Language Production II

LIGN 170, Lecture 11

A little more about errors

- Key aspect:
  - *un*intentional
- Not speech errors (for our purposes)
  - Malapropisms
  - (Ideo- or) Dialectal variation
  - Errors based on incomplete learning
    - L1 or L2

Model of Speech Production

Different segments of errors

- Feature-level
- Phoneme-level
- Syllable-level
- Word/Morpheme-level

  - Production system must assemble speech in a way that allows for possible errors at each of these levels

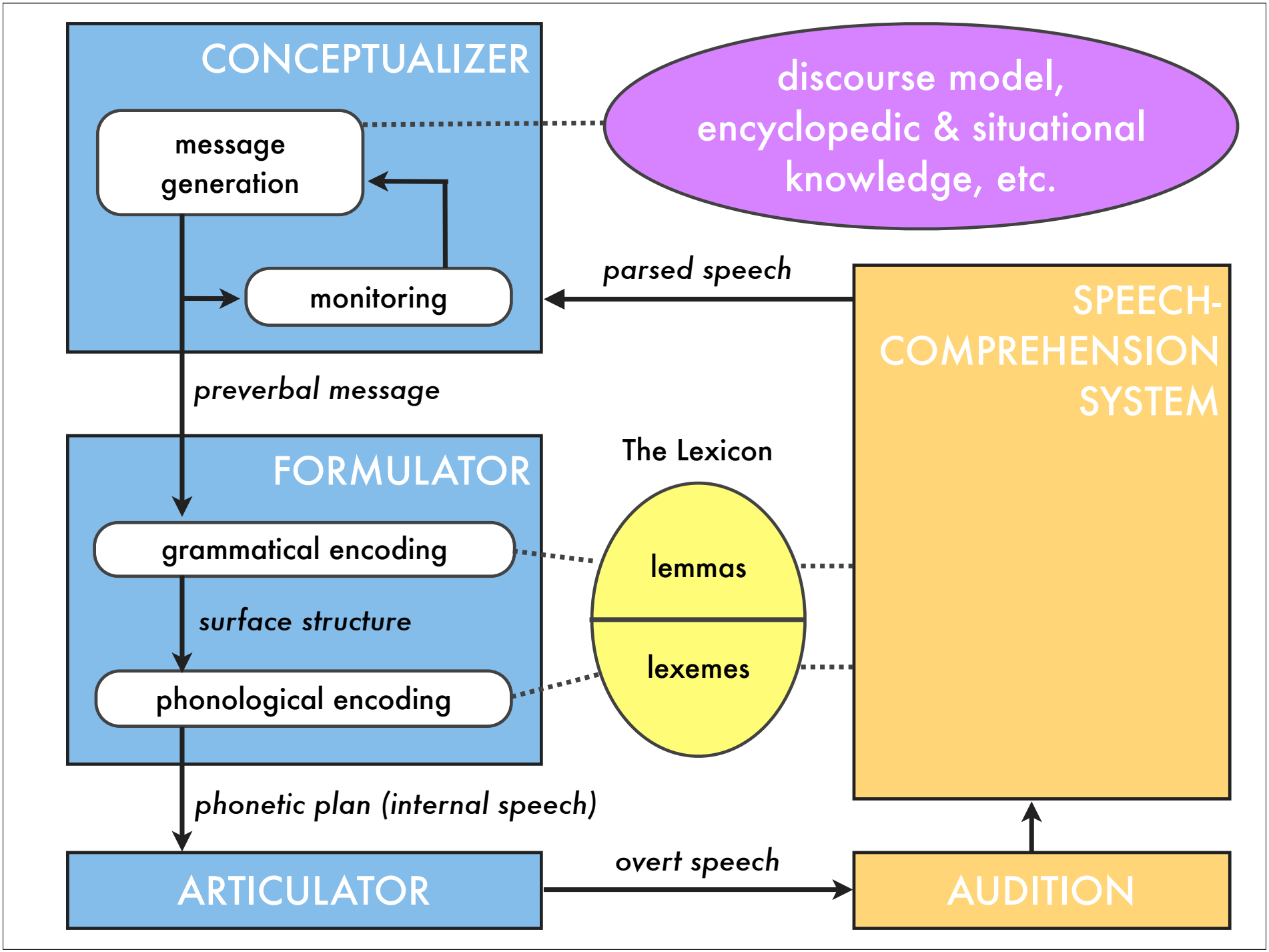
Morphological information

- Evidence: Floating morpheme errors
  - cow tracks track cows
- Evidence: Word errors that respect phonological / morphological rules:
  - a watched pot never boils
    - a potted watch never boils
- Notice that the morphemes are pronounced properly

A Sketch

- Message-level
  - Deciding what to content to convey
- Formulating speech
  - Converting message into speech
    - Meaning
    - Form
- Speaking

- Levelt's Model of Speech Production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message generation
monitoring
discourse model, encyclopedic & situational knowledge, etc.
parsed speech
SPEECH-COMPREHENSION SYSTEM
preverbal message
FORMULATOR
grammatical encoding
surface structure
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overt speech
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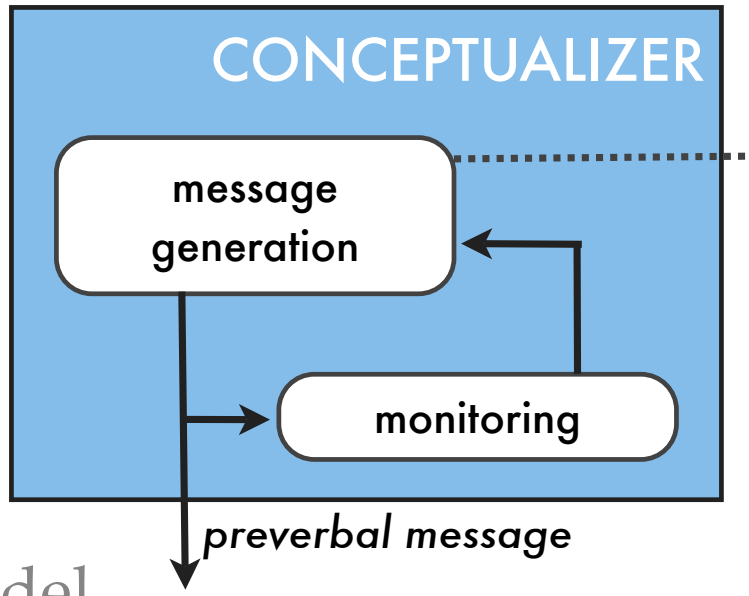
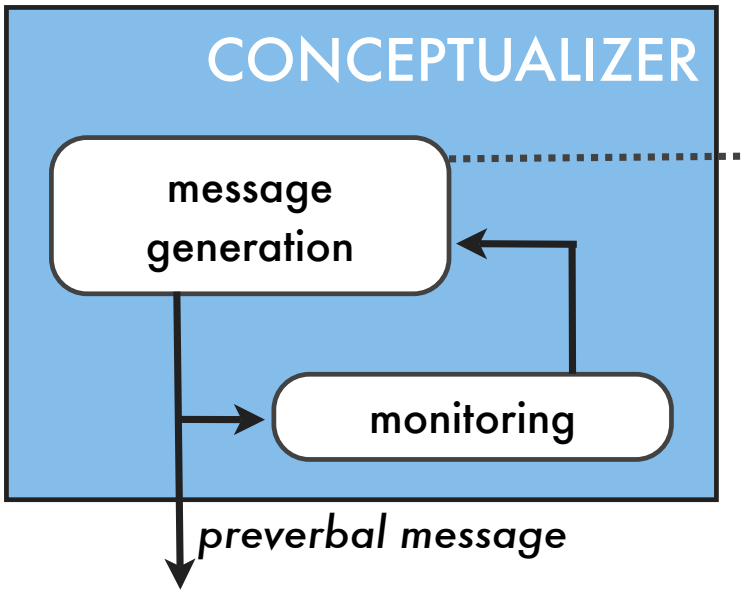
Conceptualizer



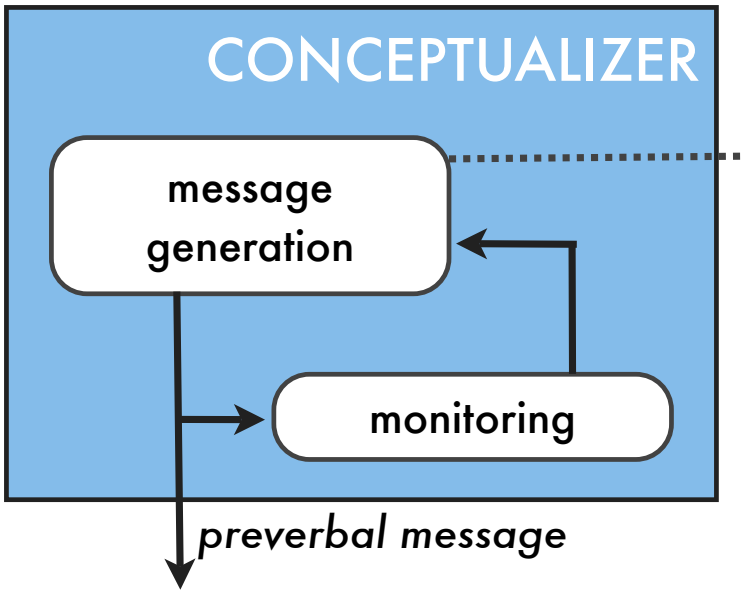
- Generates an intention to communicate
- Message contains who did what to whom
- Input: knowledge, discourse model, language comprehension
- Selects sociolinguistic aspects (indirect requests *vs.* orders, etc.)
- Selects relevant information to be expressed
- Keeps track of what was said before
- Monitors speech for errors
- Output: preverbal message

Issues for the conceptualizer



1. Deciding what information needs to be expressed
   - Neither over nor under-informative
   - Must have some idea of hearer's state of mind
2. Deciding how to make reference to objects
   - The right amount of information for the job
   - Which properties to use?
3. Deciding what order information should go in

Issues for the conceptualizer



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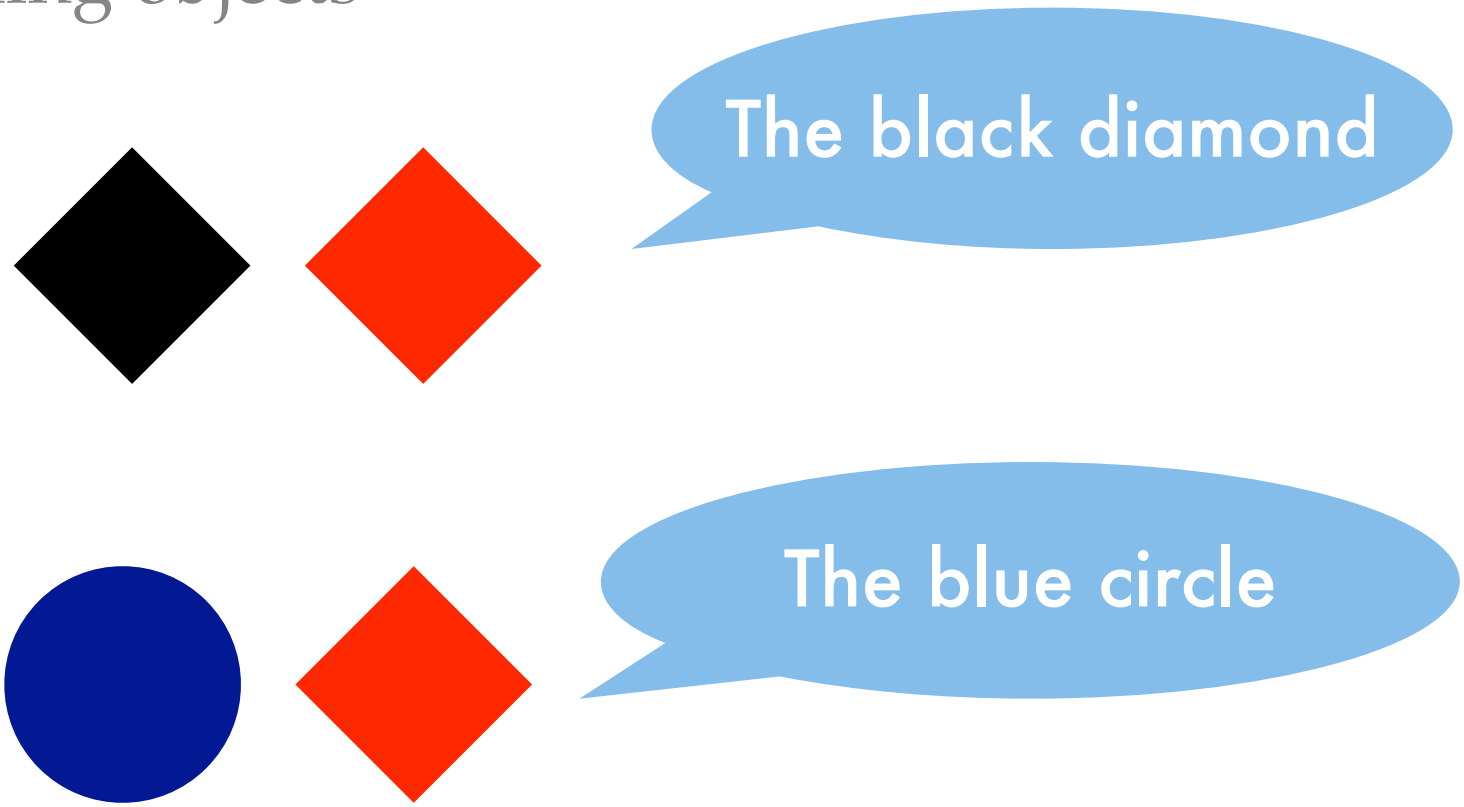
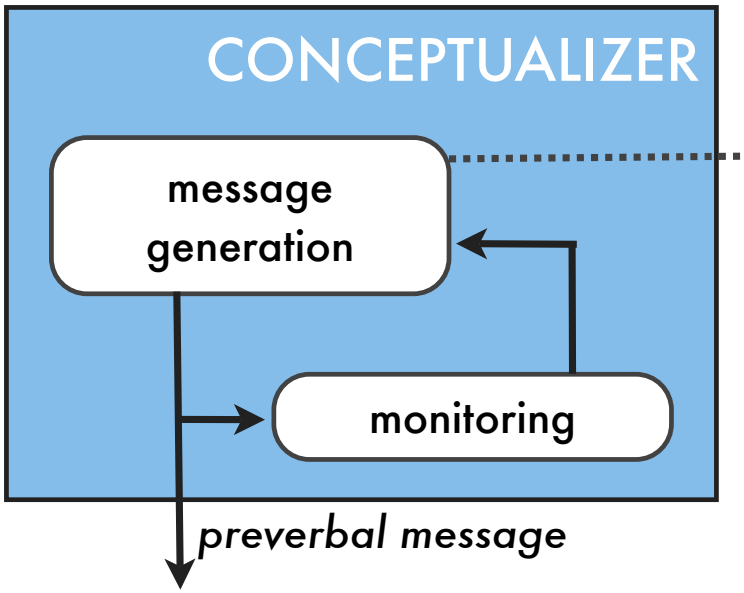
- Speakers tend to provide a little more information than is strictly necessary when naming objects



- Why would they do this?
  - Theory 1: Easier for listeners to identify over-specified referents
  - Theory 2: Speakers contrast features of current object with last focus of discourse
    - "black diamond" "blue circle"

Issues for the conceptualizer



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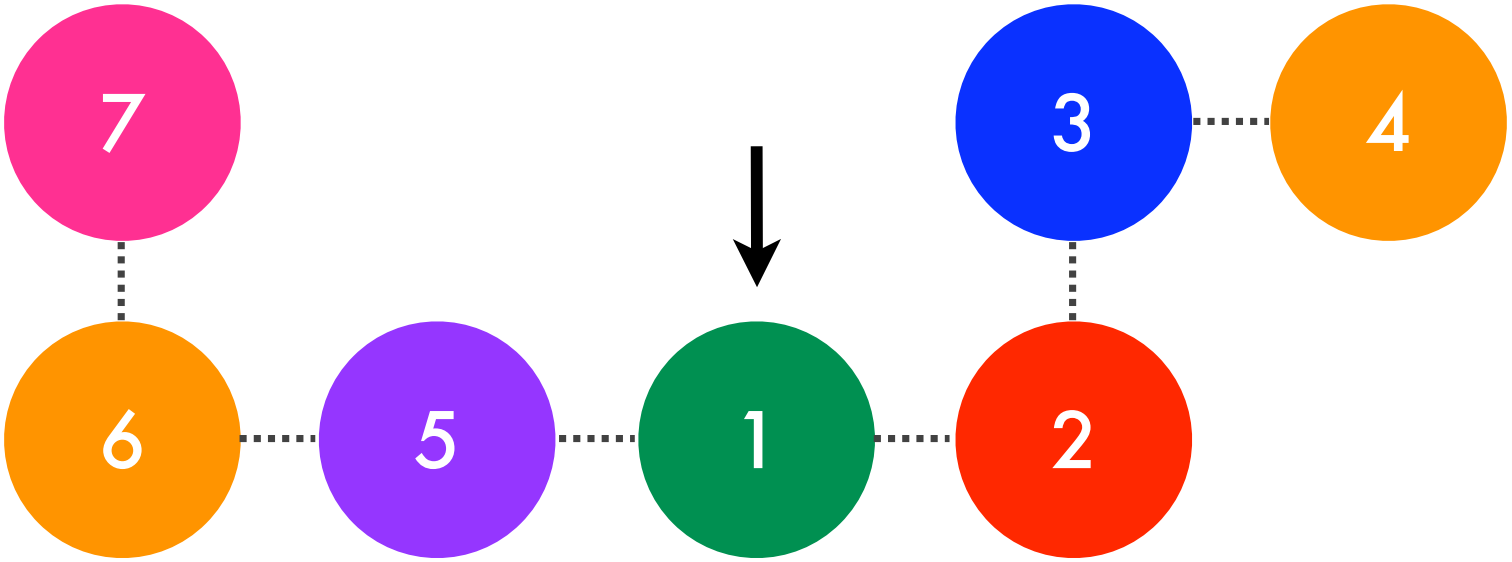
- Principle of natural order:

  Arrange information according to the natural ordering of its content

  If one event happens before another, place the first event first

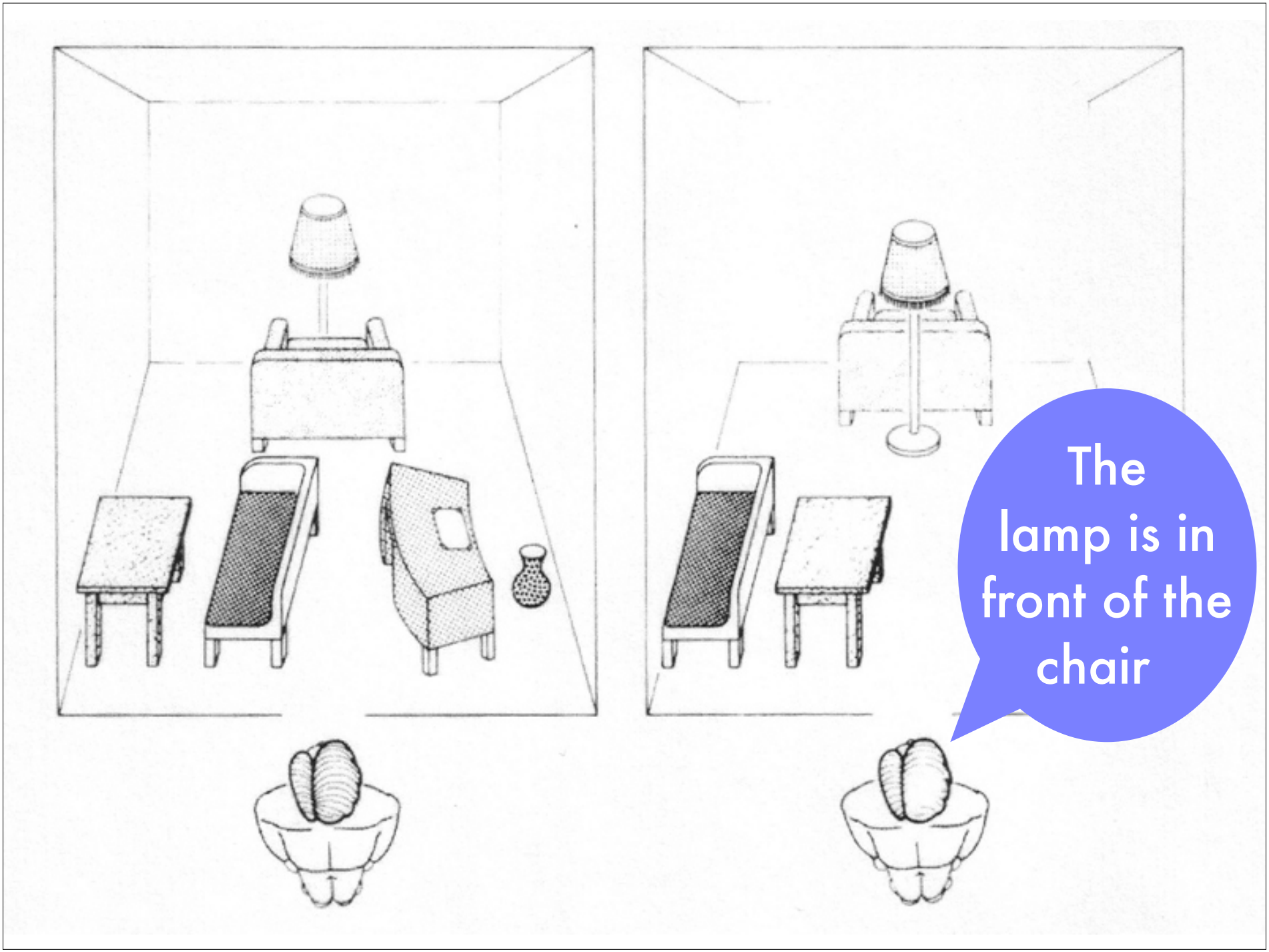
- Principle of connectivity

  Wherever possible, the next thing to be described should have a direct connection to the current thing



- Taking perspective:

  Speakers take a deictic (self-oriented) perspective when ordering information


The lamp is in front of the chair

- Taking perspective:

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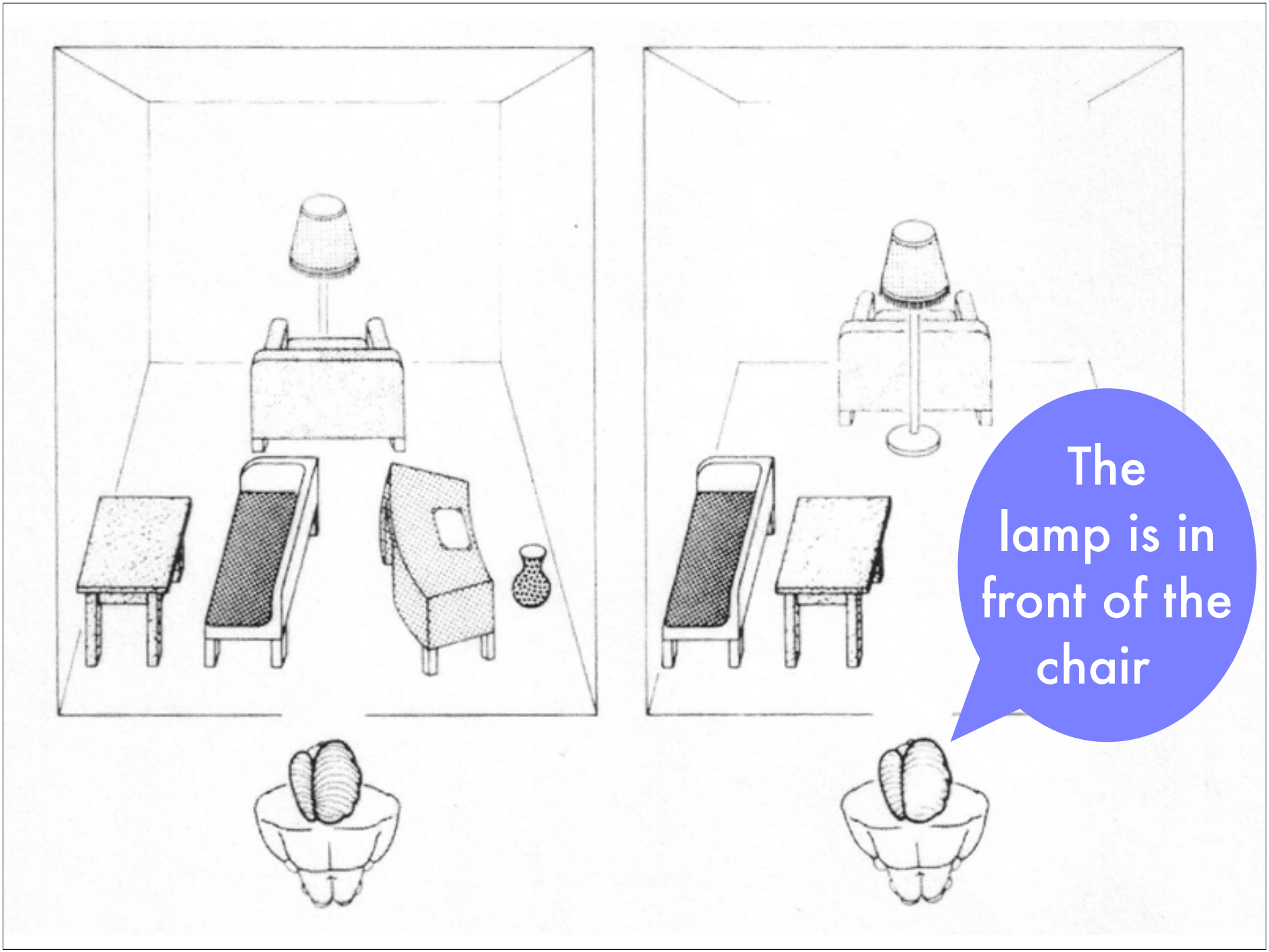
  Speakers prefer to use background objects as reference for objects closer to self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- Taking perspective:

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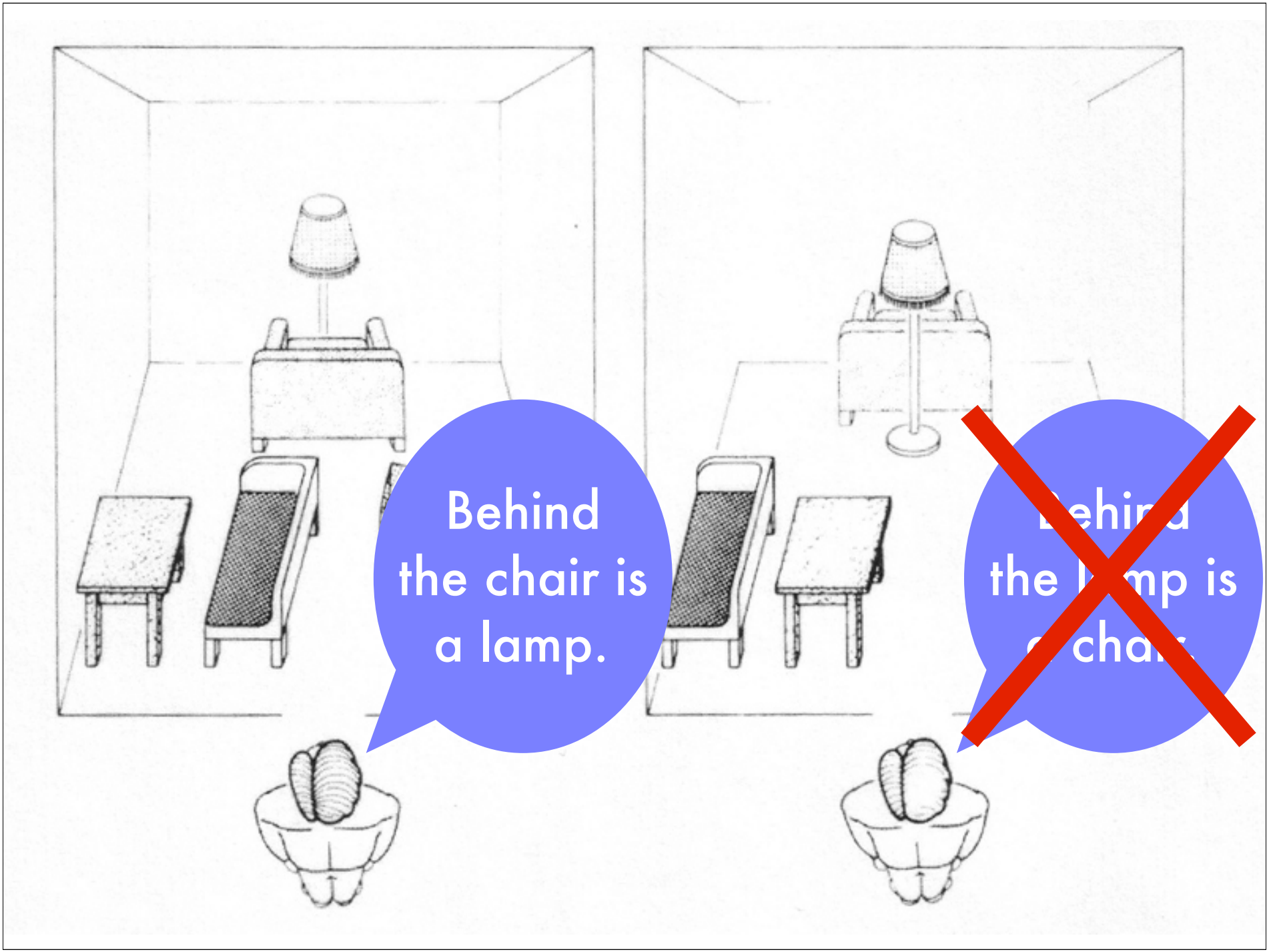
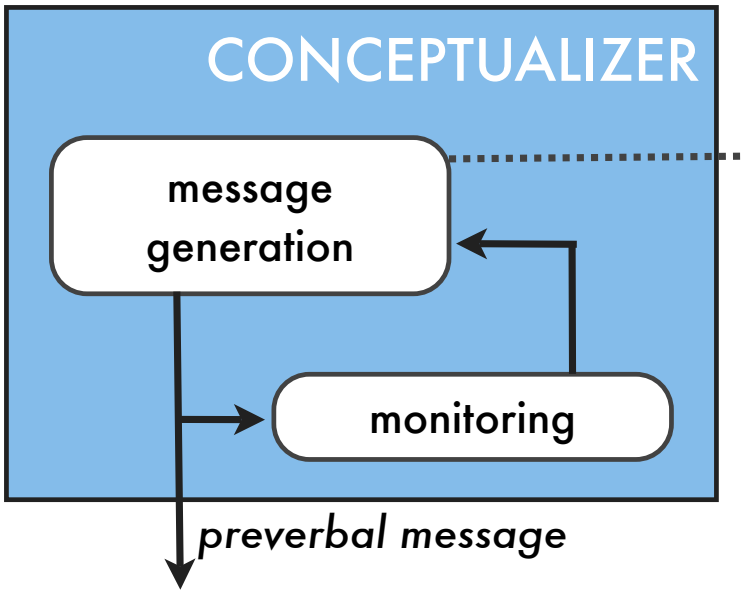
  Speakers prefer to use background objects as reference for objects closer to self

  Speakers prefer to use a larger object as reference for smaller


Behind
the chair is
a lamp.

Issues for the conceptualizer



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What do speakers monitor for?

- All the same levels that errors can be produced at, including:
  - Message/concept

    Tell me, uh what- d'you need a hot sauce?

    Probably started as "What do you need?" then realized that a binary question could work better

- Ambiguity of form
  - A speaker might recognize that something is ambiguous

    Hey, why didn't you show up last week? Either of you two.

- Lexical error

  Well, let me write it back –er, down, so that...

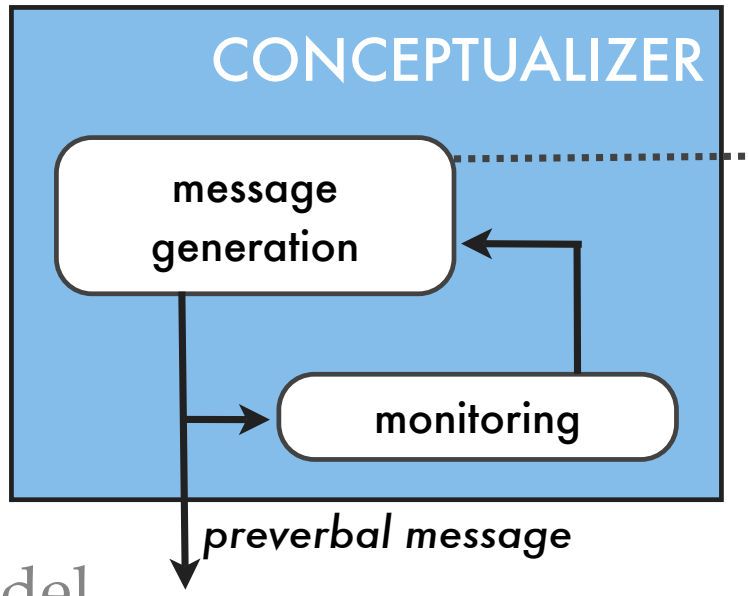
- Syntax and morphology:
  - What things are this kid – is this kid going to say incorrectly?
  - Why it is – why is it that nobody makes a decent toilet seat?
- Phonology/Sound-form error:
  - A unut- unit from the yellow dot

- BUT- The monitor is imperfect
  - At best, around 50% of errors are caught
  - What kinds of errors get caught can be manipulated by context

    shad-bock --> bad shock
    - When subject hooked up to electrodes and told mild shocks could be given

- Attention plays a role- when speakers are told to look for a particular kind of error, they find them more often
- Internal vs. external monitoring
  - Errors are often caught so quickly that it is clear that we have some sort of internal monitor that allows us to also check for errors before speech becomes audible.

Conceptualizer



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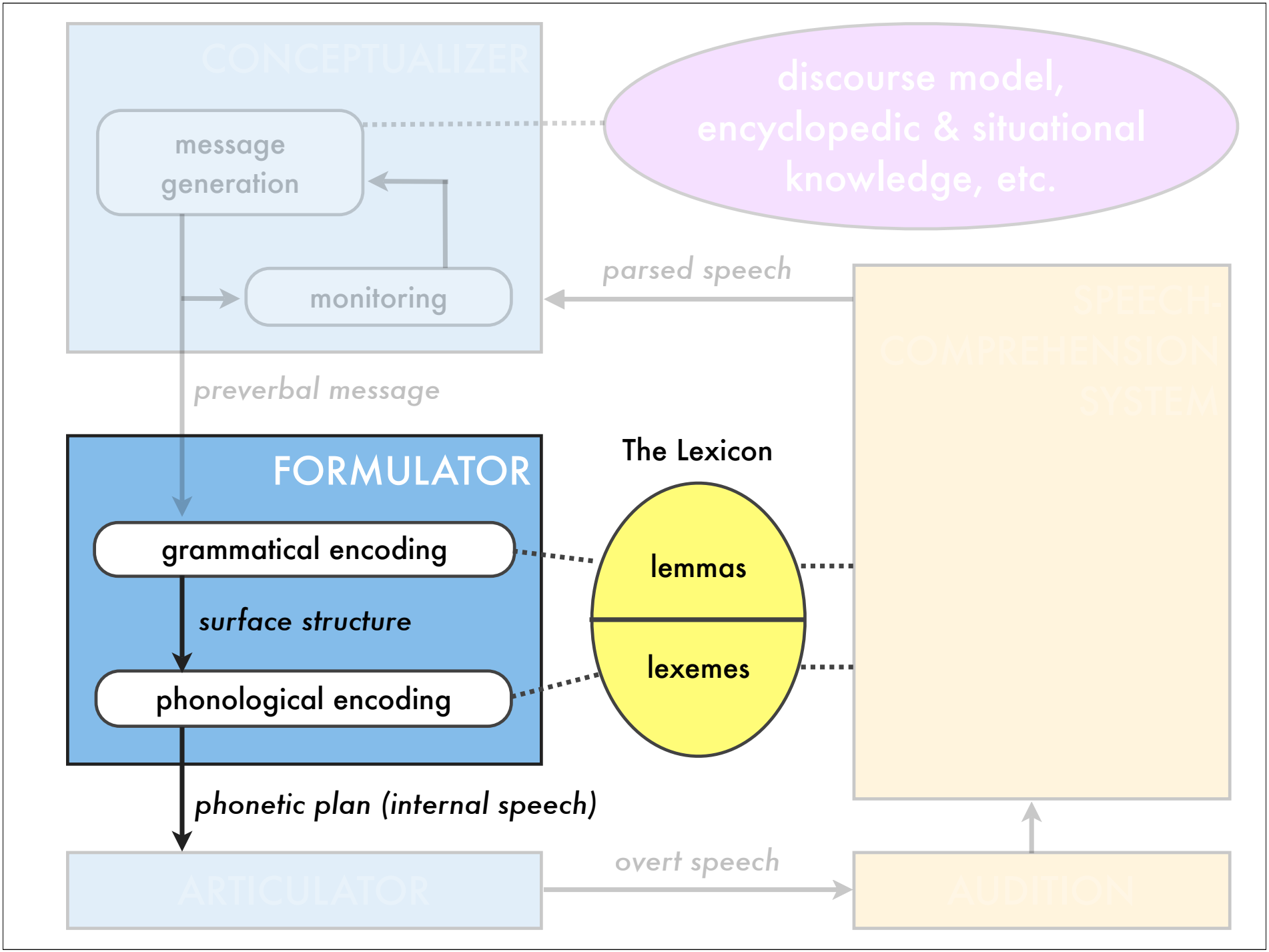
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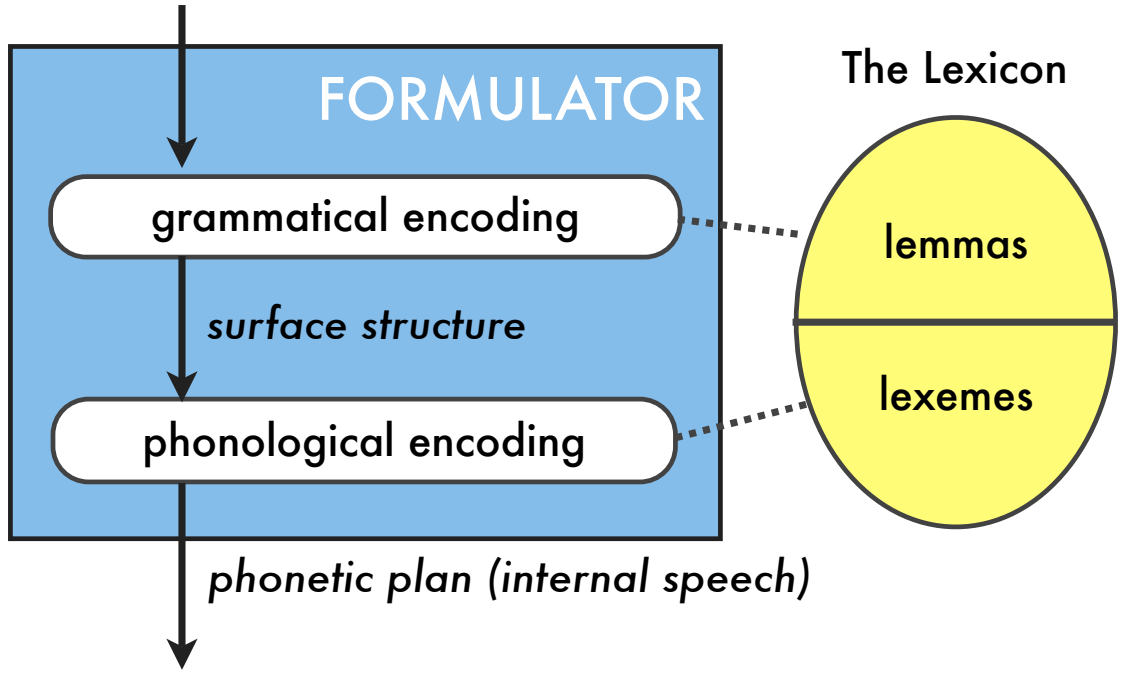
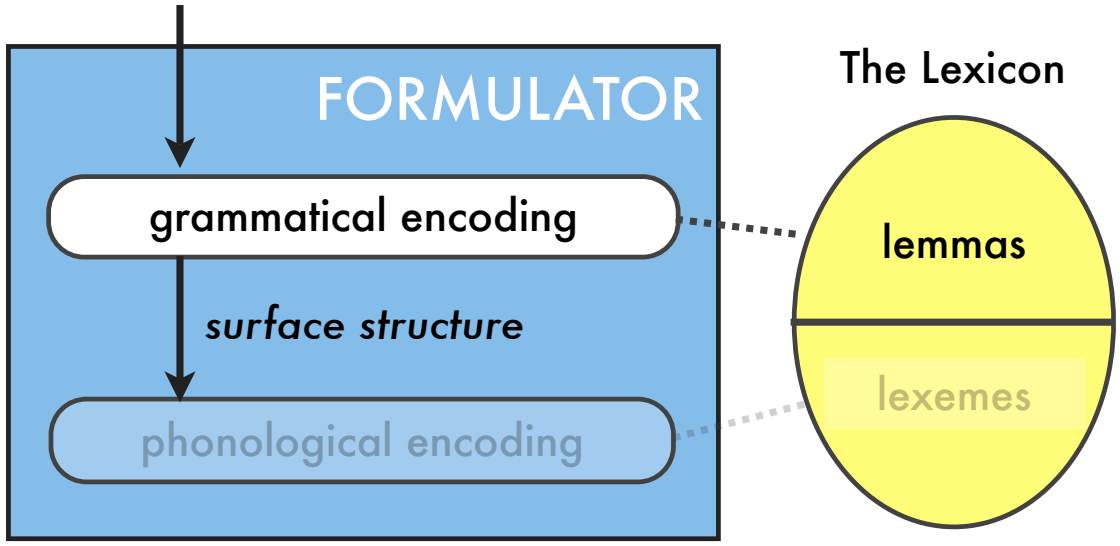


Formulator

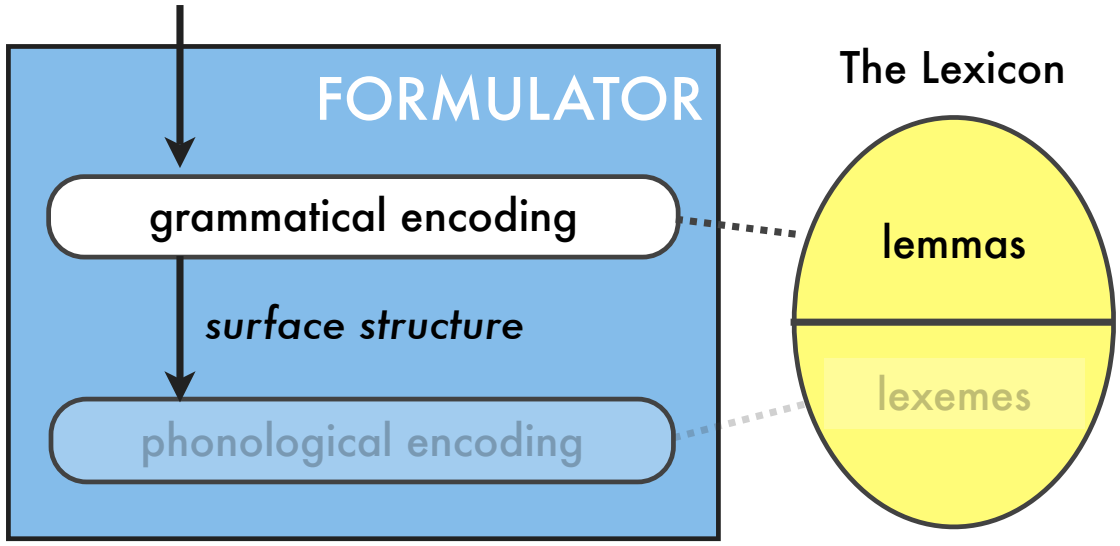
- Translates conceptual structure into linguistic structure
  - Two stages
- Input from conceptualizer
- Output is phonetic/articulatory plan

Stage 1: Grammatical encoding



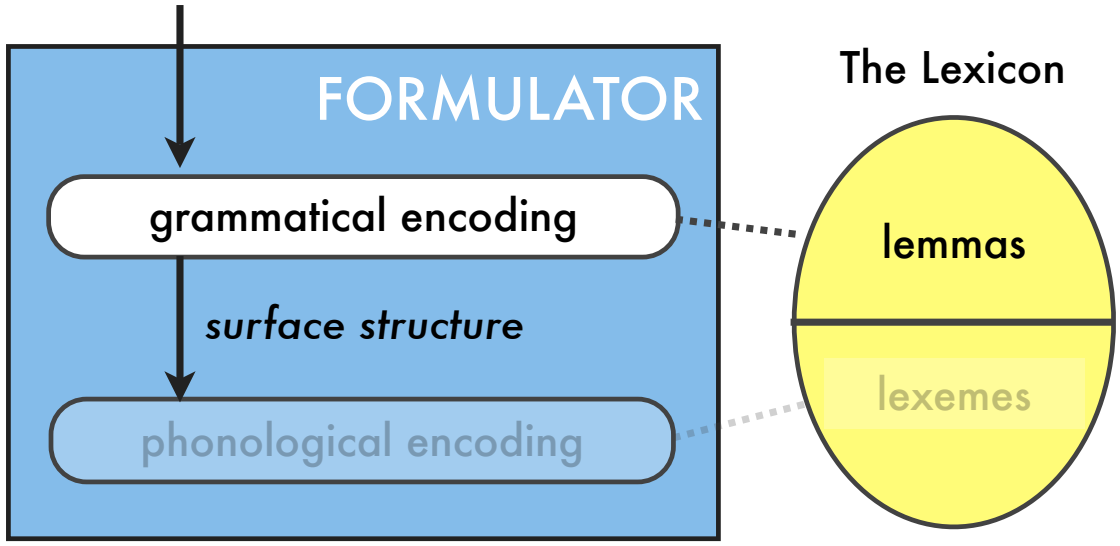
- Lemmas accessed from the lexicon
  - Concept of word, including syntactic information
  - Activated when meaning matches part of preverbal message

Stage 1: Grammatical encoding



- Syntactic structure is built
  - Lemmas assigned structure as they are activated
  - Lemmas placed in left-most possible positions

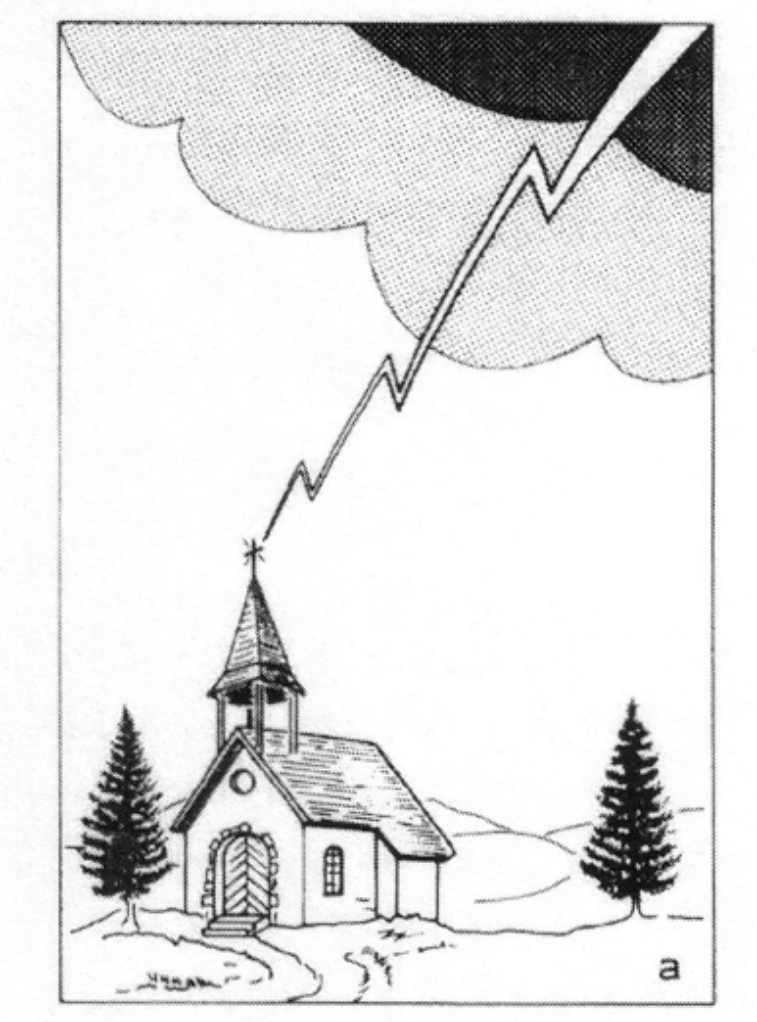
Stage 1: Grammatical encoding



- Word exchange errors can happen when one lemma is accessed too quickly and placed too soon
  - the child gave the mother the cat
    - the child gave the cat the mother

Syntactic Priming

The boy swung the bat.

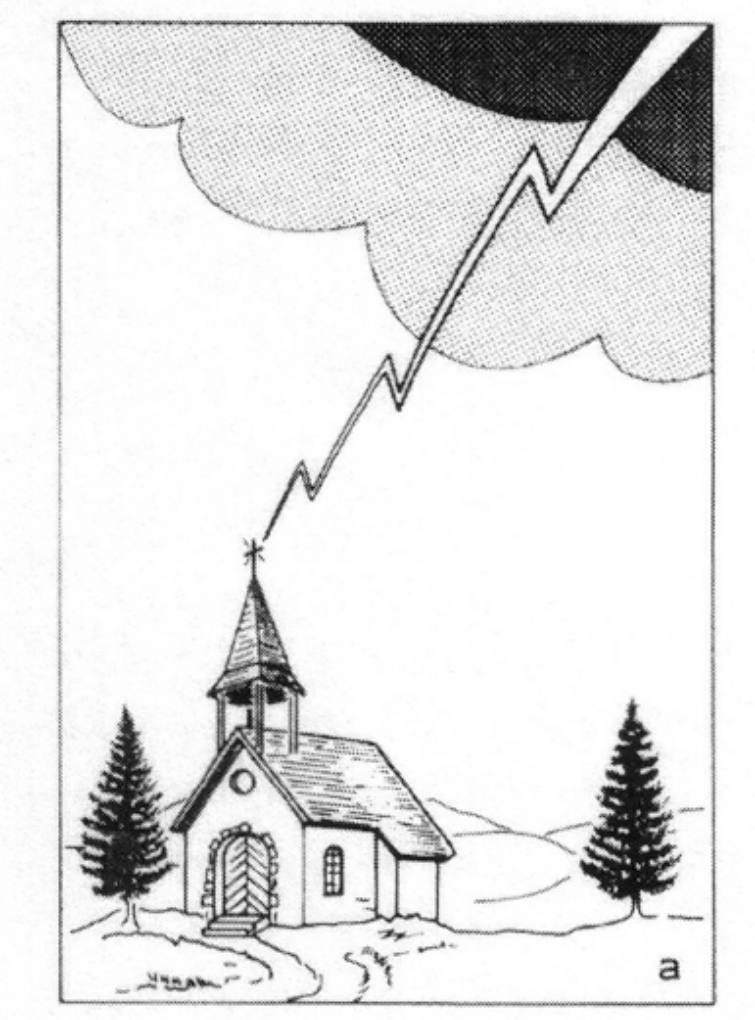


The lightning struck the church

Active ⟶ Active

Syntactic Priming

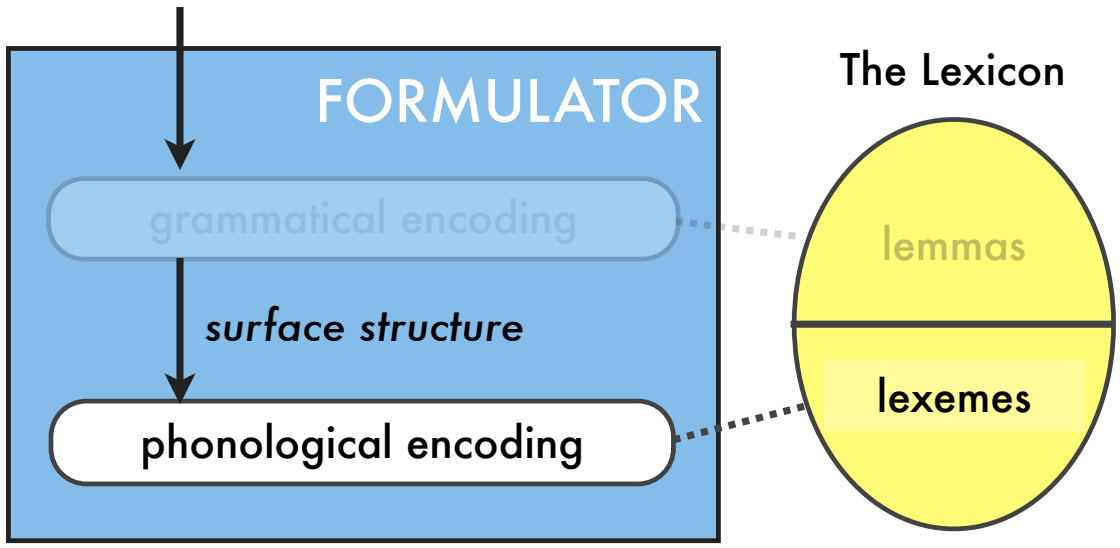
The bat was swung by the boy.



The church was struck by the lightning.

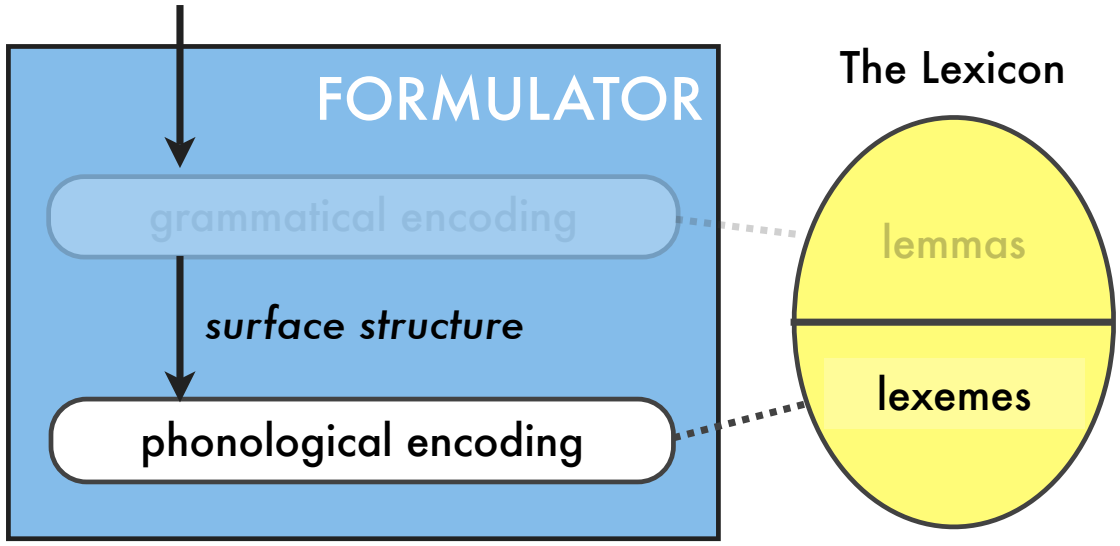
Passive ⟶ Passive

Stage 2: Phonological encoding



- A phonetic plan for each part of the utterance is accessed from the lexicon
  - Lexeme: Lexicon's information about an item's internal composition – morphology and phonology
- Morphological and phonological encoding happen here

Stage 2: Phonological encoding

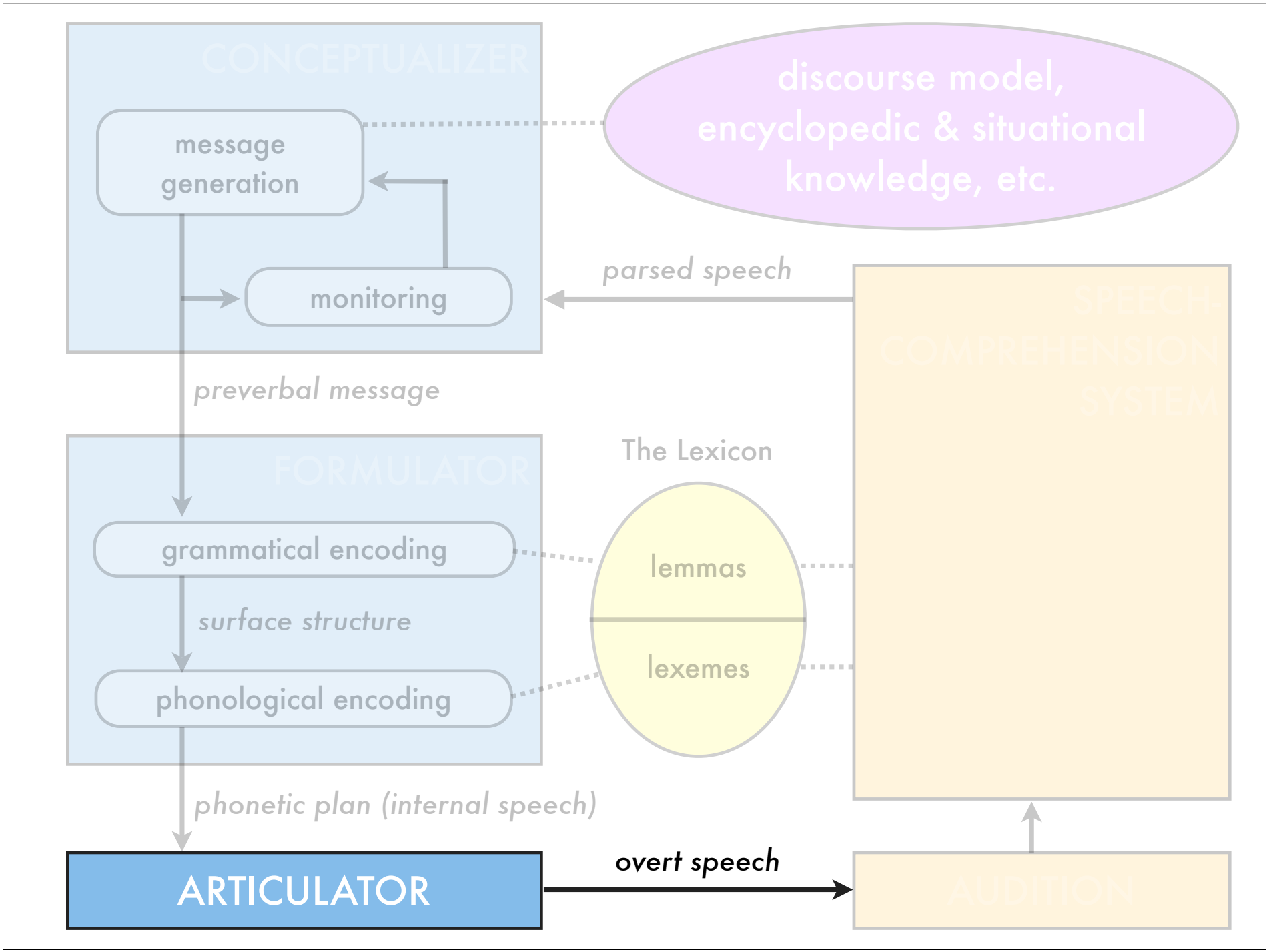


- This is where morphological and all phonological errors can occur
  - Phonological information is assigned after morphological information

    milks a cow

    milk a cows

    /z/ not /s/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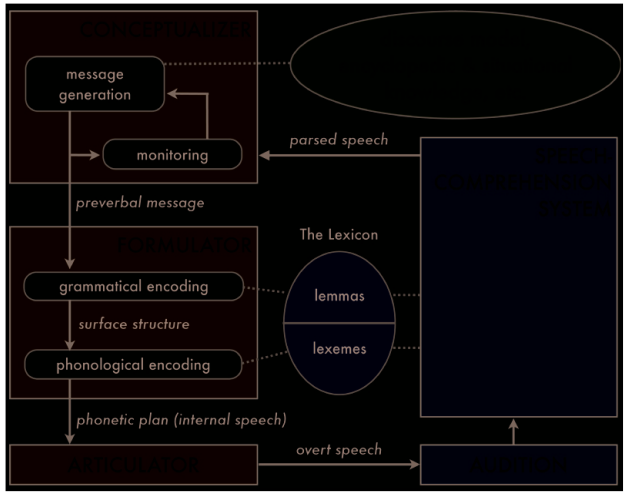
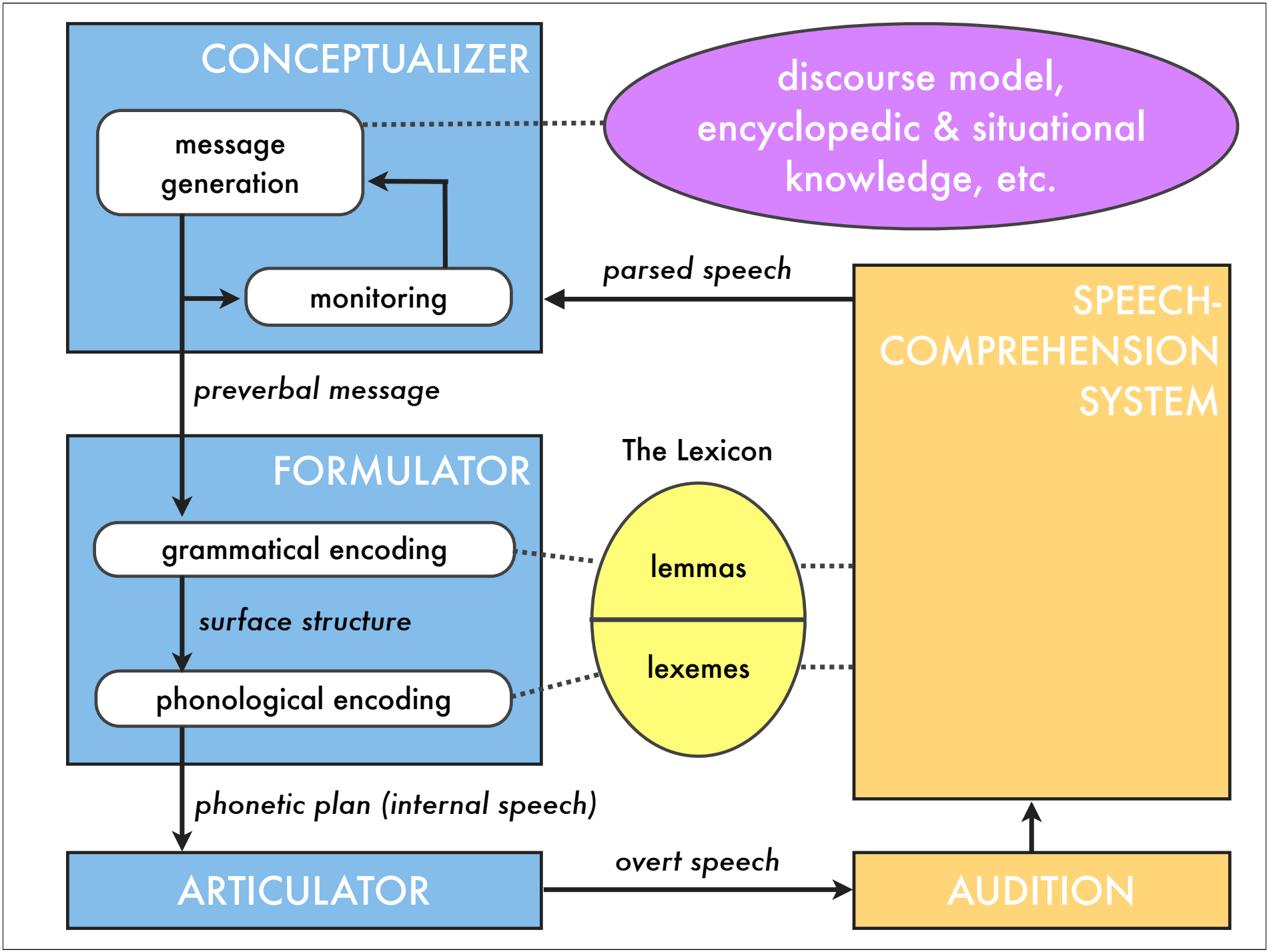


Takes input from Formulator and translates it into overt speech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Dialogue: Speakers and hearers

Taking the hearer into account…

- To what degree does a speaker's language reflect the needs of his/her hearer?
- To what degree does a speaker's language reflect the speaker's own needs?

- Egocentric view: Much of what appears to be for the benefit of the hearer is actually caused by the speaker's need to be fluent.

Register

- Speakers take into account social status, current pragmatic context, language abilities of the hearer
  - Examples:
    - Scientific register
    - Infant Directed Speech

      ⟵ I've got a boo-boo.

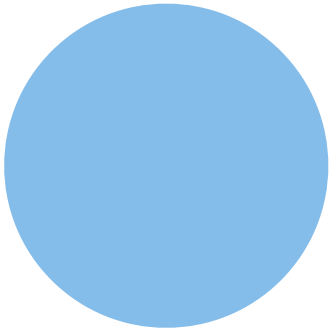
Common ground

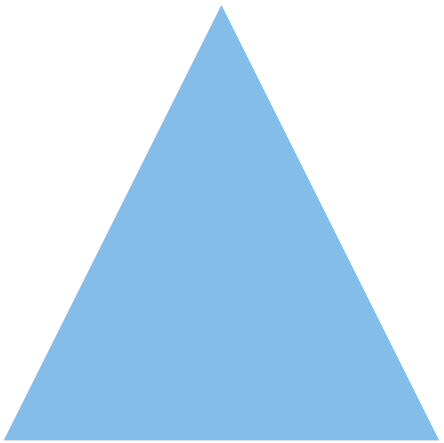
- What the speaker believes the listener knows about the world, prior discourse context
  - There is evidence that speakers use common ground in natural speech
    - BUT, under speed duress, common ground considerations go out the window

Horton & Keysar (1996)

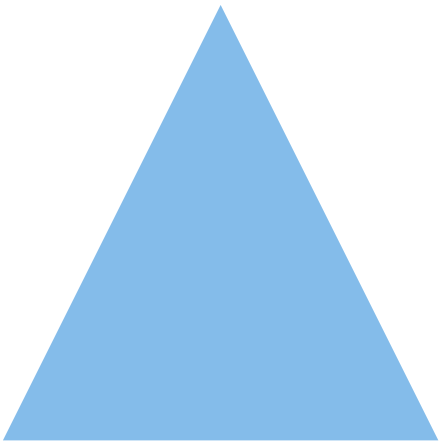
- Speakers had to describe an object to a hearer so that the hearer could correctly judge if they saw the same object

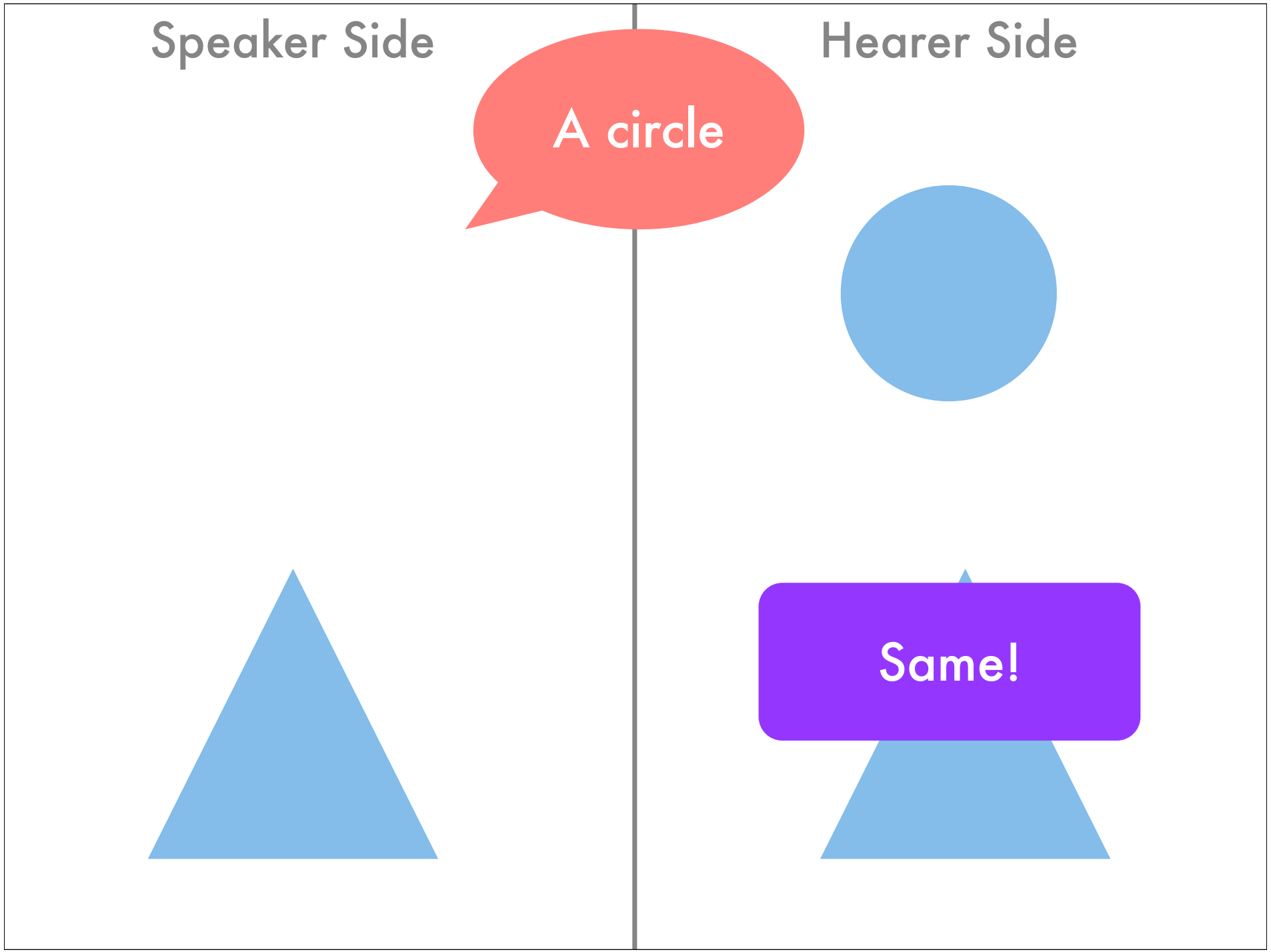
Speaker Side

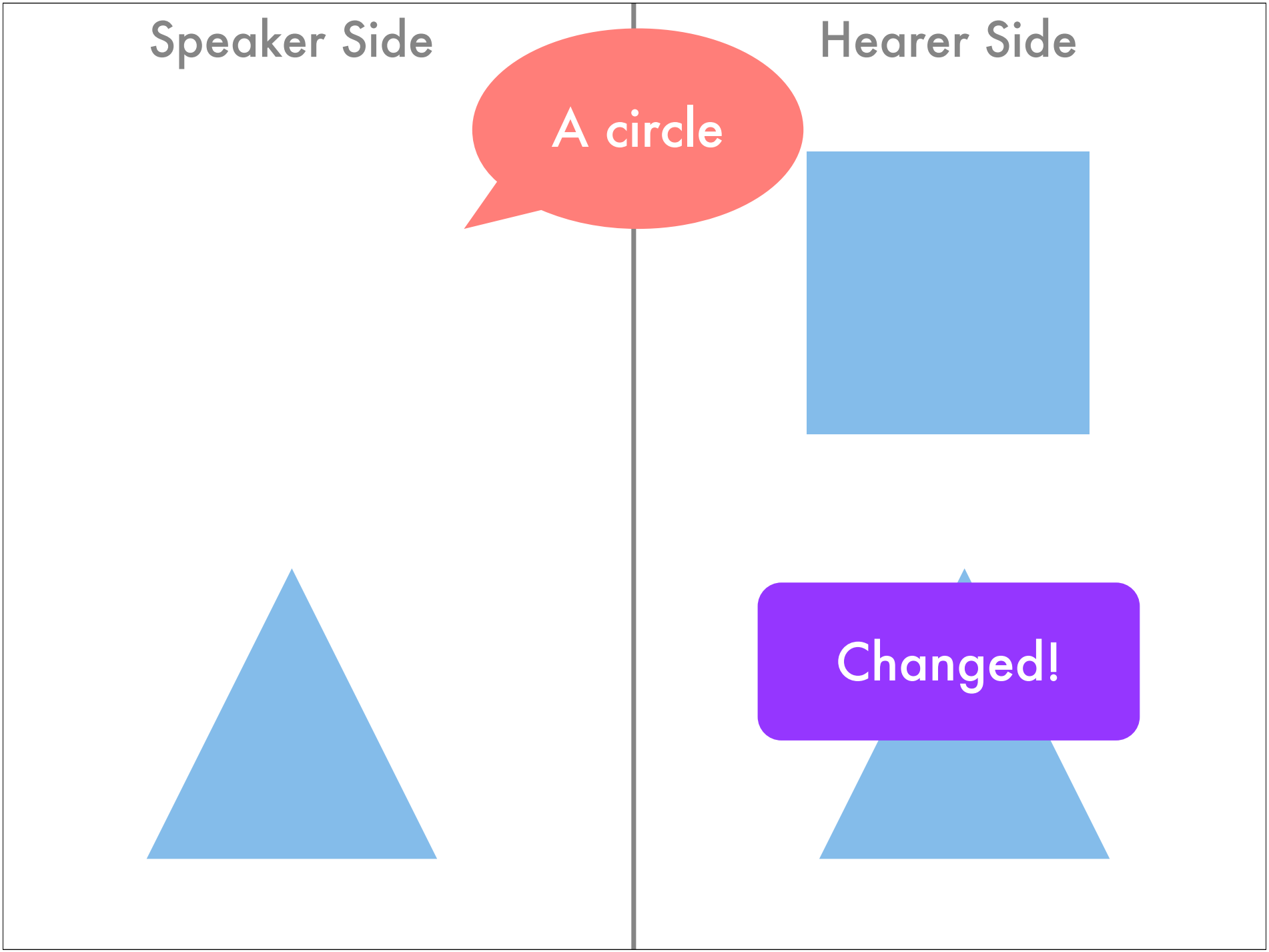




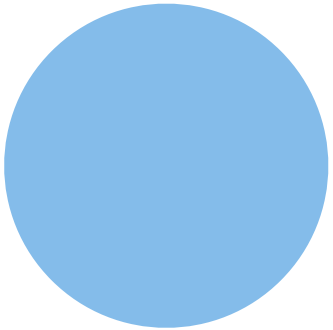
Hearer Side

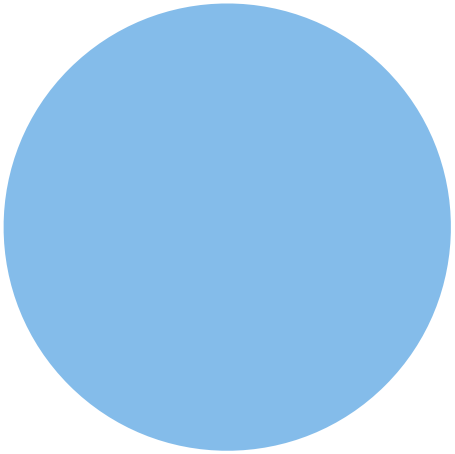



Speaker Side
Hearer Side
A circle
Same!

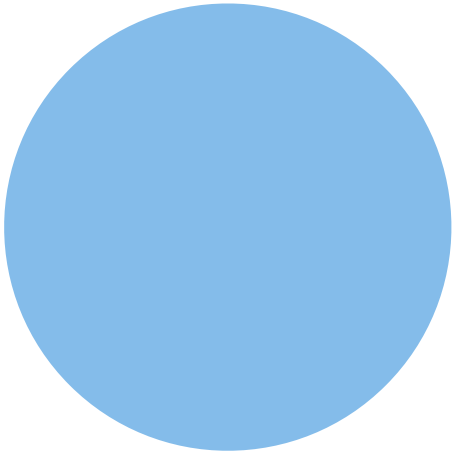

Speaker Side
Hearer Side
A circle
Changed!

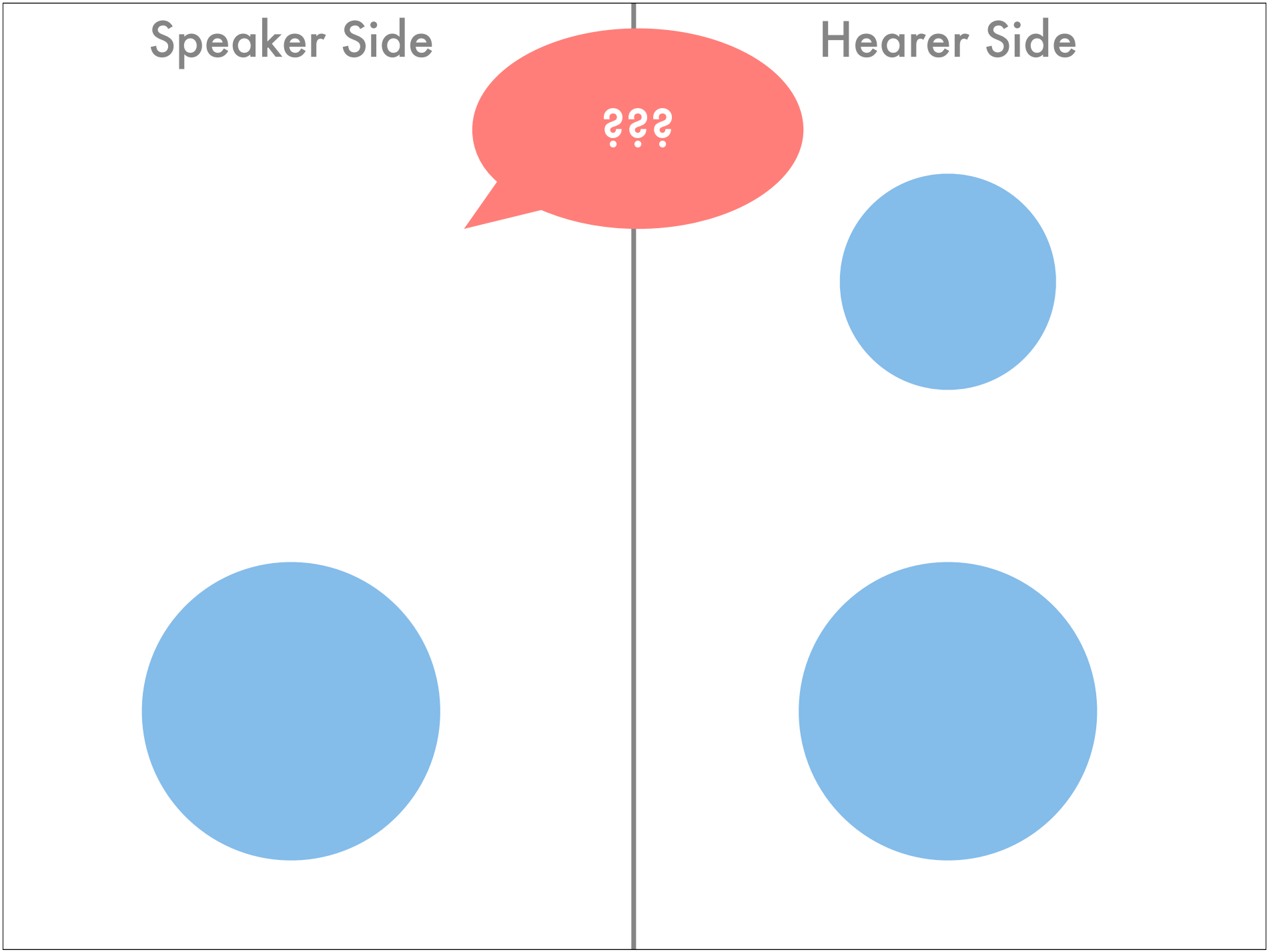
Speaker Side

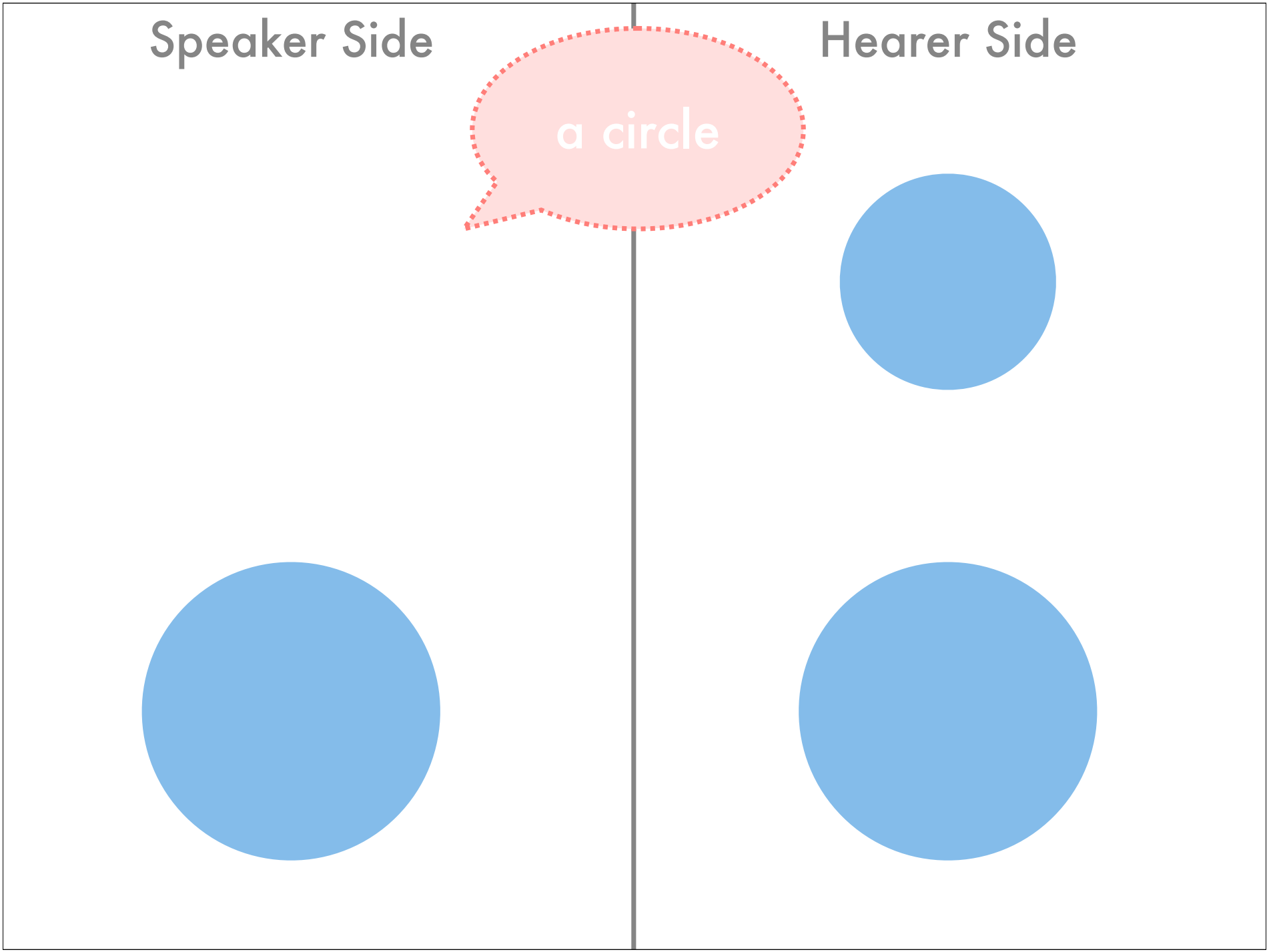


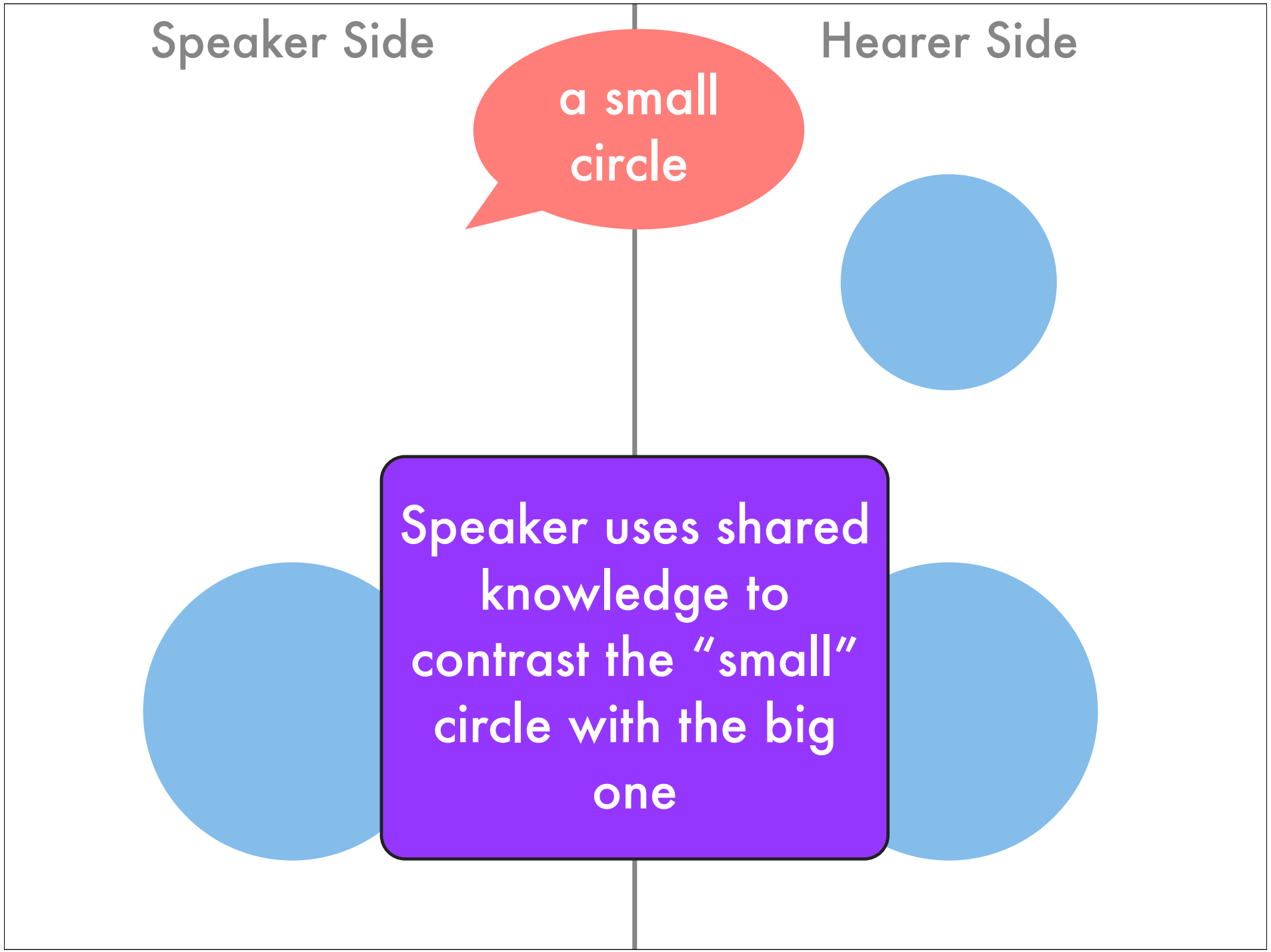


Hearer Side



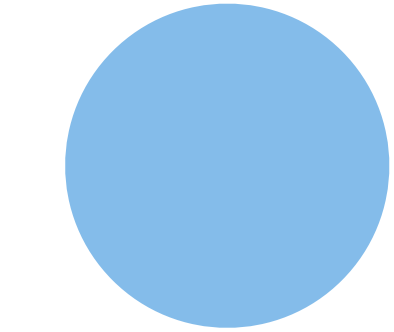

Speaker Side
???
Hearer Side

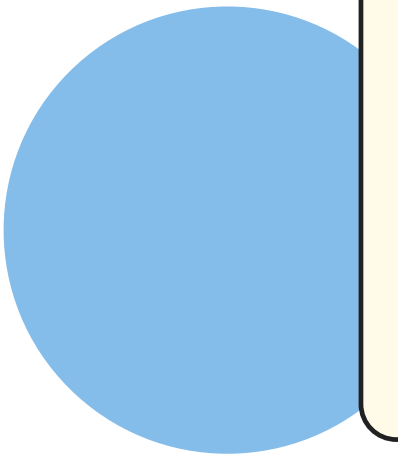

Speaker Side
Hearer Side
a circle


Speaker Side
Hearer Side
a small circle
Speaker uses shared knowledge to contrast the "small" circle with the big one

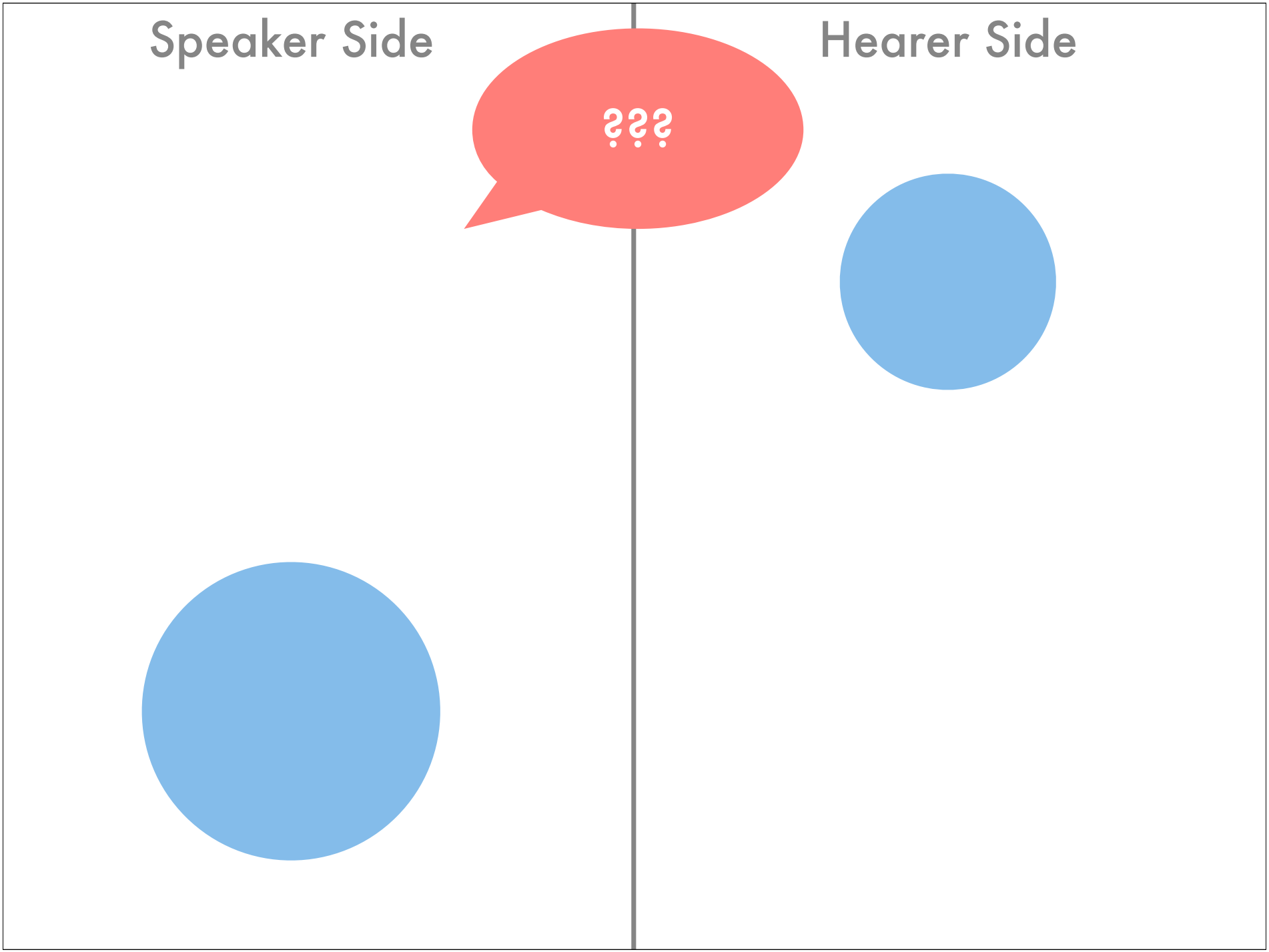
Speaker Side

Hearer Side





What about when: Speaker knows that the hearer does not have an additional bottom object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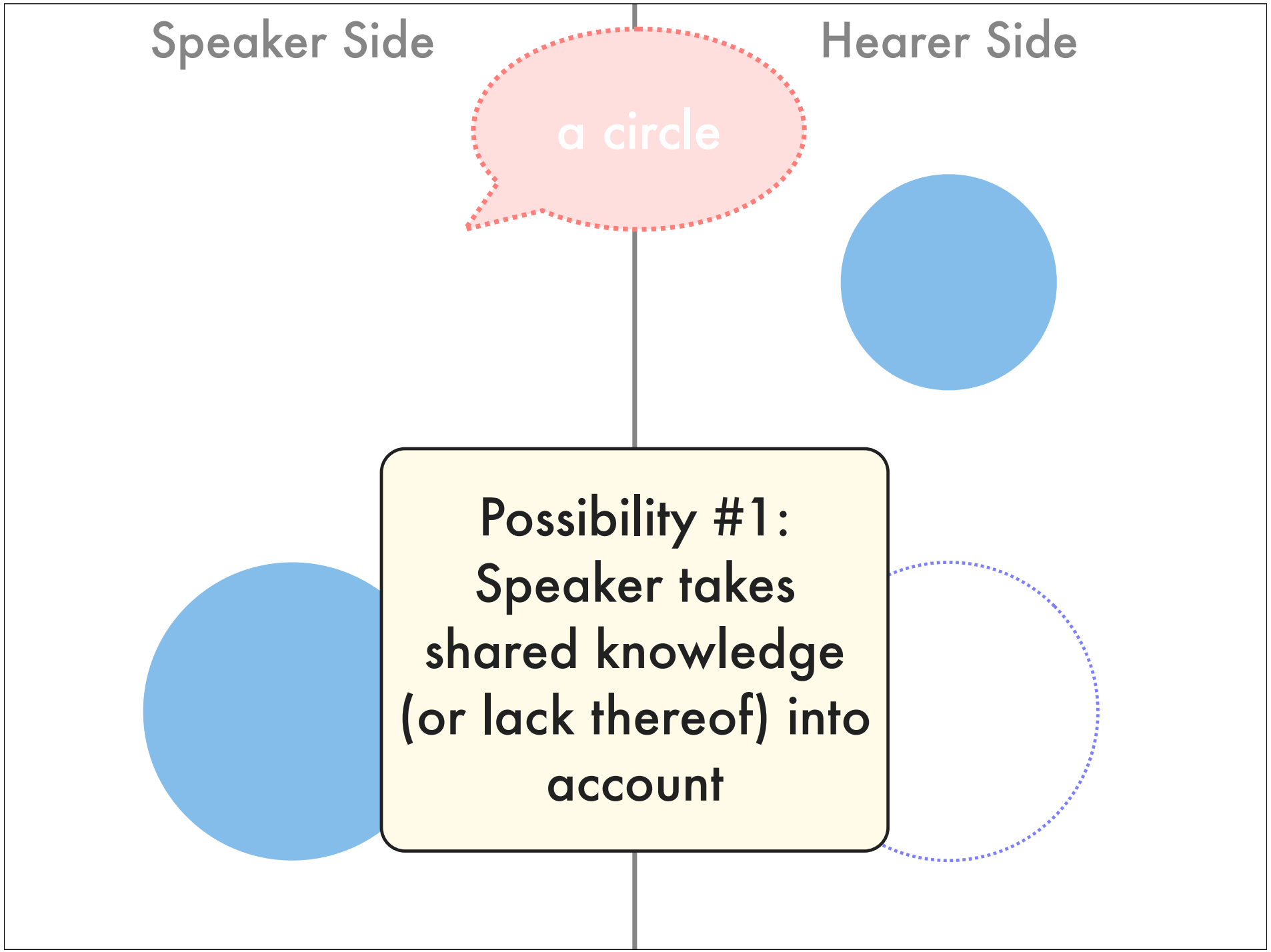
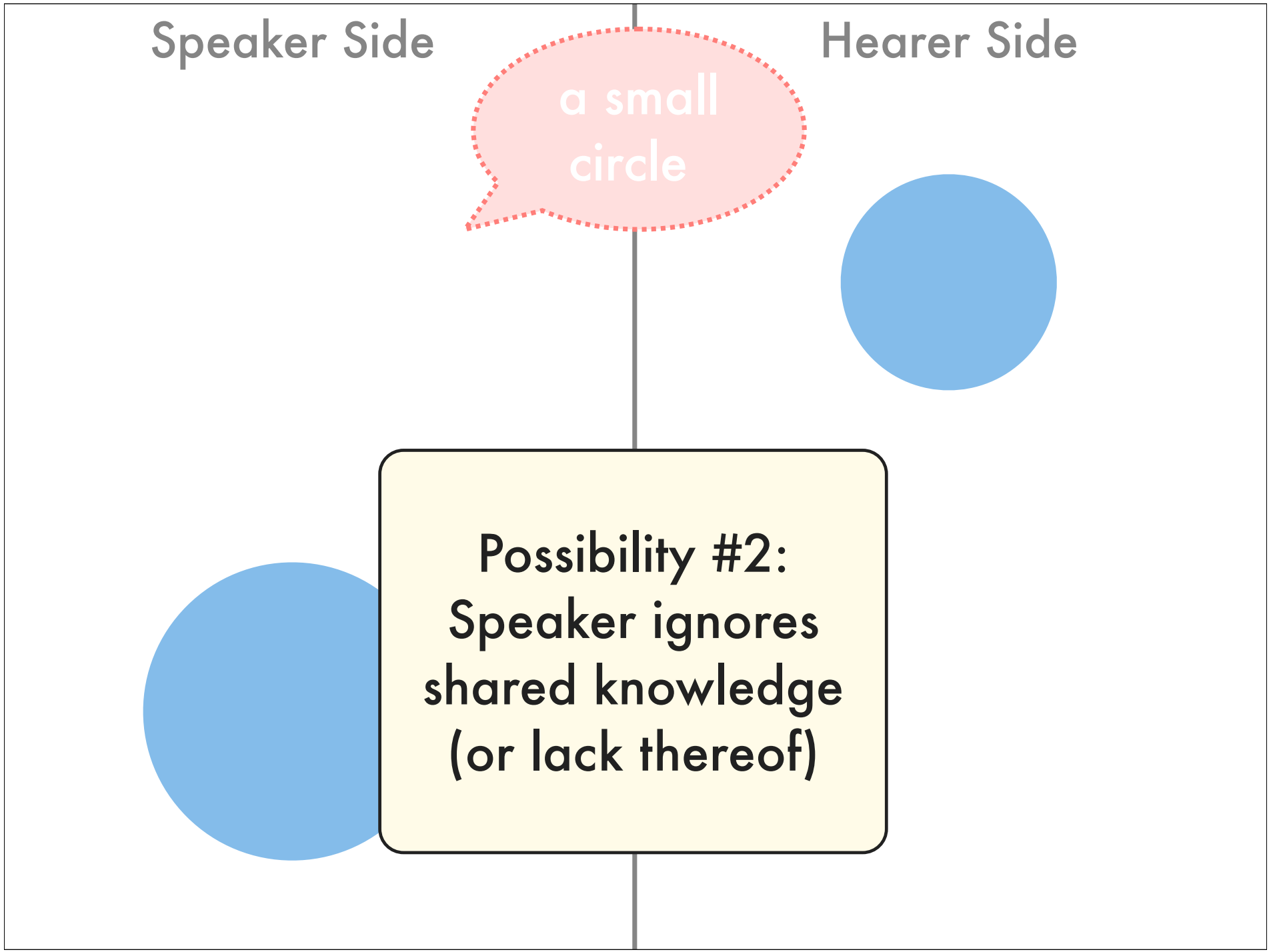
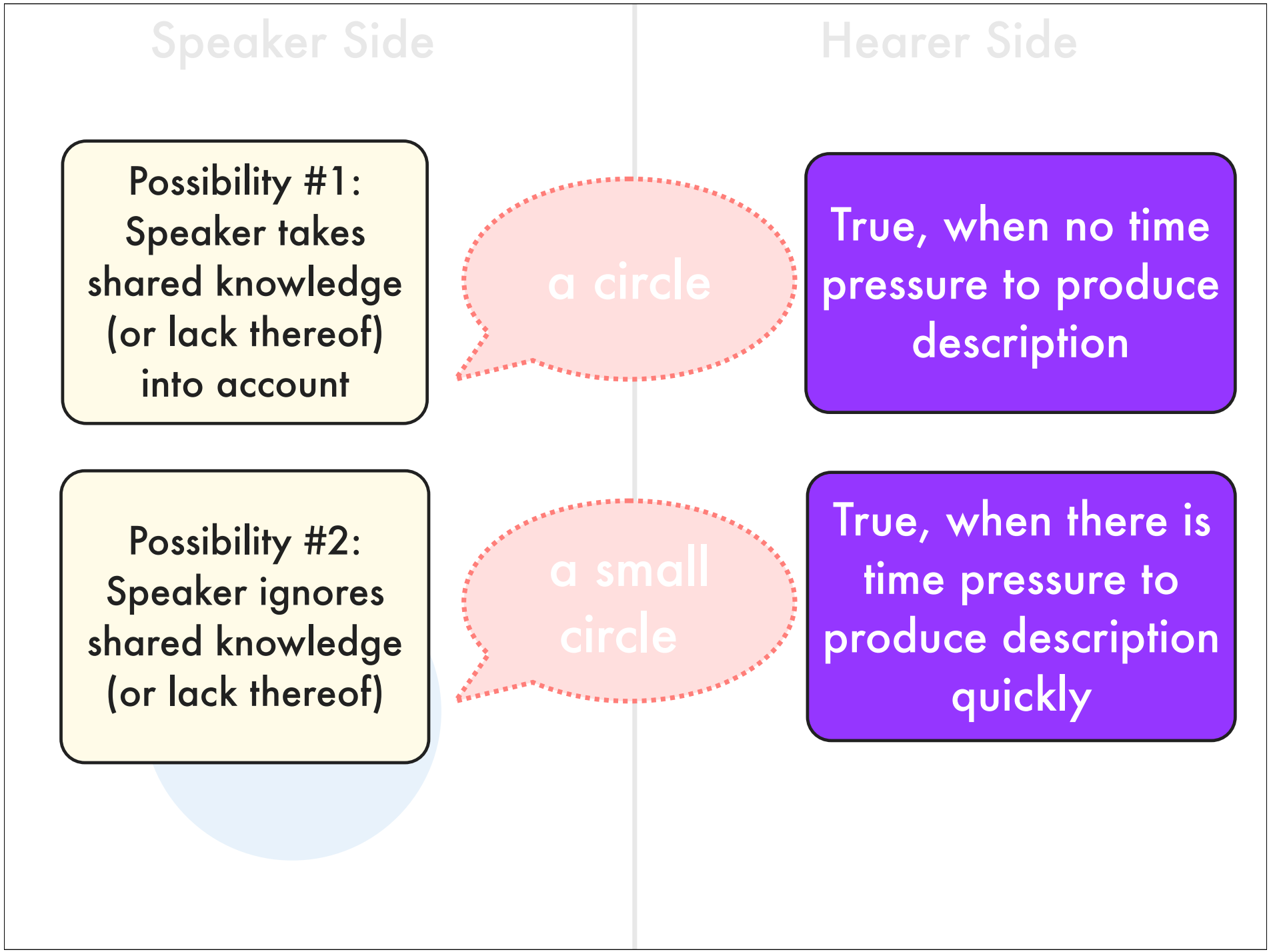

Speaker Side
Hearer Side
a circle
Possibility #1:
Speaker takes
shared knowledge
(or lack thereof) into
account


Speaker Side
Hearer Side
a small circle
Possibility #2: Speaker ignores shared knowledge (or lack thereof)


Speaker Side
Hearer Side
Possibility #1: Speaker takes shared knowledge (or lack thereof) into account
a circle
True, when no time pressure to produce description
Possibility #2: Speaker ignores shared knowledge (or lack thereof)
a small circle
True, when there is time pressure to produce description quickly

Common ground

- What the speaker believes the listener knows about the world, prior discourse context
  - There is evidence that speakers use common ground in natural speech
    - BUT, under speed duress, common ground considerations go out the window

Wrapping Up

- Levelt's Model of Speech production
  - How message is decided on
  - How utterance is formed
  - Monitoring our own speech
- Taking the hearer into account
  - Evidence for that speakers do in some cases, evidence that they may not in others