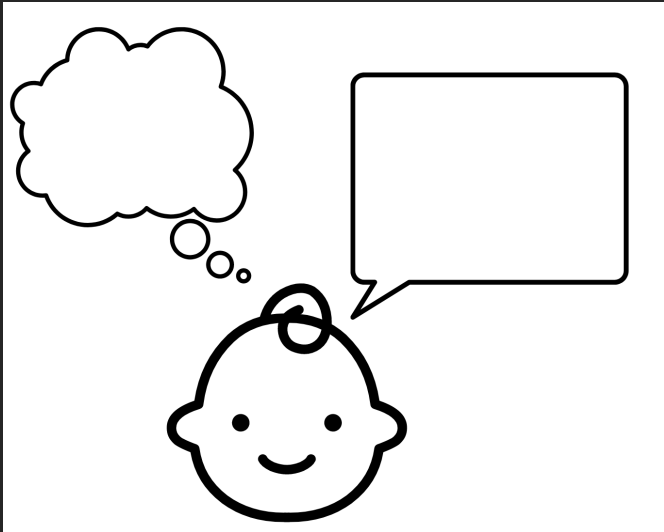
What grammar doesn't encode



Implications of the ISH

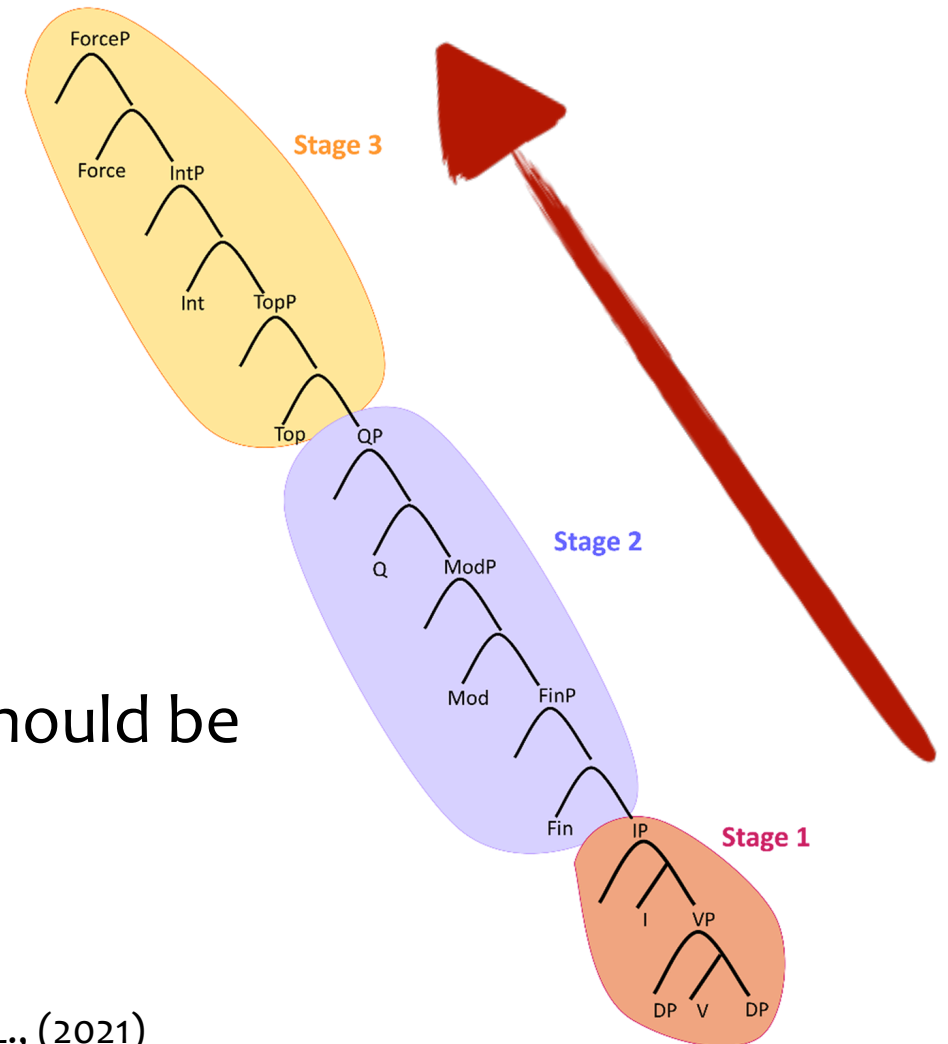
for Common Ground

for language development



Maturation hypothesis

- the top of the tree should be acquired last

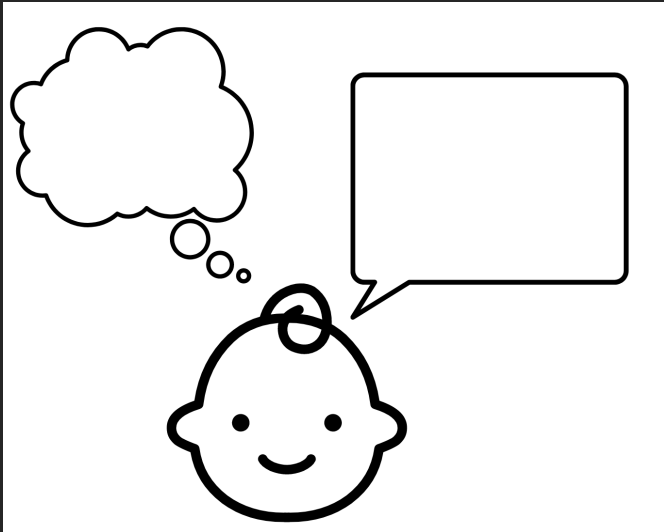


Friedmann, N. & Belletti, A. & Rizzi, L., (2021)

Implications of the ISH

for Common Ground

for language
development



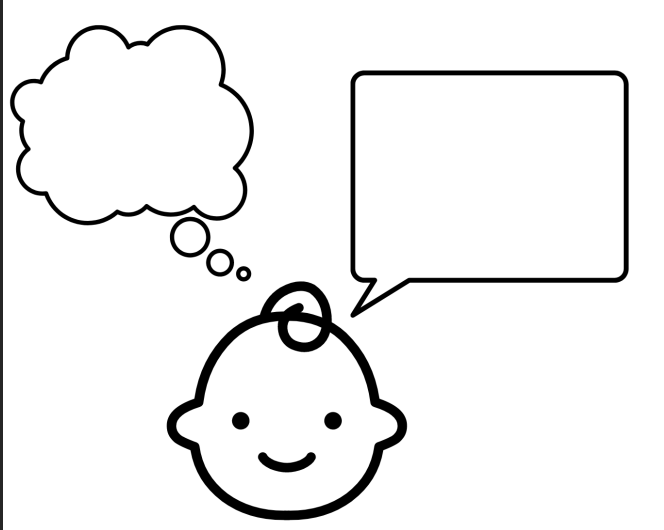
Problems for the *Maturation hypothesis*

- Interactional roles are acquired early!

Implications of the ISH

for Common Ground

for language
development



Problems for the *Maturation hypothesis*

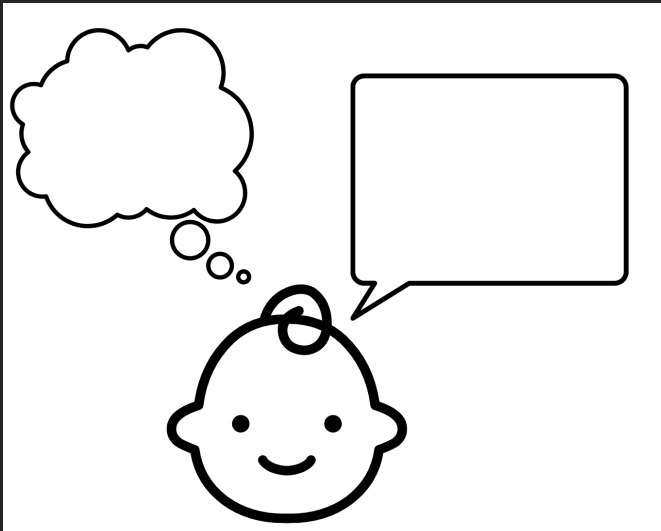
- Interactional roles are acquired early!
- Infants participate in **turn-taking**

(Bateson 1975; Oller, 2000; Jaffe et al., 2001; Gratier et al., 2015,)

Implications of the ISH

for Common Ground

for language development



Problems for the Maturation hypothesis

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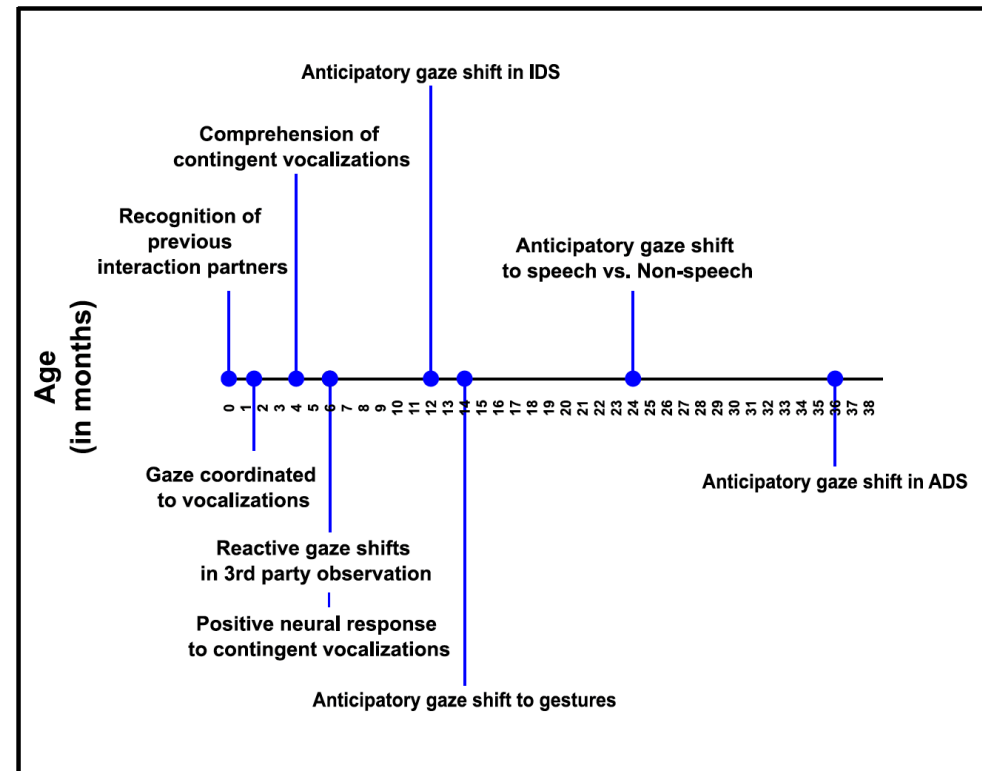
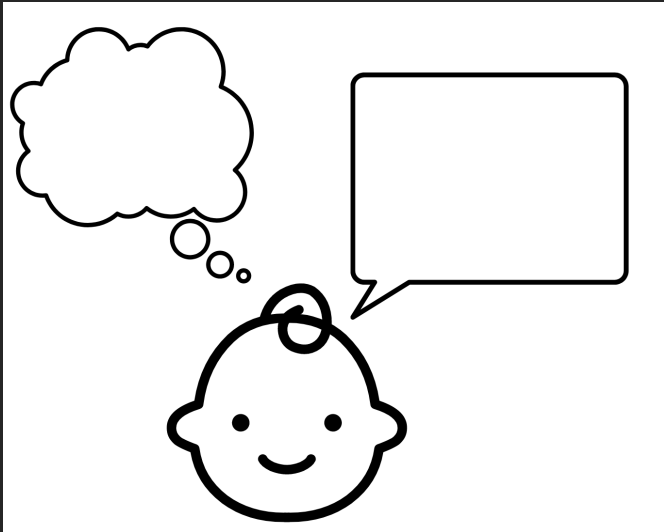


Figure 1: This figure provides a timeline, in months, and specifies the milestones of comprehensive turn-taking.

Implications of the ISH

for Common Ground

for language development



Problems for the Maturation hypothesis

- Interactional roles are acquired early!
- Infants participate in **turn-taking**

(Bateson 1975; Oller, 2000; Jaffe et al., 2001; Gratier et al., 2015, Cosper & Pika 2024)

- Interactional language is acquired early

Vocatives

- (1) Naima: Mommy? (1;01 – Providence Corpus)
Mother: Yes.

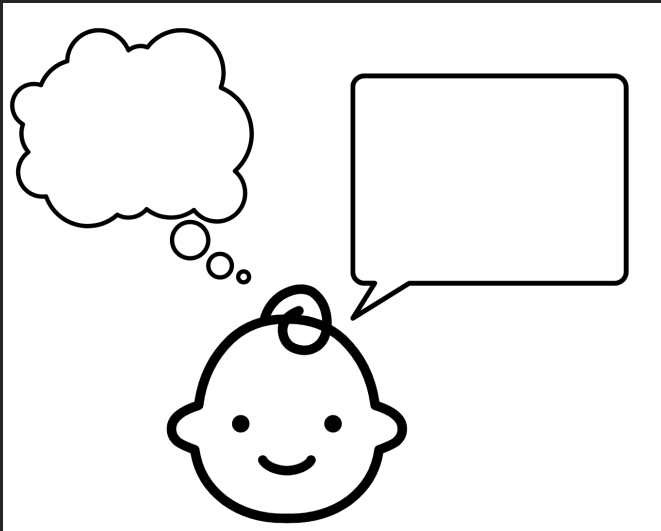
Sentence-final particles

- (2) Chuck: Out ball, huh? (1;08 – Bates Corpus)
Mother: Ball out!

Implications of the ISH

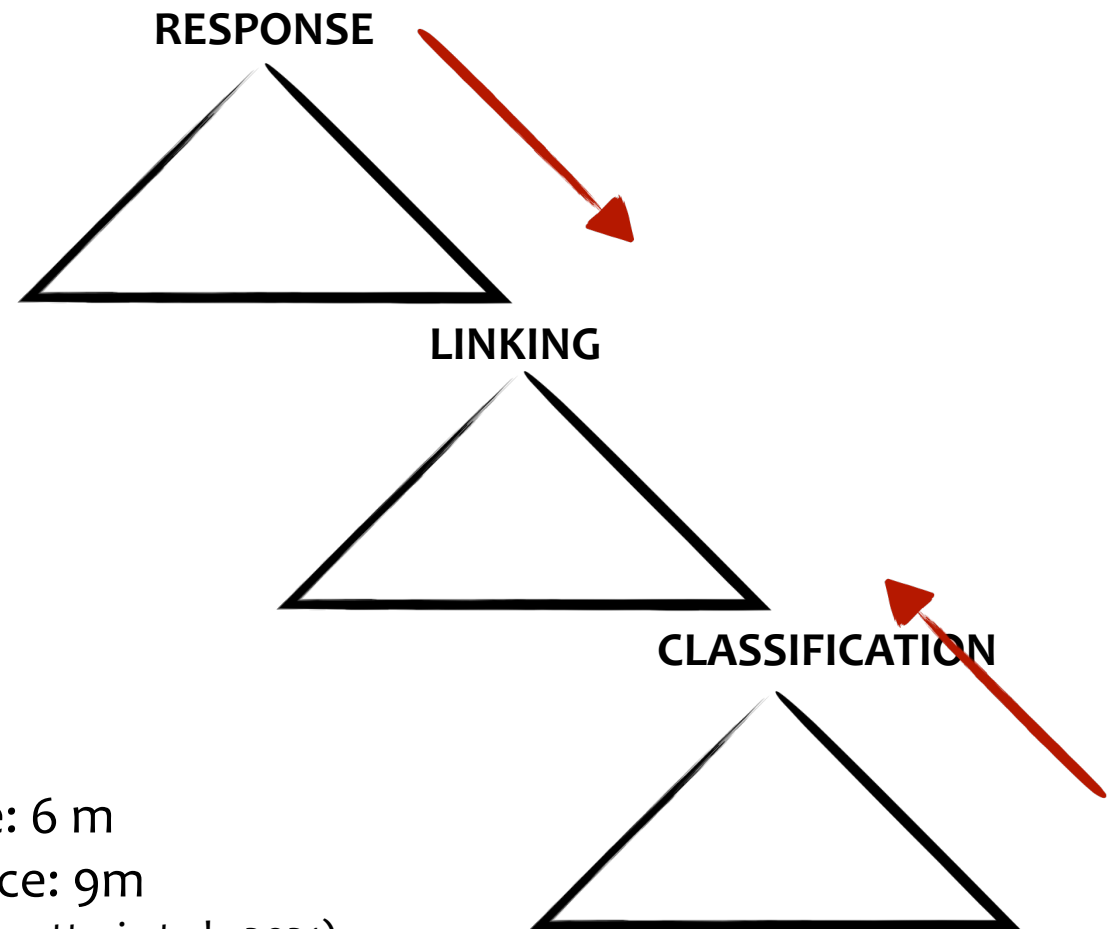
for Common Ground

for language development



An alternative to the Maturation hypothesis:

The inward growing spine hypothesis



Sensitivity to...

... **timing** of response: 6 m

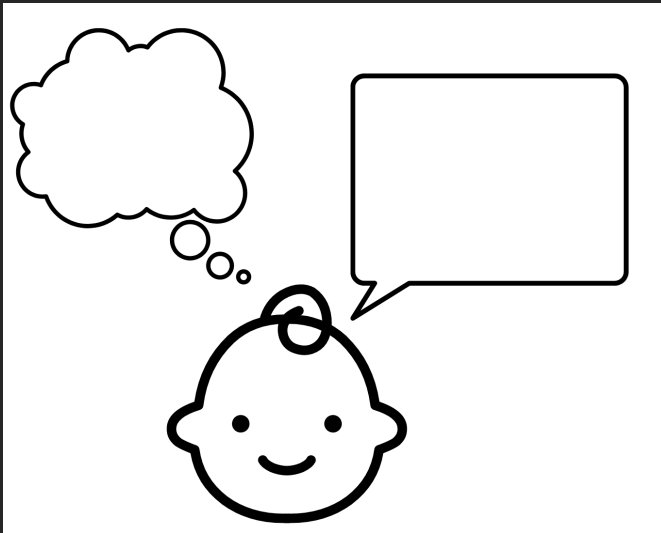
... **content** of utterance: 9m

(Lam-Cassettari et al., 2021)

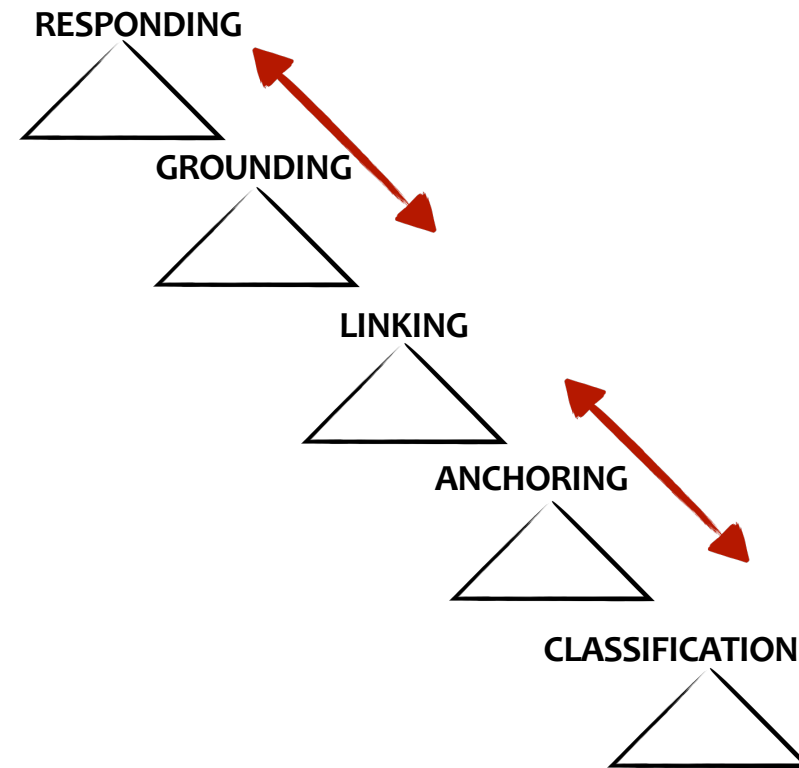
Implications of the ISH

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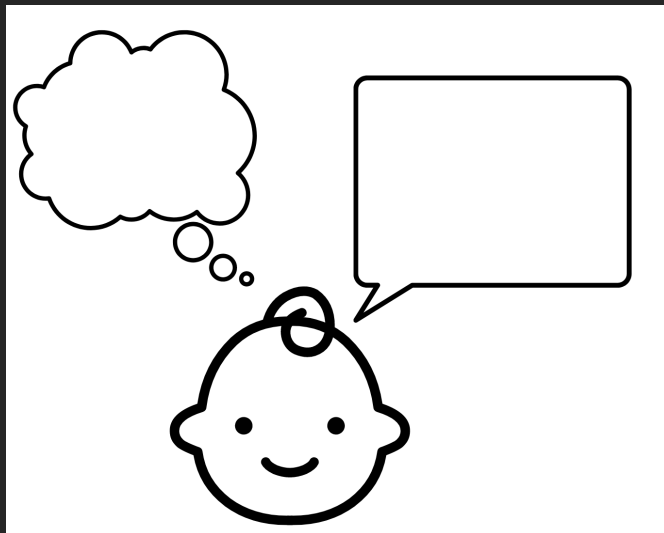
The inward growing spine hypothesis



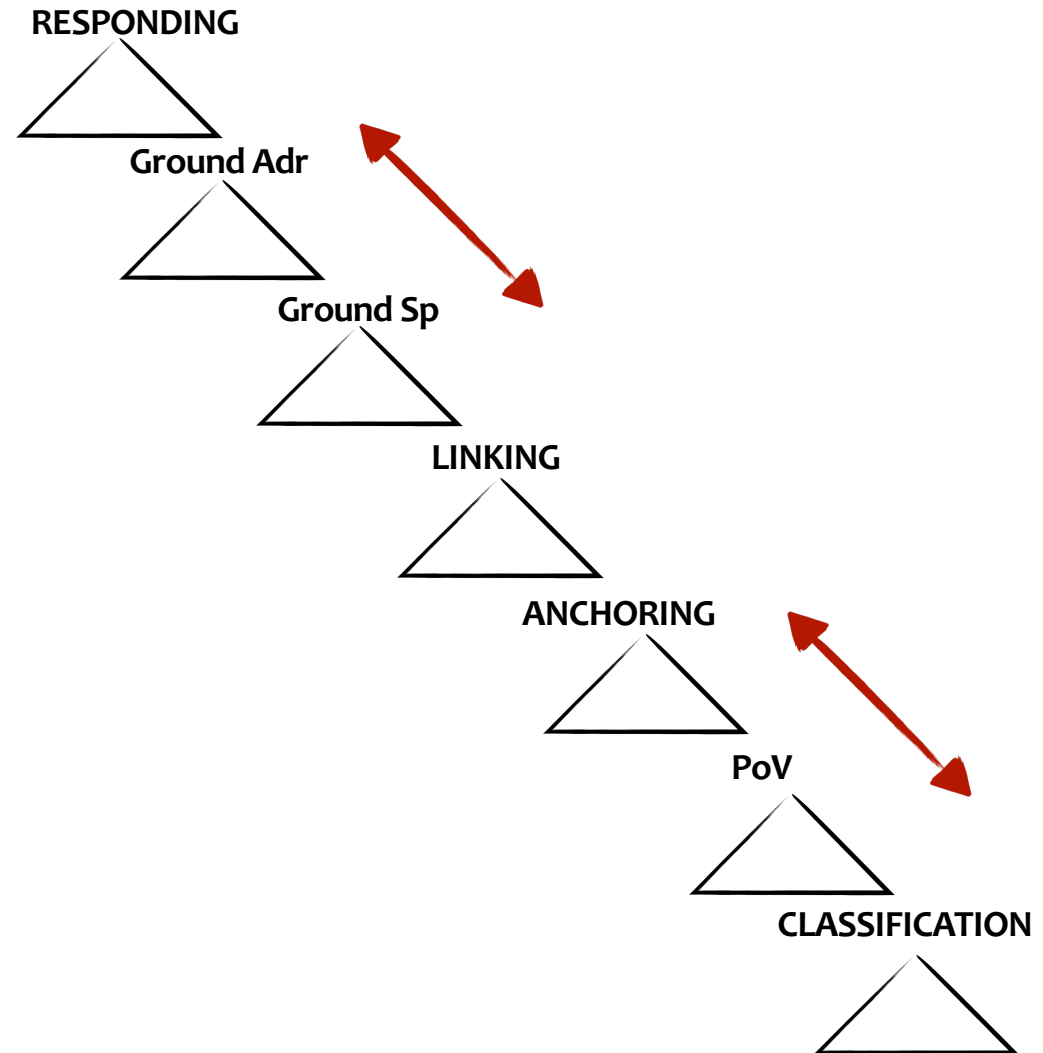
Implications of the ISH

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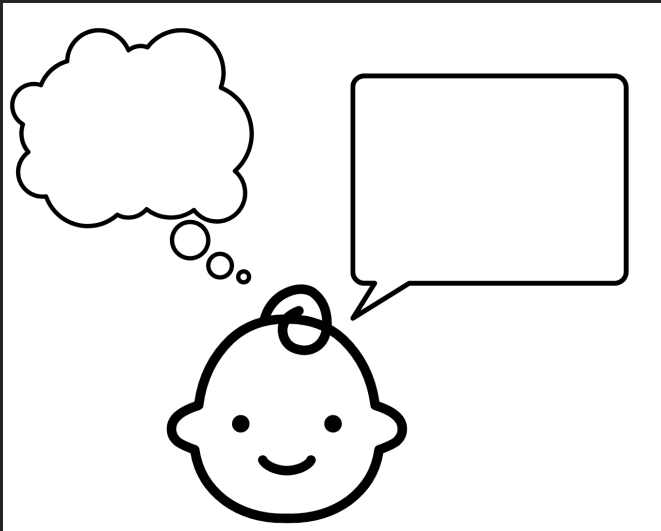
The inward growing spine hypothesis



Implications of the ISH

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The bridge model



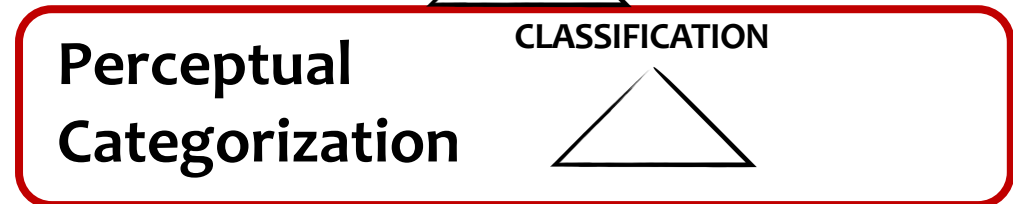
Ground Adr

Ground Sp

LINKING

ANCHORING

PoV



The spine (grammar)

bridges two pre-linguistic cognitive capacities

Hinzen & Wiltschko 2022

Overview

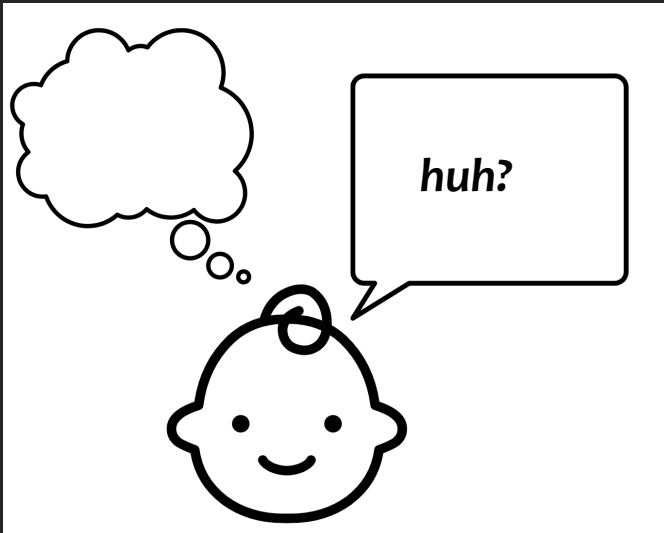
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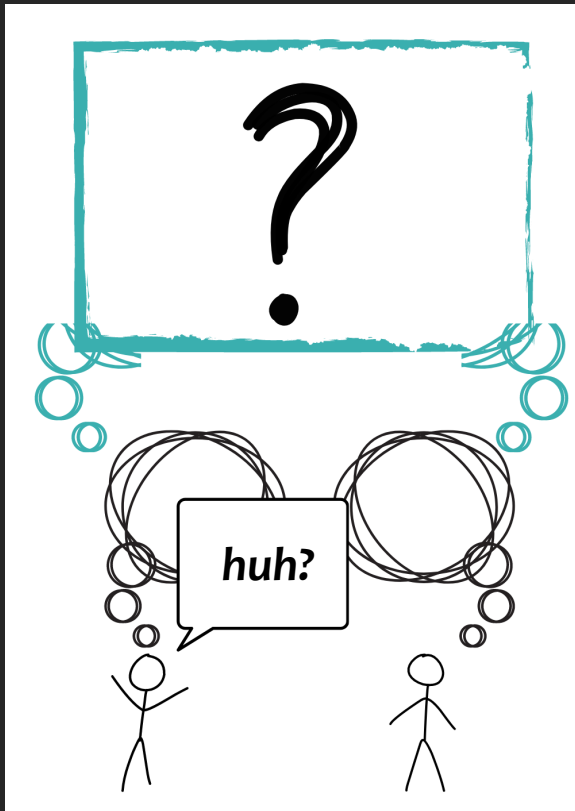
A case study of the acquisition of huh

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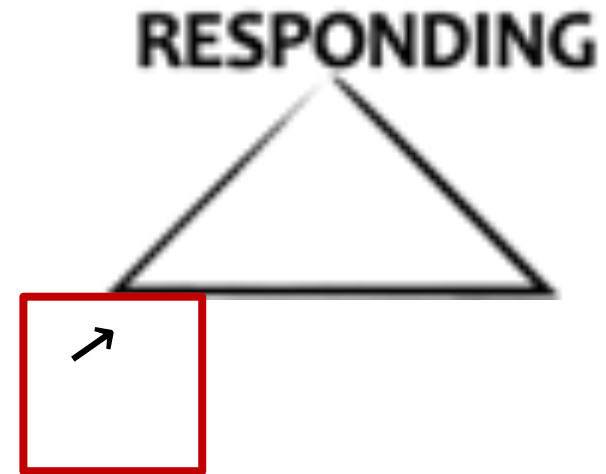
Conclusion



The target: huh in adult use



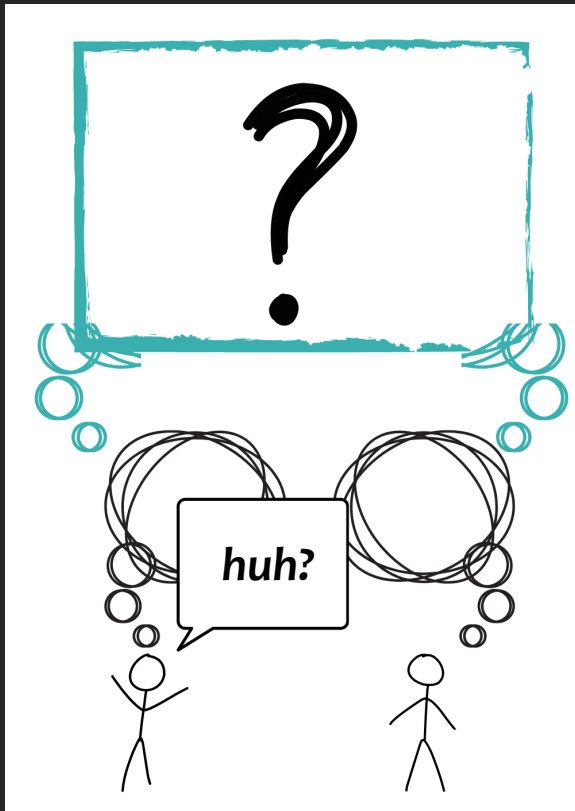
1. *Huh* as Other initiated repair marker



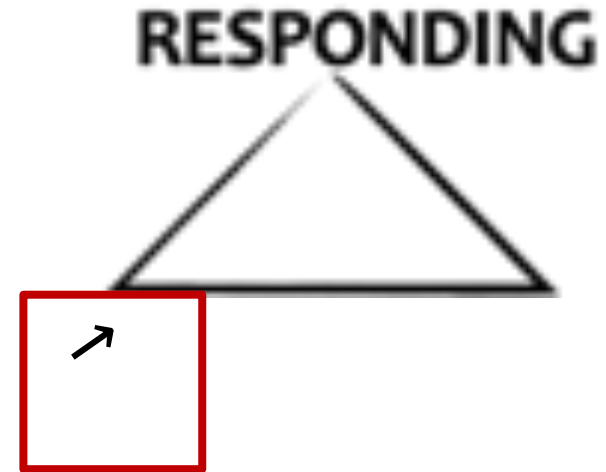
- (1) I: It's raining really hard.
R: **huh?**

= I don't understand what you are saying
+ can you clarify?

The target: huh in adult use

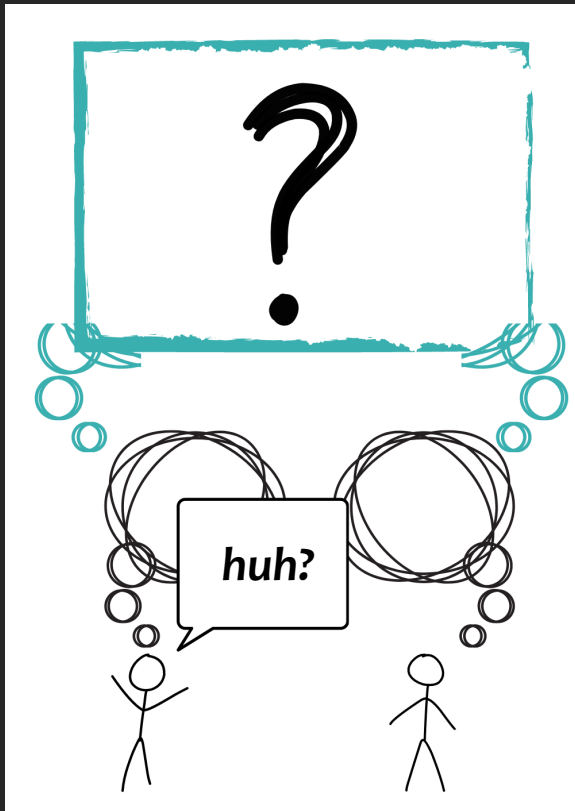


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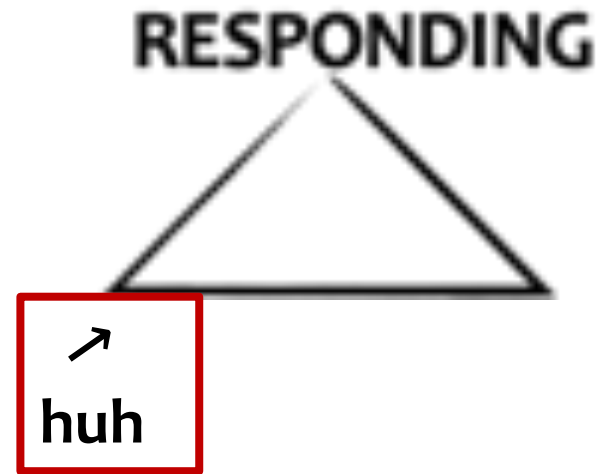


- Pro-form for RespP
- Rising intonation in RespP
- requests a response
- needs a host

The target: huh in adult use



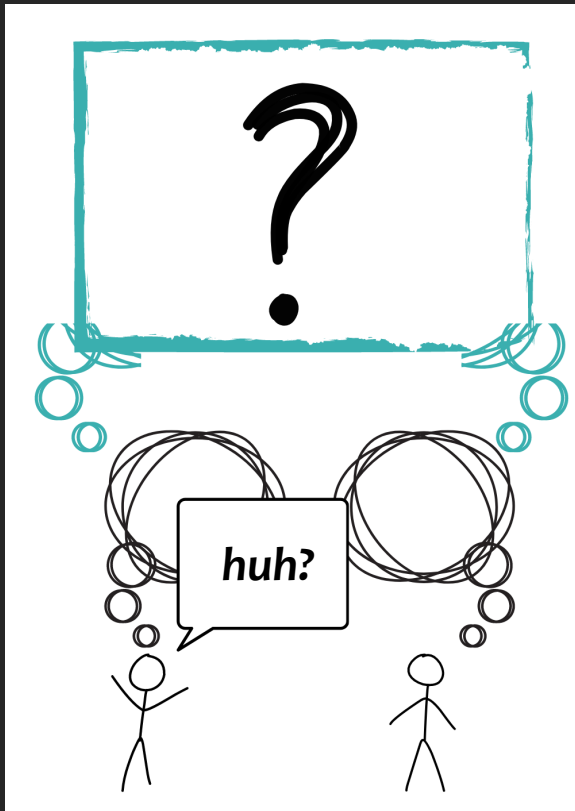
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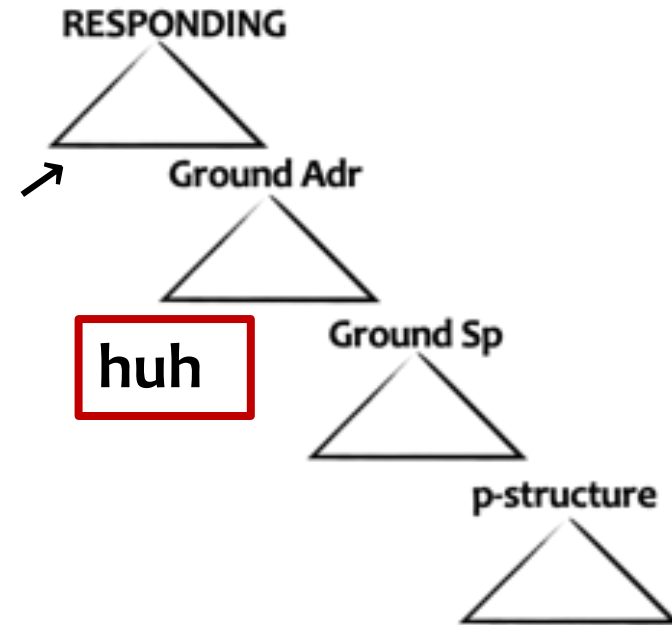
Pro-form for RespP

- Rising intonation in RespP
- requests a response
- needs a host
- **Huh** serves as the minimal syllable to host ↗

The target: huh in adult use



2. *Huh* as confirmational

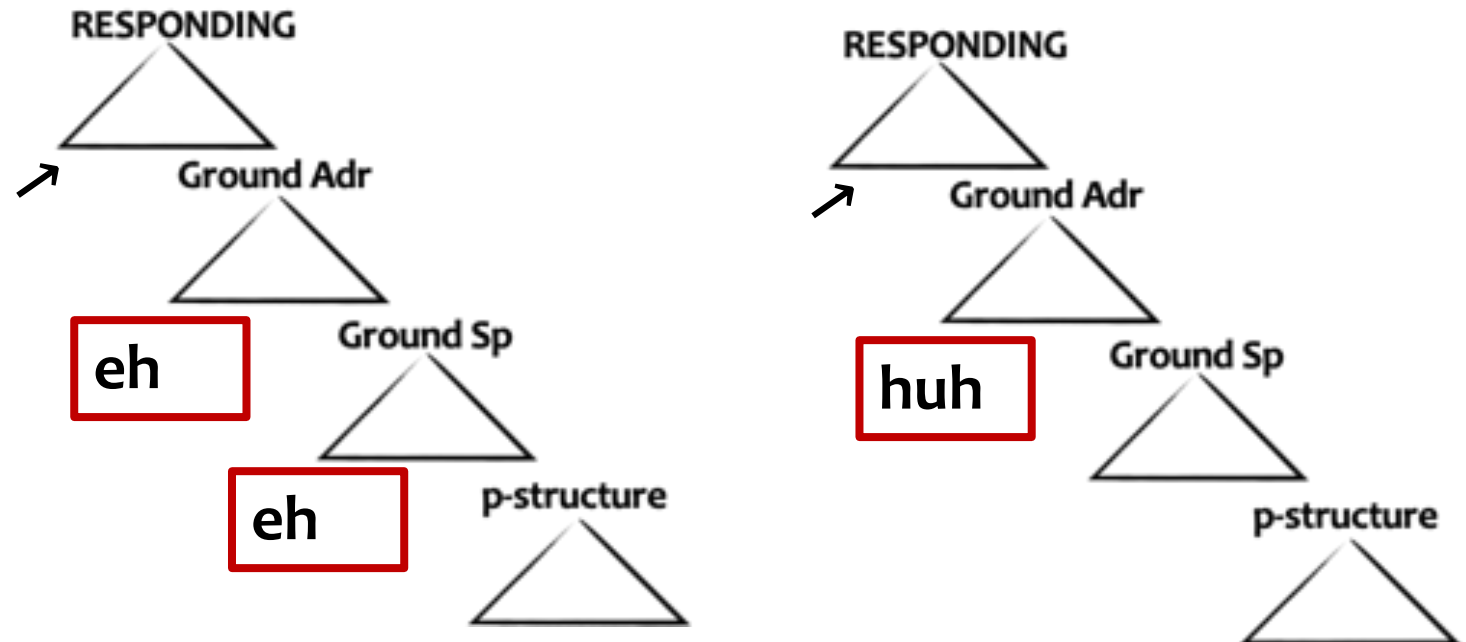


(1) It's raining really hard, **huh?**

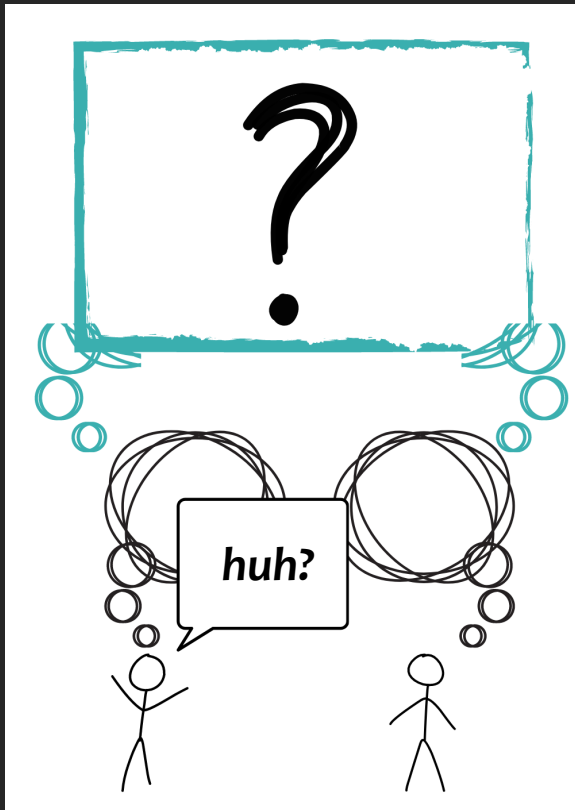
= (it looks like) **you think so**
+ confirm that this is so

The target: huh in adult use

2. *Huh* as confirmational



- (1) I have a new dog, eh?
= i) 'You know that I have a new dog, right?'
= ii) Is it true that I have a new dog?
- (2) I have a new dog, huh?
≠ i) 'You know that I have a new dog, right?'
= ii) Is it true that I have a new dog?



Overview

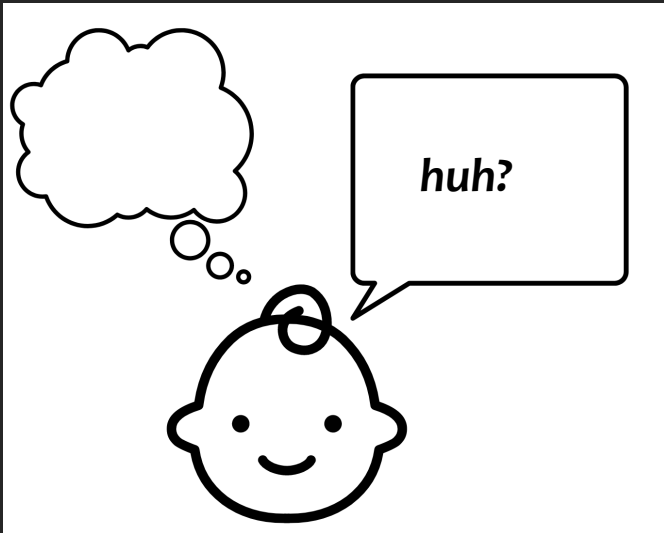
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- Stage 1: managing interaction
- Stage 2: a generalized ground (common by default)
- Stage 3: a separation of speaker and addressee ground
- Stage 4: from child to adult

Conclusion

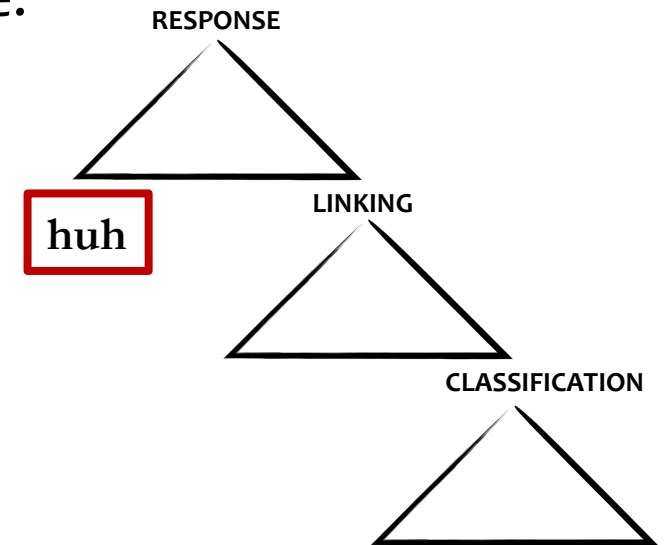
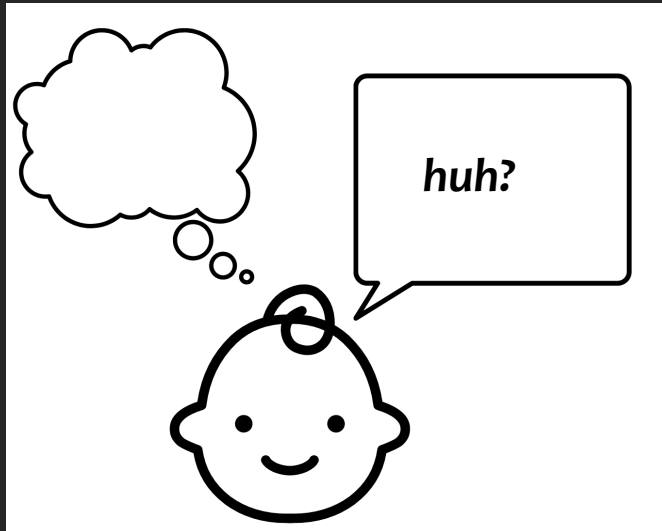


Stage 1

Huh as a request for response

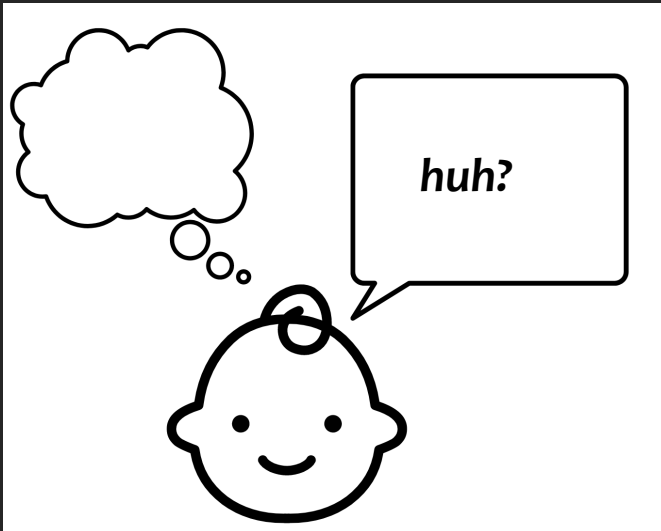
(3) Adam: Where go, **huh?** (2;07)
Mother: I don't know.

(4) Adam: Where zip it, **huh?** (2;07)
Adam: There. Zip it right there.



Stage 1

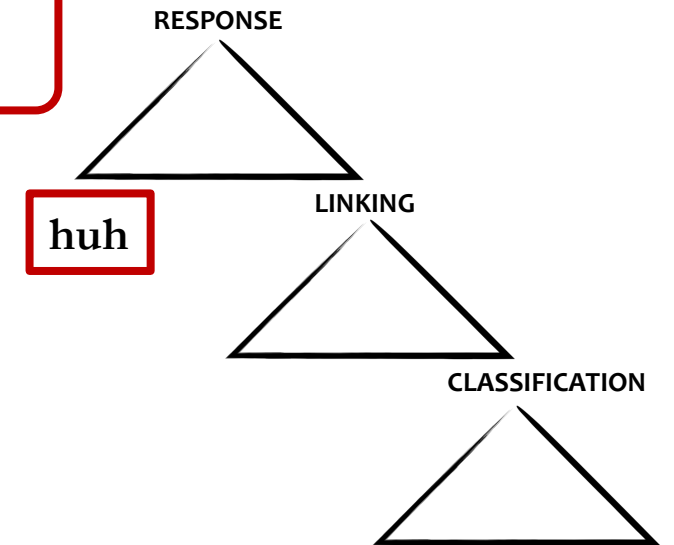
Sarah & Adam
Brown Corpus
CHILDES



Huh as a request for response

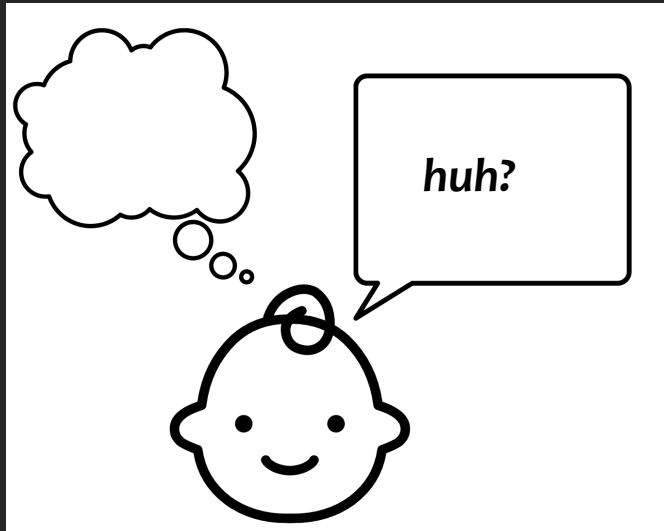
- Majority of host utterances contain wh-words
- Early SFPS ignore clause type restrictions

huh	2;0-5	2:6-11	3;0-5	3;6-11
wh-Q	-	21 _{Adam}	50 _{Adam} 1 _{Sarah}	29 _{Adam}
PQ	-	1 _{Adam}	1 _{Adam}	1 _{Adam} 2 _{Sarah}
Other	-	8 _{Sarah}	2 _{Adam} 2 _{Sarah}	2 _{Adam}
Dec	6 _{Adam}	3 _{Adam} 13 _{Sarah}	2 _{Adam} 4 _{Sarah}	3 _{Adam} 8 _{Sarah}
Total	6 _{Adam}	25 _{Adam} 21 _{Sarah}	55 _{Adam} 7 _{Sarah}	35 _{Adam} 10 _{Sarah}



Stage 2

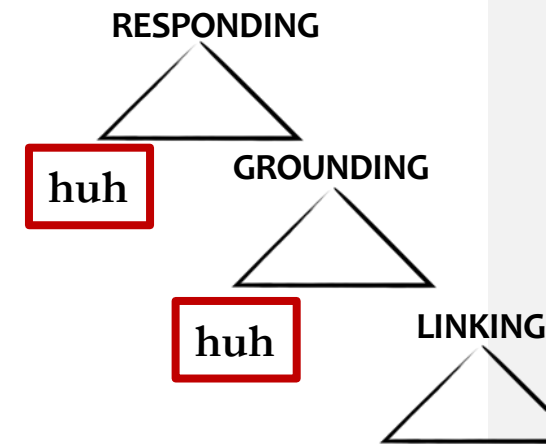
Sarah & Adam Brown Corpus CHILDES



Generalized grounding

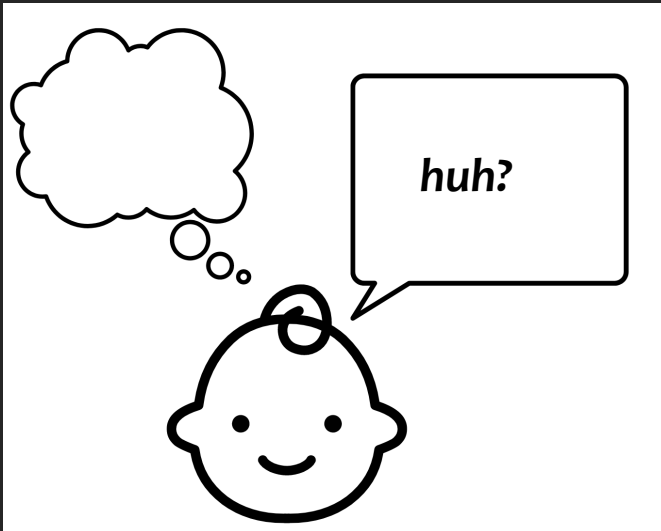
- Rapid increase in non-interrogative hosts at 4yo
- Clear cases of declaratives + *huh*

<i>huh</i>	2;0-5	2;6-11	3;0-5	3;6-11	4;0-5	4;6-11
wh-Q	-	2 ¹ Adam	5 ⁰ Adam 1 ¹ Sarah	2 ⁹ Adam	9 ¹ Adam	1 ¹ Adam
PQ	-	1 ¹ Adam	1 ¹ Adam	1 ¹ Adam 2 ² Sarah	3 ³ Adam 3 ³ Sarah	2 ² Adam 3 ³ Sarah
Other	-	8 ⁸ Sarah	2 ² Adam 2 ² Sarah	2 ² Adam	5 ⁵ Adam 21 ²¹ Sarah	3 ³ Adam 6 ⁶ Sarah
Dec	6 ⁶ Adam	3 ³ Adam 13 ¹³ Sarah	2 ² Adam 4 ⁴ Sarah	3 ³ Adam 8 ⁸ Sarah	3 ⁸ Adam 10 ² Sarah	14 ¹⁴ Adam 31 ³¹ Sarah
Total	6 ⁶ Adam	25 ²⁵ Adam 21 ²¹ Sarah	55 ⁵⁵ Adam 7 ⁷ Sarah	35 ³⁵ Adam 10 ¹⁰ Sarah	55 ⁵⁵ Adam 126 ¹²⁶ Sarah	20 ²⁰ Adam 40 ⁴⁰ Sarah



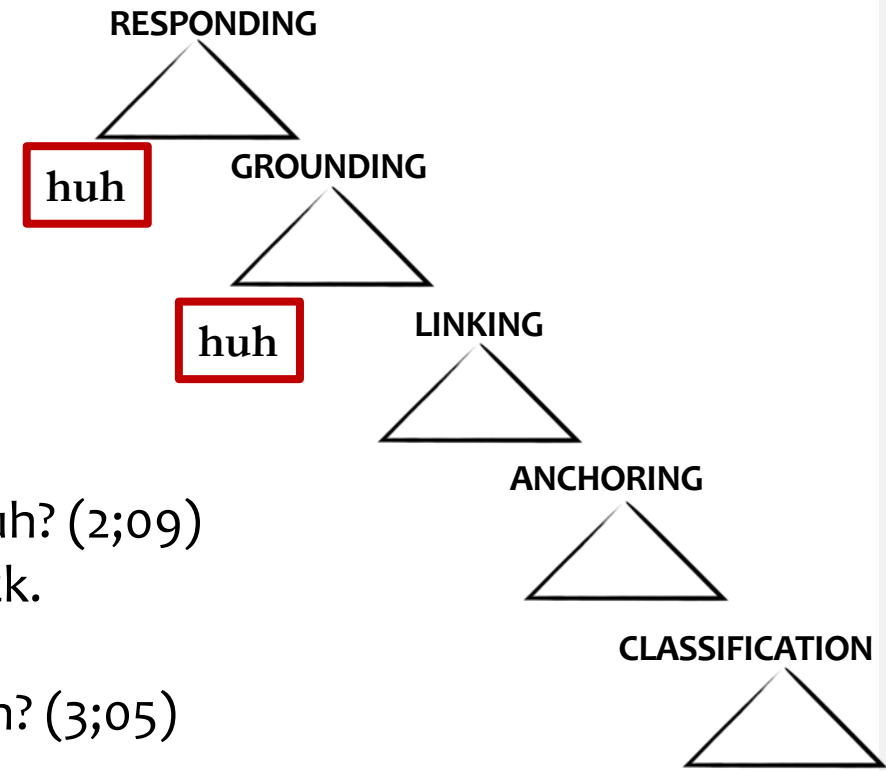
Stage 2

Sarah & Adam
Brown Corpus
CHILDES



Generalized grounding

Marks that p is now in the ground
(different from adult lg.)

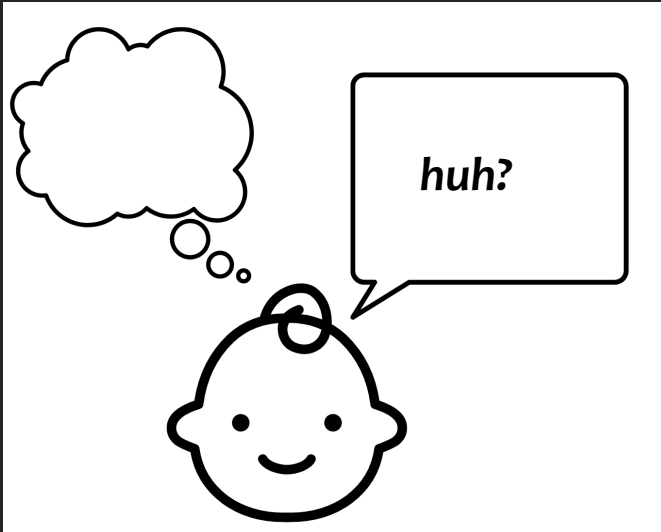


(5) Sarah: You come back, huh? (2;09)
Mother: Yeah, I'll come back.

(6) Sarah: That look nice, huh? (3;05)
Ken: Very nice.

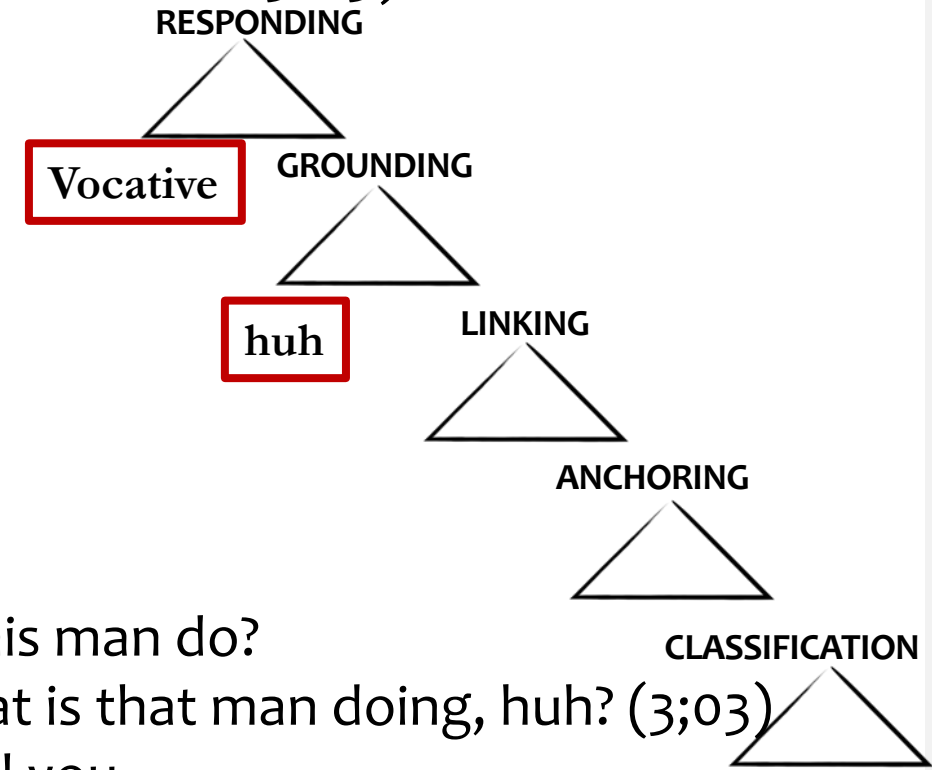
Stage 2

Sarah & Adam
Brown Corpus
CHILDES



Generalized grounding

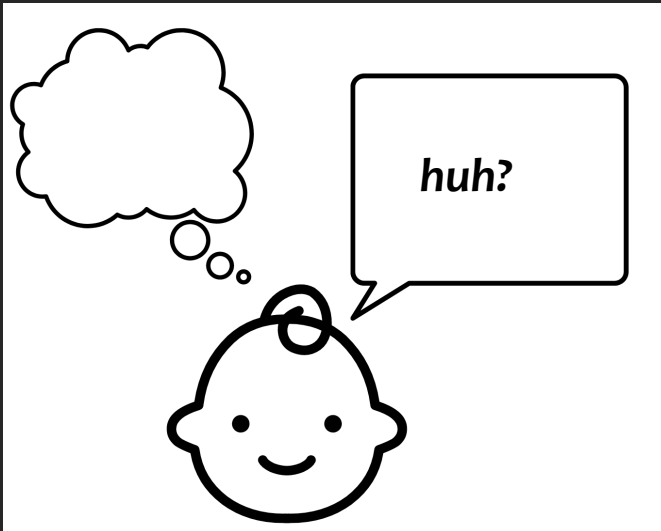
Co-occurrence with vocatives
(start at 2:10, more frequent after 3:03)



- (7) Ursula: What does this man do?
Adam: Mommy, what is that man doing, huh? (3;03)
Mum: Oh, I can't tell you.

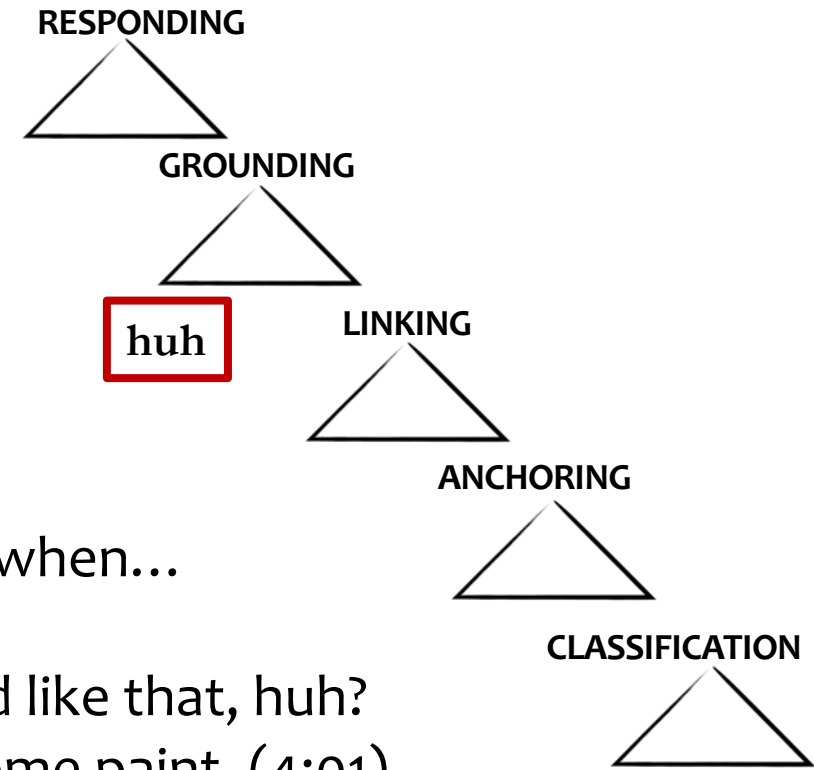
Stage 2

Sarah & Adam
Brown Corpus
CHILDES



Generalized grounding

Doesn't always expect answer



(8) Adam:

You remember when...

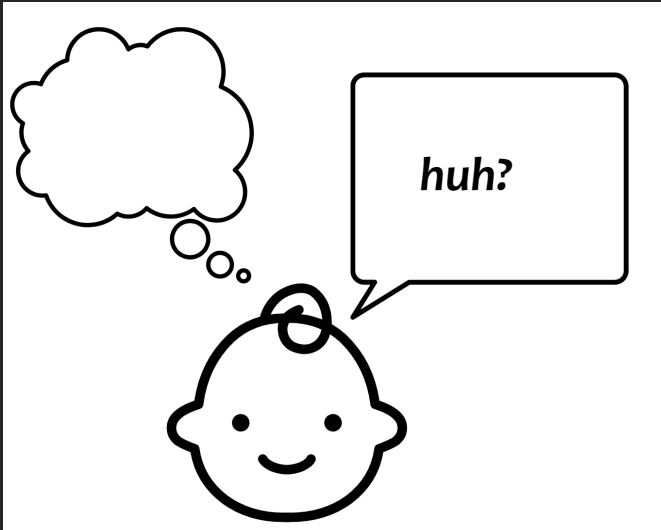
You turn.

You turn around like that, huh?

Then you get some paint. (4;01)

Stage 3

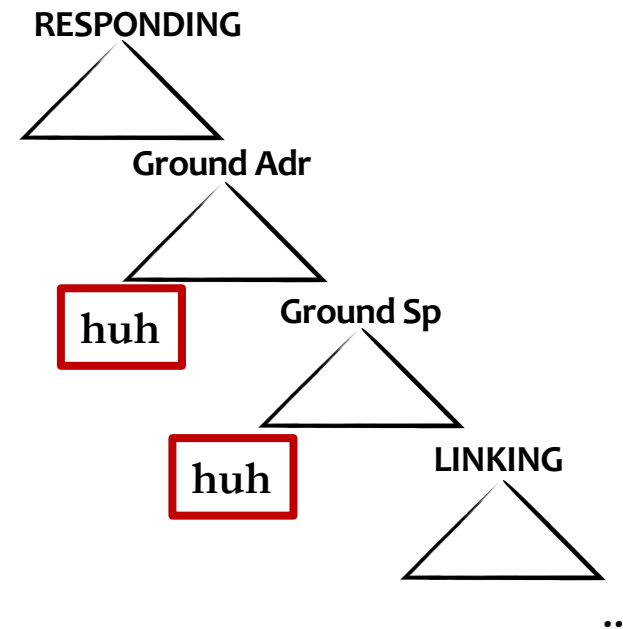
Sarah & Adam
Brown Corpus
CHILDES



Differentiating between A and S ground

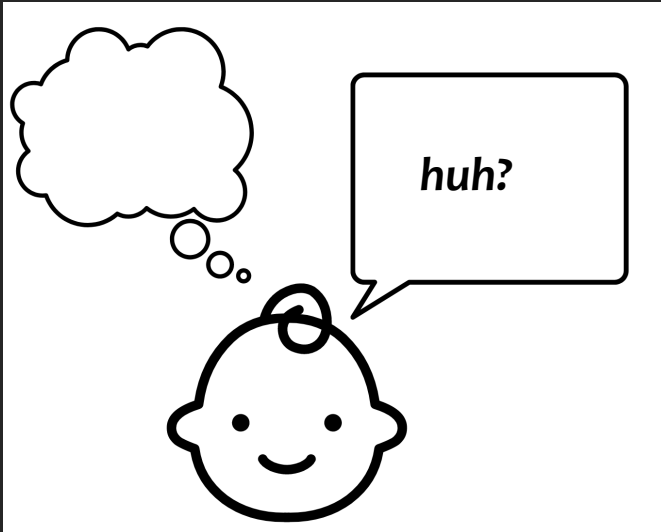
Starting at 4;09 there are clear cases of

- confirming Adr belief
- confirming S belief



Stage 3

Sarah & Adam
Brown Corpus
CHILDES



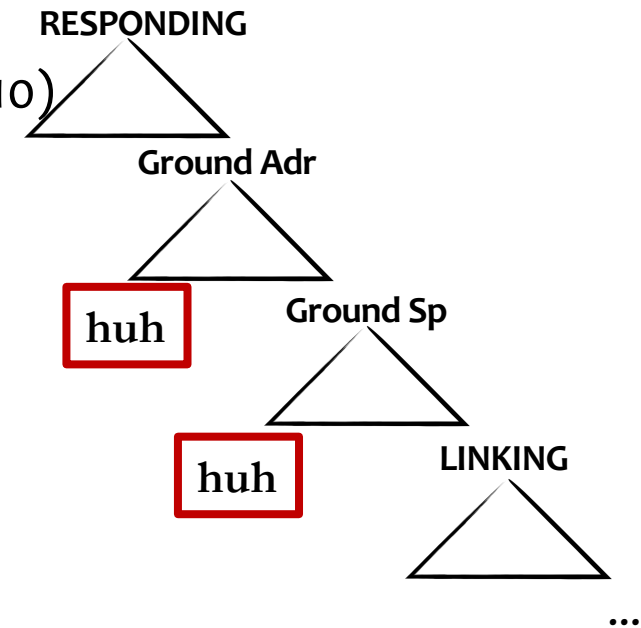
Differentiating between A and S ground

S knows, wants to confirm that A knows

(9) Sarah: We got Grampy socks, huh? (4:10)

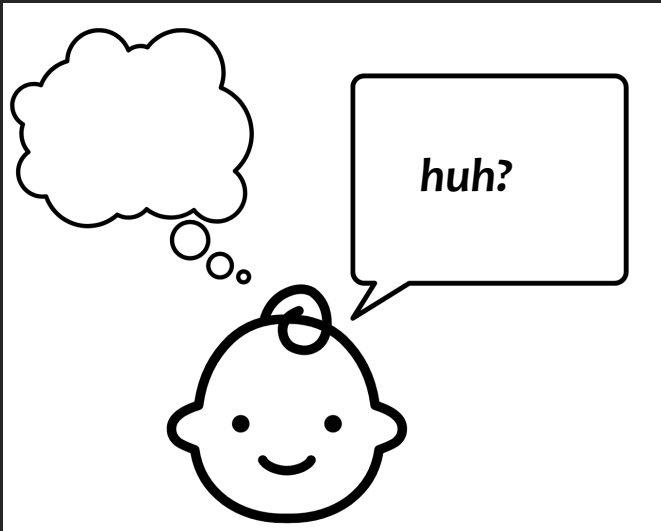
Mother: You bought Grampy socks?

Sarah: Yeah.



Stage 3

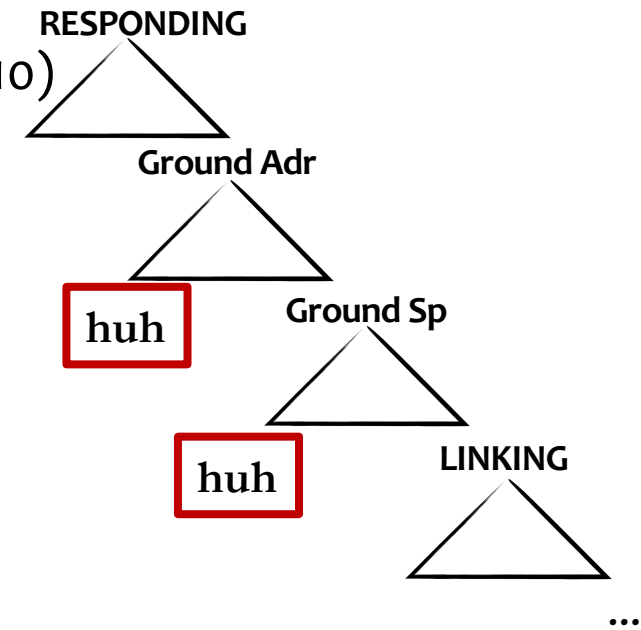
Sarah & Adam
Brown Corpus
CHILDES



Differentiating between A and S ground

S knows, wants to confirm that A knows

- (9) Sarah: We got Grampy socks, huh? (4:10)
Mother: You bought Grampy socks?
Sarah: Yeah.

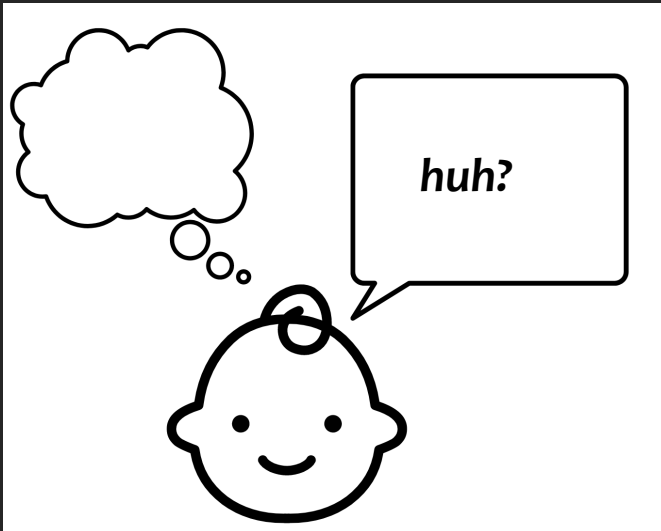


S believes and believes that A knows

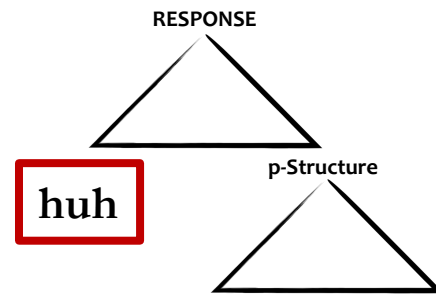
- (10) Mother: We left him down there.
Sarah: We forgot him, huh? (4; 11)
Mother: No, we didn't forget him, but...

The acquisition of huh

huh?

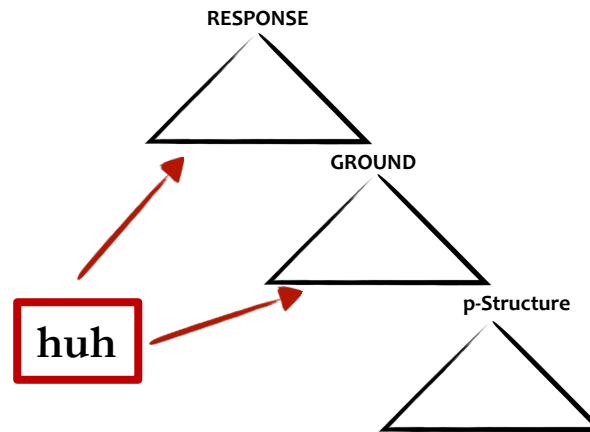


Stage 1
(till 3;05)



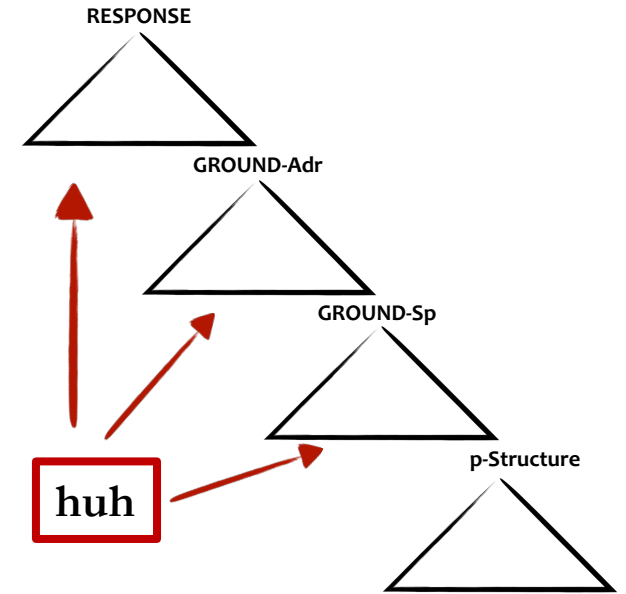
Request for response

Stage 2
(till 4;05)



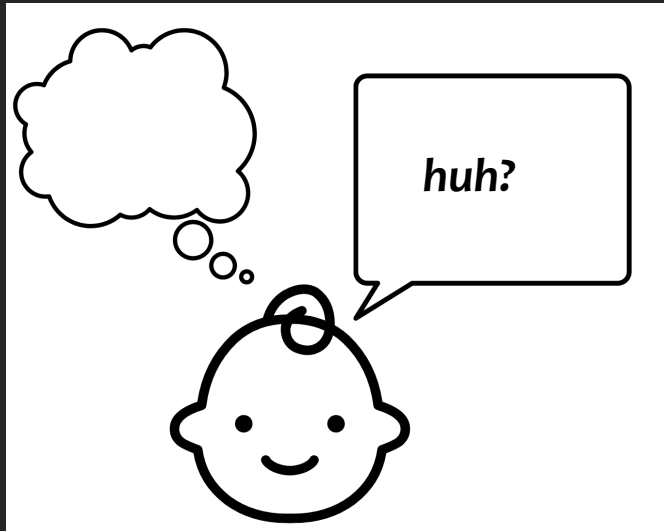
Request for response
Mark p as grounded

Stage 3
(till ??)

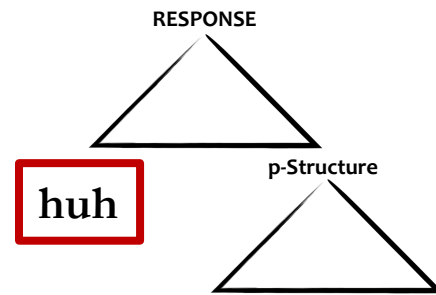


Request for response
Confirm your ground
Or:
Confirm my ground

The acquisition of huh

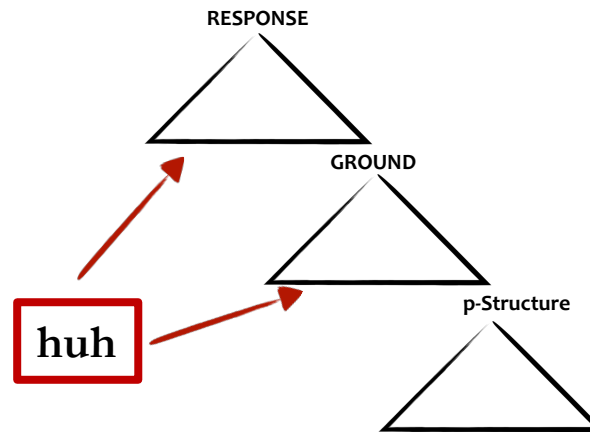


Stage 1
(till 3;05)



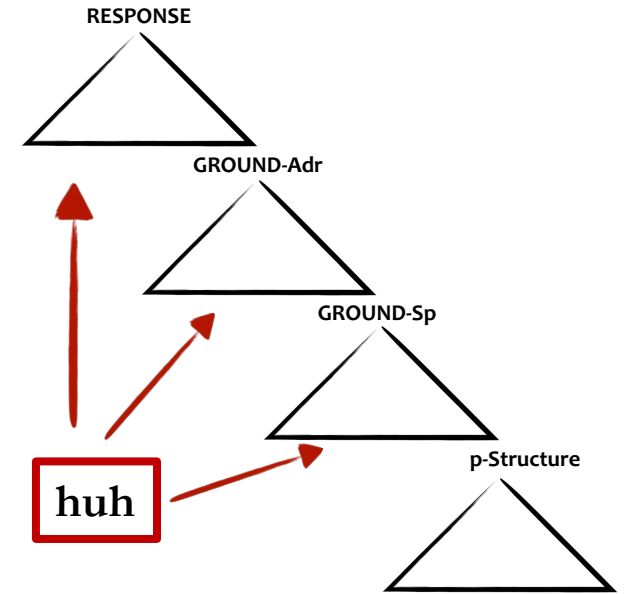
Request for response

Stage 2
(till 4;05)



Request for response
Mark p as grounded

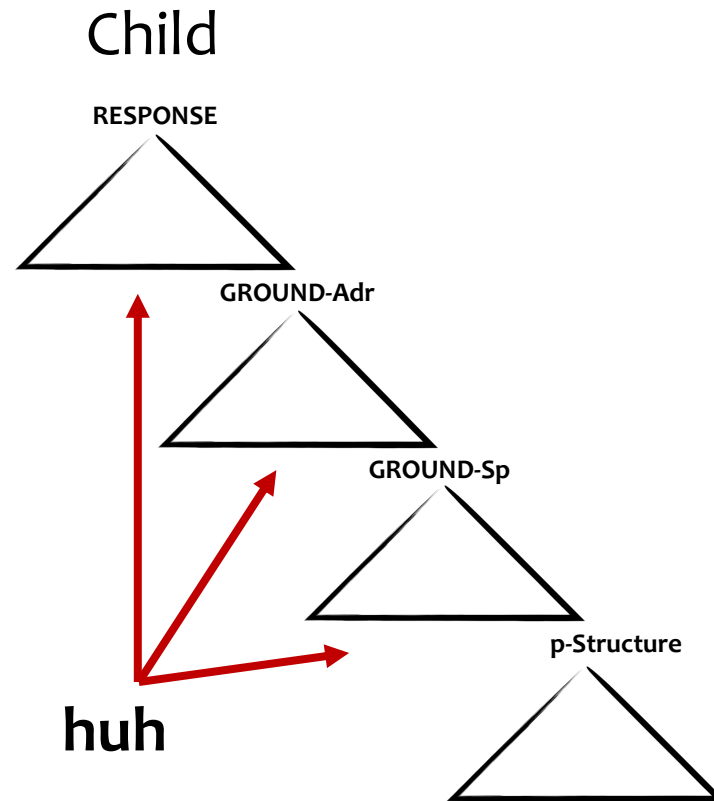
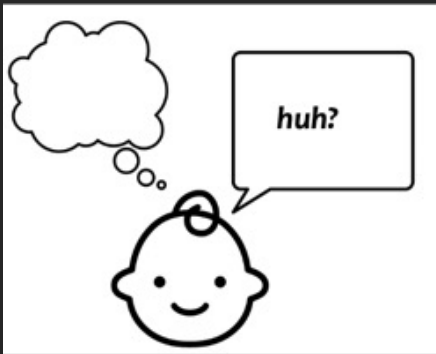
Stage 3
(till ??)



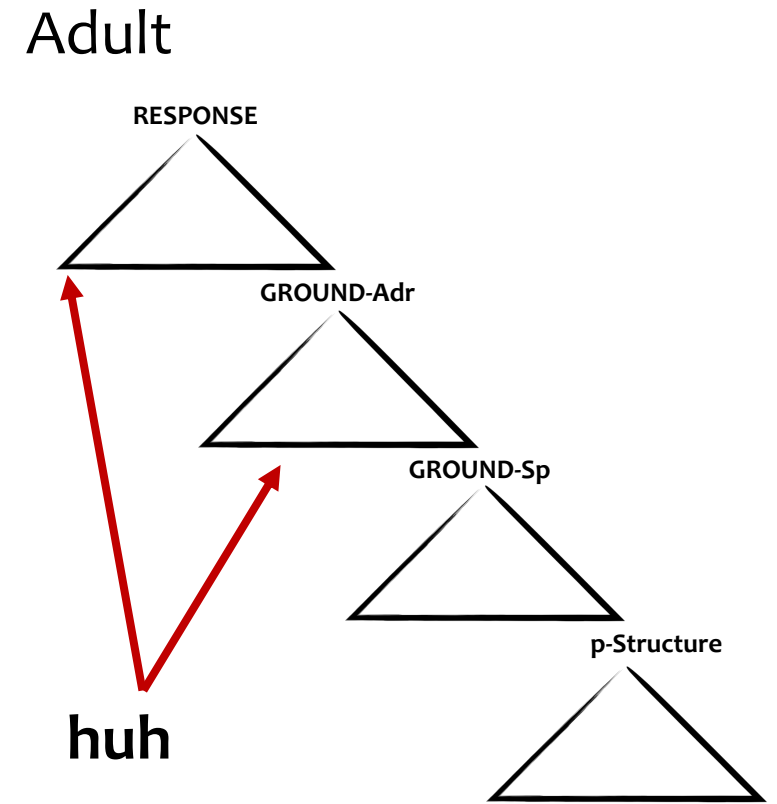
Request for response
Confirm your ground
Or:
Confirm my ground

The child has to incorporate adult grammar into available spine!

From child to adult

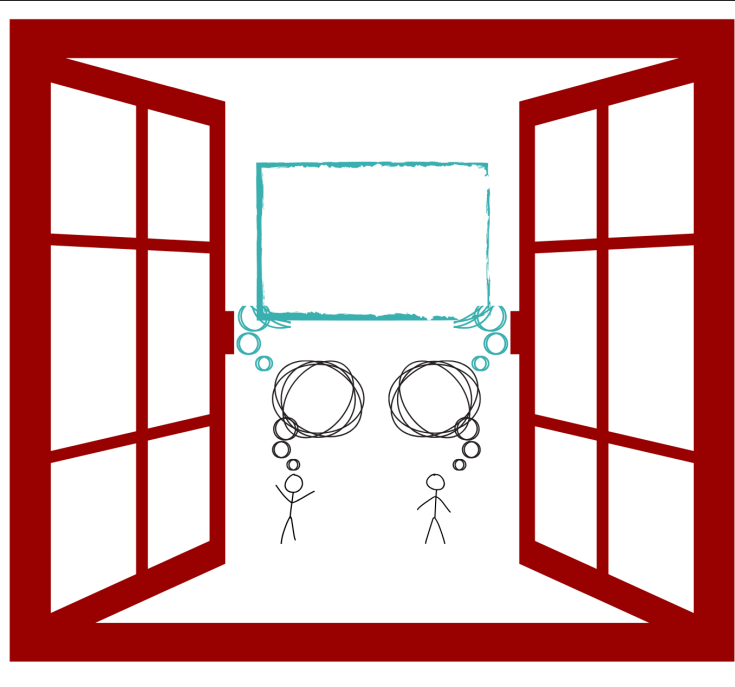


Request for response
Confirm your ground
Or:
Confirm my ground



Request for response
and
Confirm your ground

Conclusion



Background

- i-language in adults
- the logic of linguistic thought (propositional grammar)
- The logic of linguistic interaction (interactional grammar)
- and how to model it
 - the interactional spine hypothesis (ISH)
- Implications of the ISH
 - for CG
 - for language development

A case study of the acquisition of huh

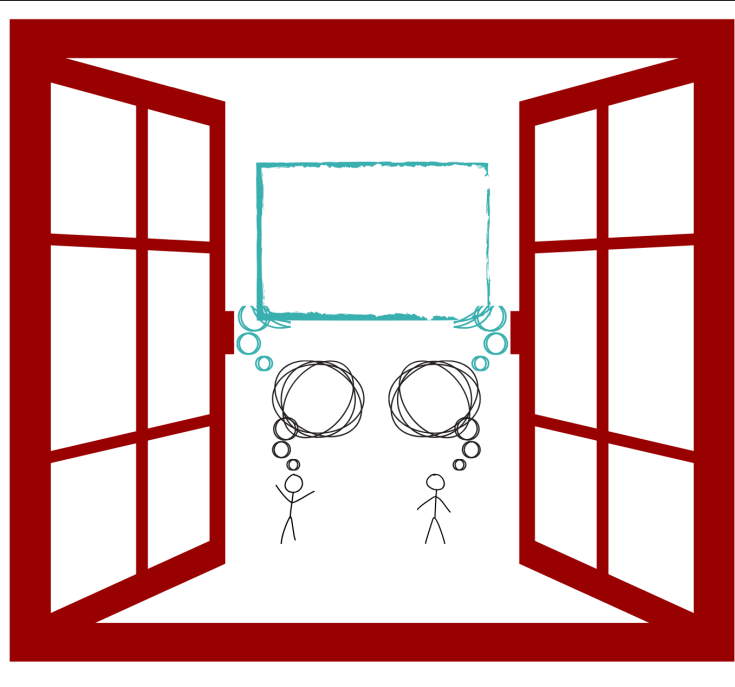
- The target: *huh* in adult use
- Stage 1: managing interaction
- Stage 2: a generalized ground (common by default)
- Stage 3: a separation of speaker and addressee ground
- Stage 4: from child to adult

Conclusion

Conclusion

Goal

i(nteractional) language as a window into the development of Common Ground (CG) in children



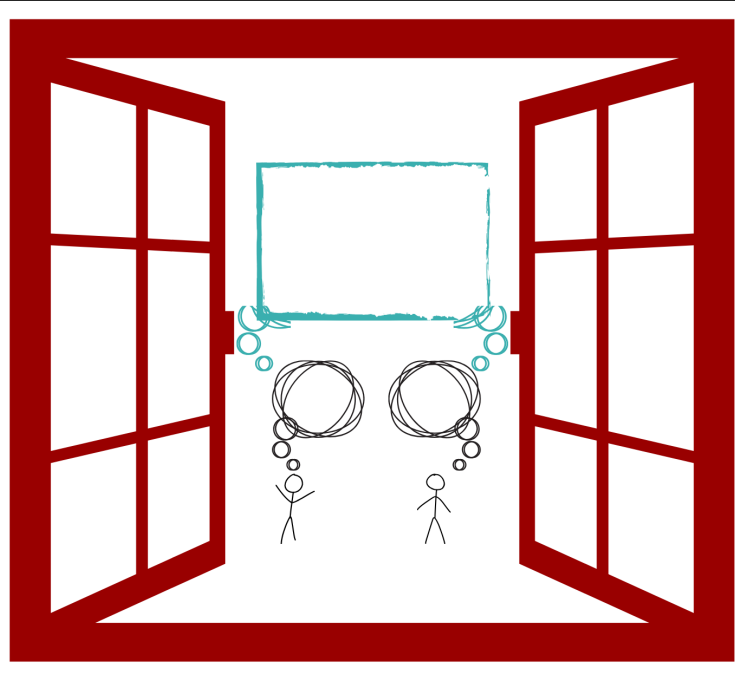
Conclusion

Goal

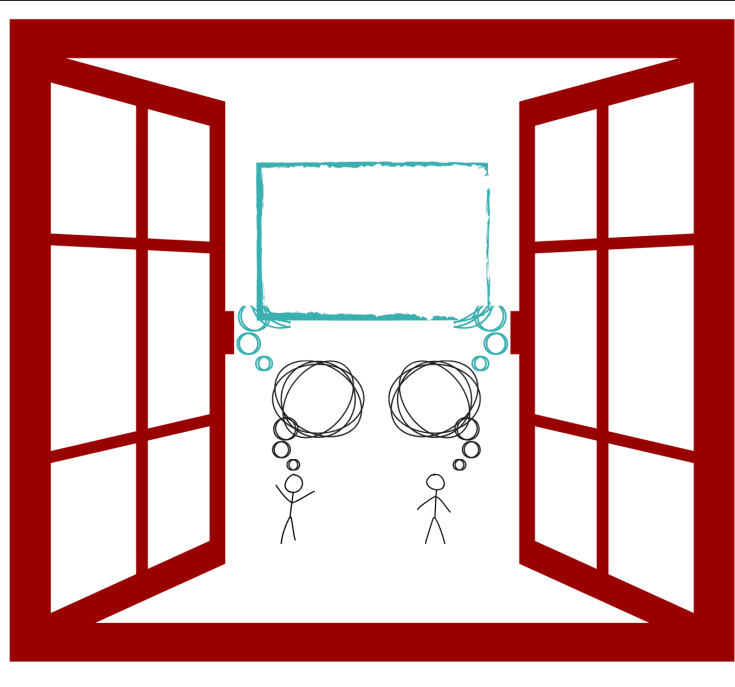
i(nteractional) language as a window into the development of Common Ground (CG) in children

Possible lessons from the case study

- Stage 1: managing interaction
 - A notion of self vs. other must be in place



Conclusion



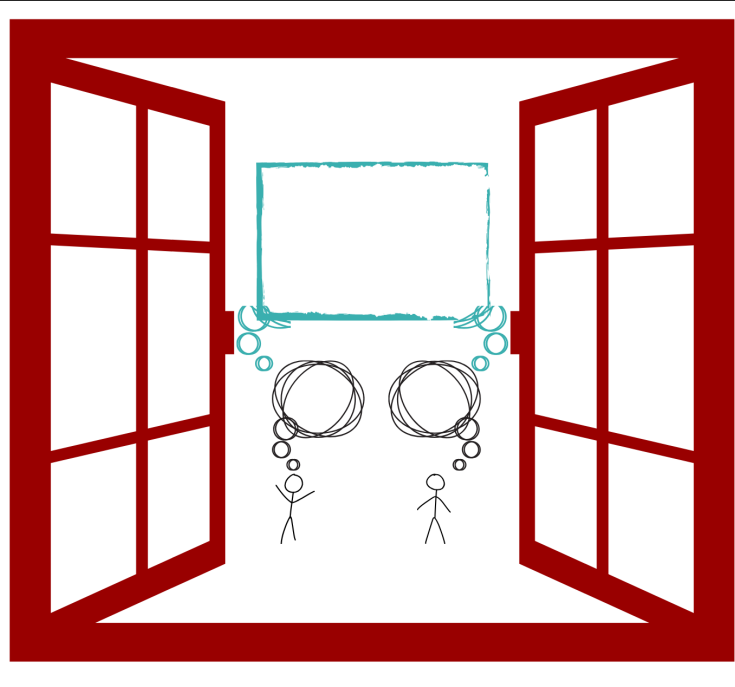
Goal

i(nteractional) language as a window into the development of Common Ground (CG) in children

Possible lessons from the case study

- Stage 1: managing interaction
 - A notion of self vs. other must be in place
- Stage 2: a generalized ground
 - Children do not start with a purely egocentric view
 - While a general distinction between self vs. other is in place, the distinction between self vs. other epistemic state is not

Conclusion



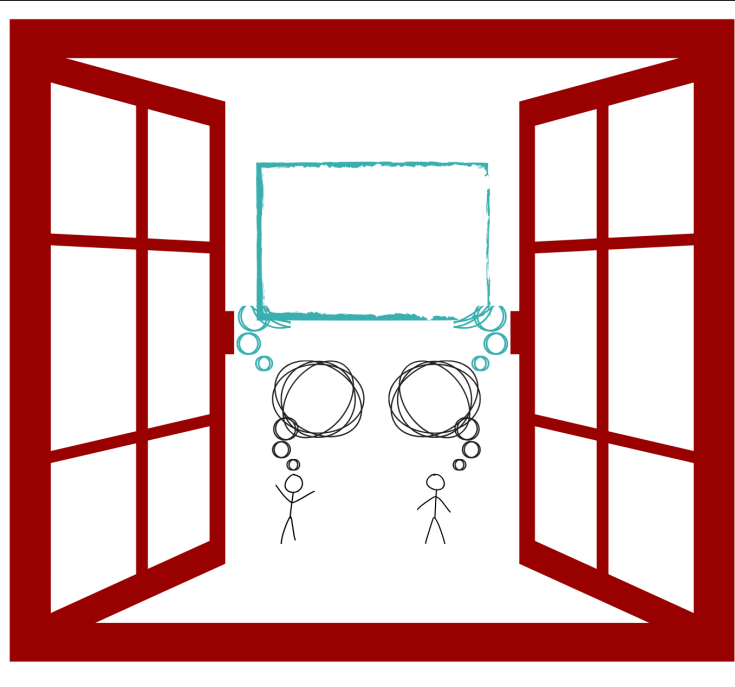
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i(nteractional) language as a window into the development of Common Ground (CG) in children

Possible lessons from the case study

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- Stage 3: a separation of speaker and addressee ground
 - This may coincide with the development of Theory of Mind

Conclusion



Goal

i(nteractional) language as a window into the development of Common Ground (CG) in children

Possible lessons from the case study

- Stage 1: managing interaction
 - A notion of self vs. other must be in place
- Stage 2: a generalized ground
 - Children do not start with a purely egocentric view
 - While a general distinction between self vs. other is in place, the distinction between self vs. other epistemic state is not
- Stage 3: a separation of speaker and addressee ground
 - This coincides with the development of Theory of Mind
- Stage 4: from child to adult
 - This only concerns surface level linguistic adjustments