

prdn
SIG



16 MAY 2020
10:30 AM UK TIME



You can't teach pronunciation... & that's the wrong problem!

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FREE
WEBINAR!

Language is other than we have been teaching it. Language is physical, not written. And is processed subconsciously by brain networks that are unavailable to adults.

The richness, complexity and robustness of spoken communication furnish the perfect material for pronunciation teaching. In this webinar we'll focus on that ballet of language sounds and on the brain networks recruited to process speech.

We'll look at a pronunciation approach developed to activate these processes and to enhance students' progress.



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sme.sullivan

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We can't teach pronunciation?

▶ You can't teach pronunciation – and that's the wrong problem



▶ In this webinar we'll focus on the ballet of language sounds, and on the brain networks recruited to process speech.



pronSIG webinar 2020



sme sullivan

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We can't teach pronunciation?

1. THE LANGUAGE

2. THE BRAIN

3. SPEECHSTREAM -

a way of learning to hear.

MYTH

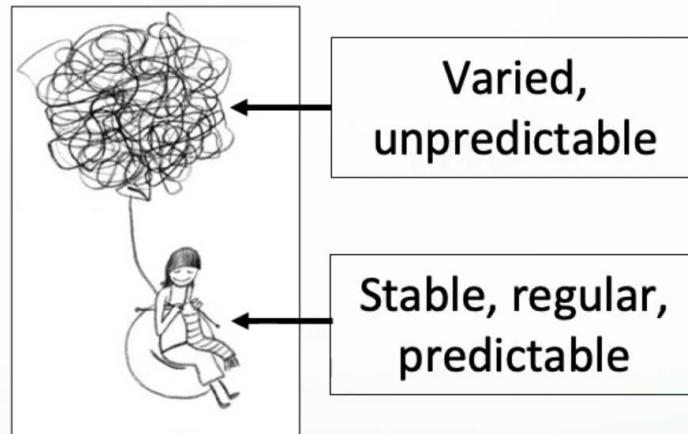
- **The written word is somehow superior to the spoken language.**
- **The written code is a measuring stick for speech, or for correct speech.**
- **That we can teach pronunciation from the basis of the written word.**

We can't teach pronunciation?

Richard Cauldwell. At 4:12 mins



We are using the wrong tools



The methods we use for the goals of clarity and intelligibility in pronunciation work are **worse than useless** for teaching listening.

7

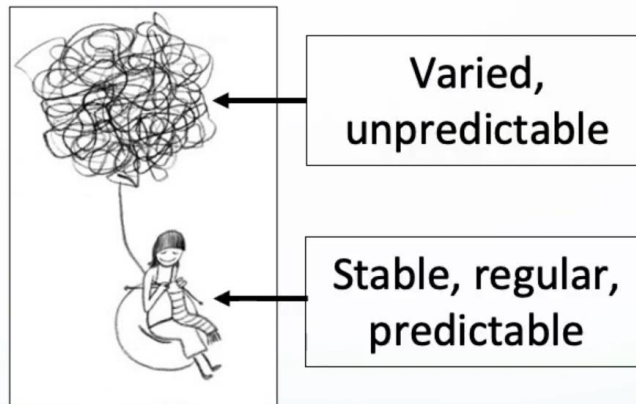
Image by Marcos Severi (www.mseveri.com).
Supplied by Daniela Martino. Used with permission.

https://youtu.be/QQLLFQ_-VHs Listening Decoding in Use 1 May 2020

Richard Cauldwell “**But learners increasingly are telling us that they are bamboozled when it comes to real life listening.**”

At 4:12 mins

We are using the wrong tools



The methods we use for the goals of clarity and intelligibility in pronunciation work are **worse than useless** for teaching listening.

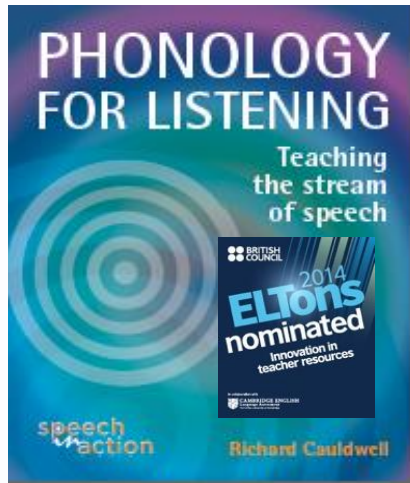
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Image by Marcos Severi (www.mseveri.com).
Supplied by Daniela Martino. Used with permission.

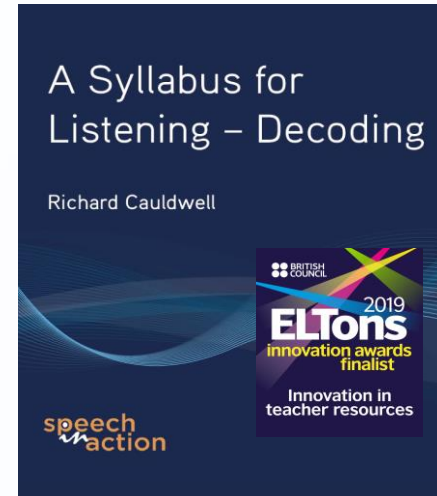
https://youtu.be/QQLLFQ_-VHs

Listening Decoding in Use 1 May 2020

Listening Decoding



2013



2018

Richard Cauldwell – www.speechinaction.org

And - Listening Decoding. May 2020.

Four videos: https://youtu.be/QQLLFQ_-VHs

We can't teach pronunciation?

Hickok & Poeppel 20-year Retrospective 12 May 2020

The image is a screenshot of a Zoom video recording. At the top, the title 'Hickok & Poeppel 20-year retrospective' is displayed. In the top right corner, there are icons for 'Watch later' and 'Share'. The main area shows five video thumbnails of participants: William Matchin (top left), Sarah D'Agostino (top middle), Mary Jo Schwie Loughran (top right), David Poeppel (bottom left), and Greg Hickok (bottom right). A 'MORE VIDEOS' link is visible in the bottom left of the video player area. The Zoom logo is in the bottom right, and the YouTube logo is in the bottom right corner of the player. The video progress bar shows 55:58 / 2:42:04.

<https://youtu.be/6GgeLbhXeCg>

We can't teach pronunciation?

MYTH

- Poeppel (at 54 minutes). "both neuroscientists and linguists are not doing a great job dealing with that" [the practical problem of working together, sharing insights]
- ~~/~/~

We can't teach pronunciation?

I want to share the information
that brought me to this position
about pronunciation,

a journey involving a
a good hard look at what
real live language was like.

We can't teach pronunciation?

A journey through research in
neuroscience & cognitive science
with the eyes of a language teacher.

We can't teach pronunciation?

1. THE LANGUAGE

2. THE BRAIN

3. SPEECHSTREAM -

a way of learning to hear.

We can't teach pronunciation?

- My adult Asian students couldn't hear fluent English;
- Their children learnt quickly and well;

How could I give them the **fluency in their second language (L2)** that their children enjoyed?

We can't teach pronunciation?

Was there any way I could open up those
childhood pathways

- those

automatic language learning networks
in the brain?

language

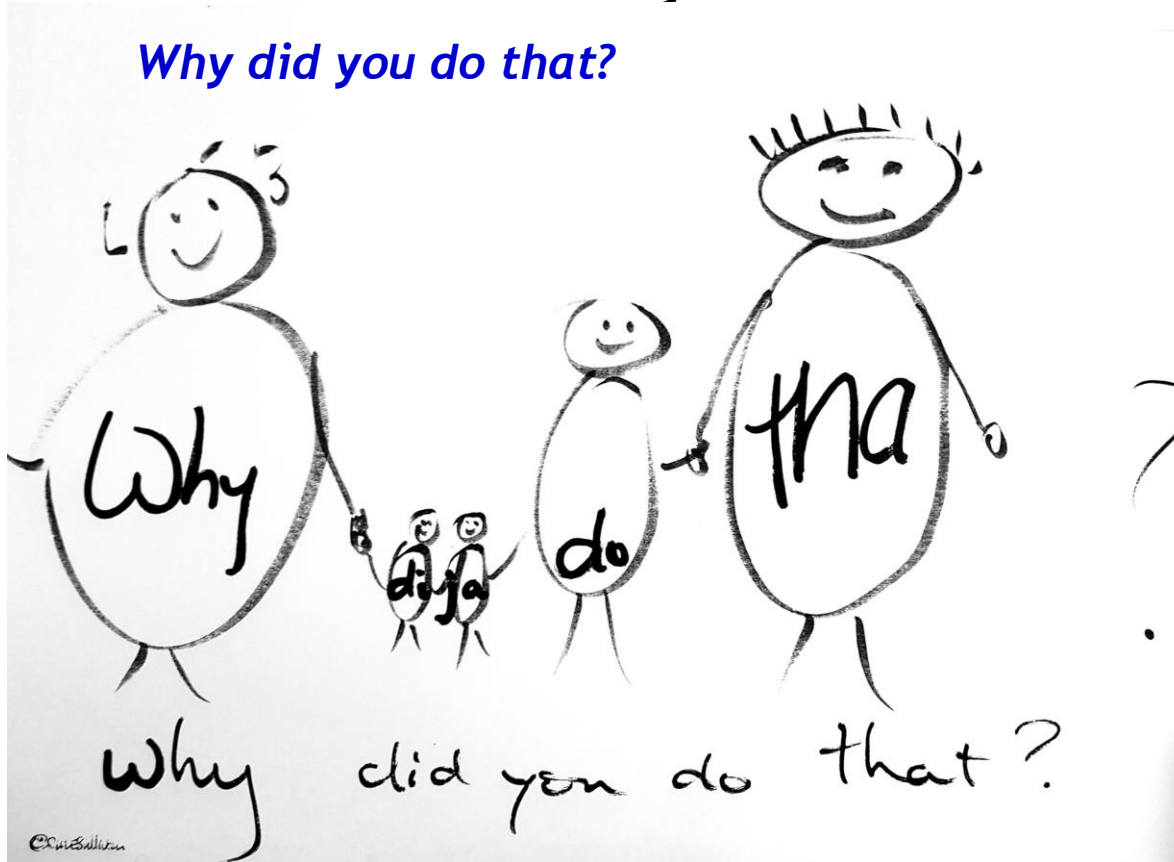
A journey involving a close look at
real live language.

What is it really like?

THE LANGUAGE

- Rhythm and melody?
- Hammer words & grammar words;
- Content & function words;
- Real live language.

THE LANGUAGE rhythm & melody



THE LANGUAGE rhythm & melody

What did you have for dinner?



Content and function words:

Content words

carry the meaning (nouns, main verbs, adjectives).

Function words

carry the grammar (auxiliary verbs, prepositions, articles - functional relationships between things).

What is it really like?

ther nitsgah nah tern tuh

fu much uh thu

i zi ni i sno

mi du vbeen ... shu di vbeen

What is it really like?

ther nitsgah nah tern tuh shou wiz
then it's gonna turn to showers

fu much uh thu *for much of the country*

i zin thu i sno *isn't the ...it's not*

mi du vbeen ... shu di vbeen
might have been ... should have been

language

i zin thu **i sno** *isn't the ...it's not*

mi du vbeen ... shu di vbeen

might have been ... should have been

1. sker na beesim Mor ning klow

2. a pula se tar

3. a pul hazin seda

language

sker na beesim Mor ning klow

a pula se tar

a pul hazin seda

language

- **sker na beesim Mor ning klow**
's gonna be some morning cloud
- **a pula se tar**
Apple are set to launch
- **a pul hazin seda word**
Apple hasn't said a word

language

- **tha sa nii sweater**
- **I zi new?**
- **yea zi diz**

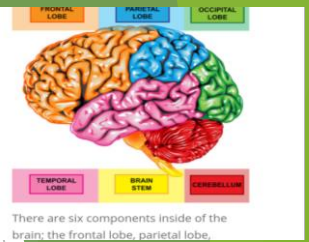
language

- **tha sa nii sweater**
that's a nice sweater
- **I zi new?**
is it new?
- **yea zi diz**
yes it is

Small Talk - Carolyn Graham (1986)

THE BRAIN

- **two memory networks;**
- **uptake to procedural memory;**
- **forming a sound system & grammar system.**



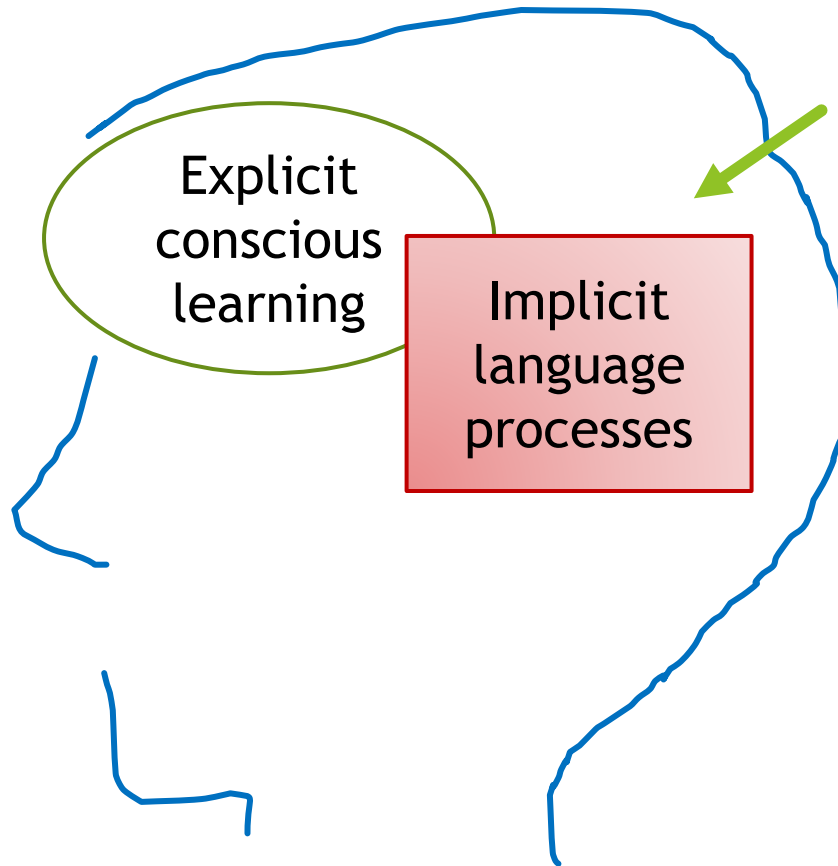
A journey through neuroscience & cognitive science:

- **Two memory networks**
- **Uptake of “silent” data**
acoustic data from the speech signal
- **Text blocks processing**

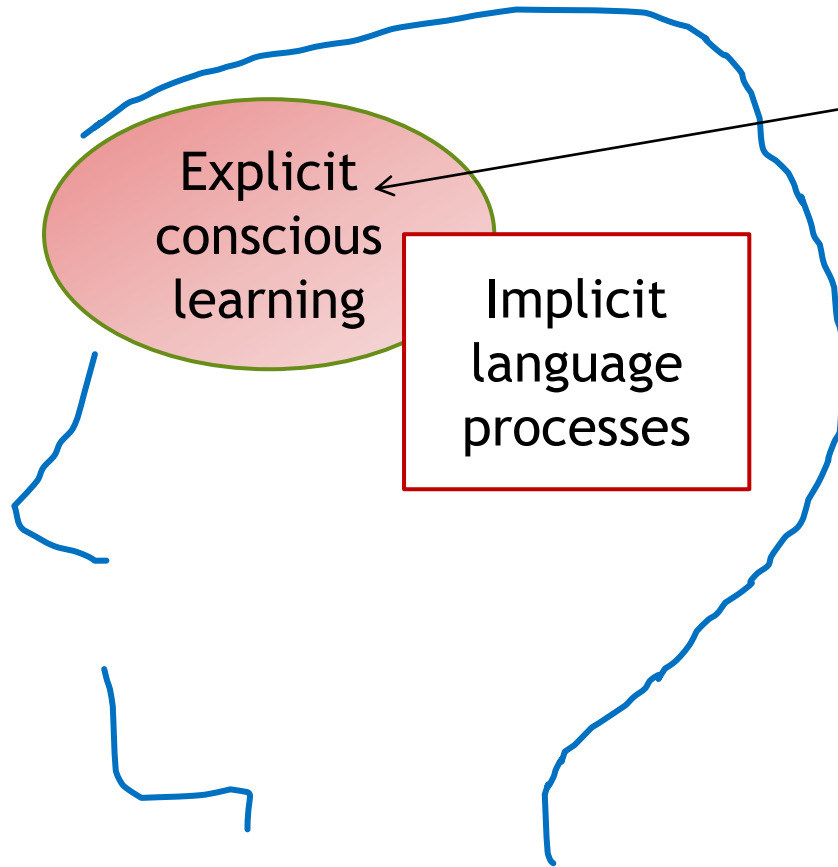
THE BRAIN

Two memory networks (Ullman, 2001)

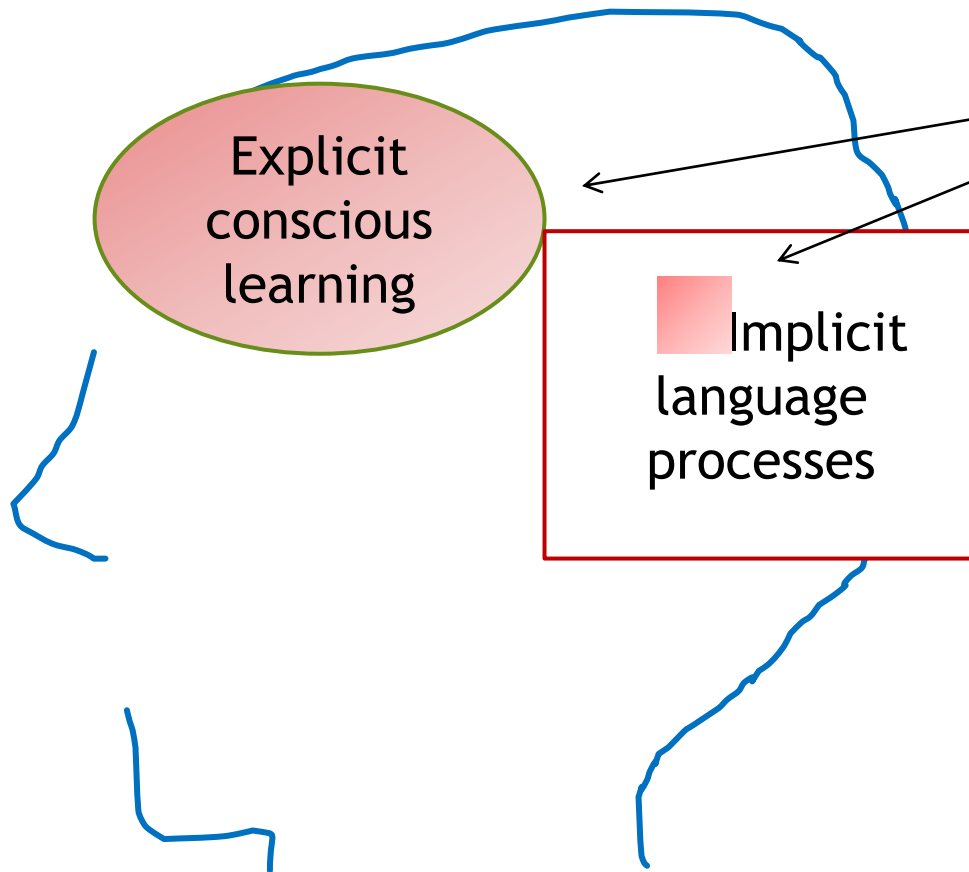
- **Procedural** for skills
- **Declarative** for facts



**L1 speakers
make
most use of
automated
implicit
processes.**



Adult L2 speakers make most use of slower word by word, explicit processes.



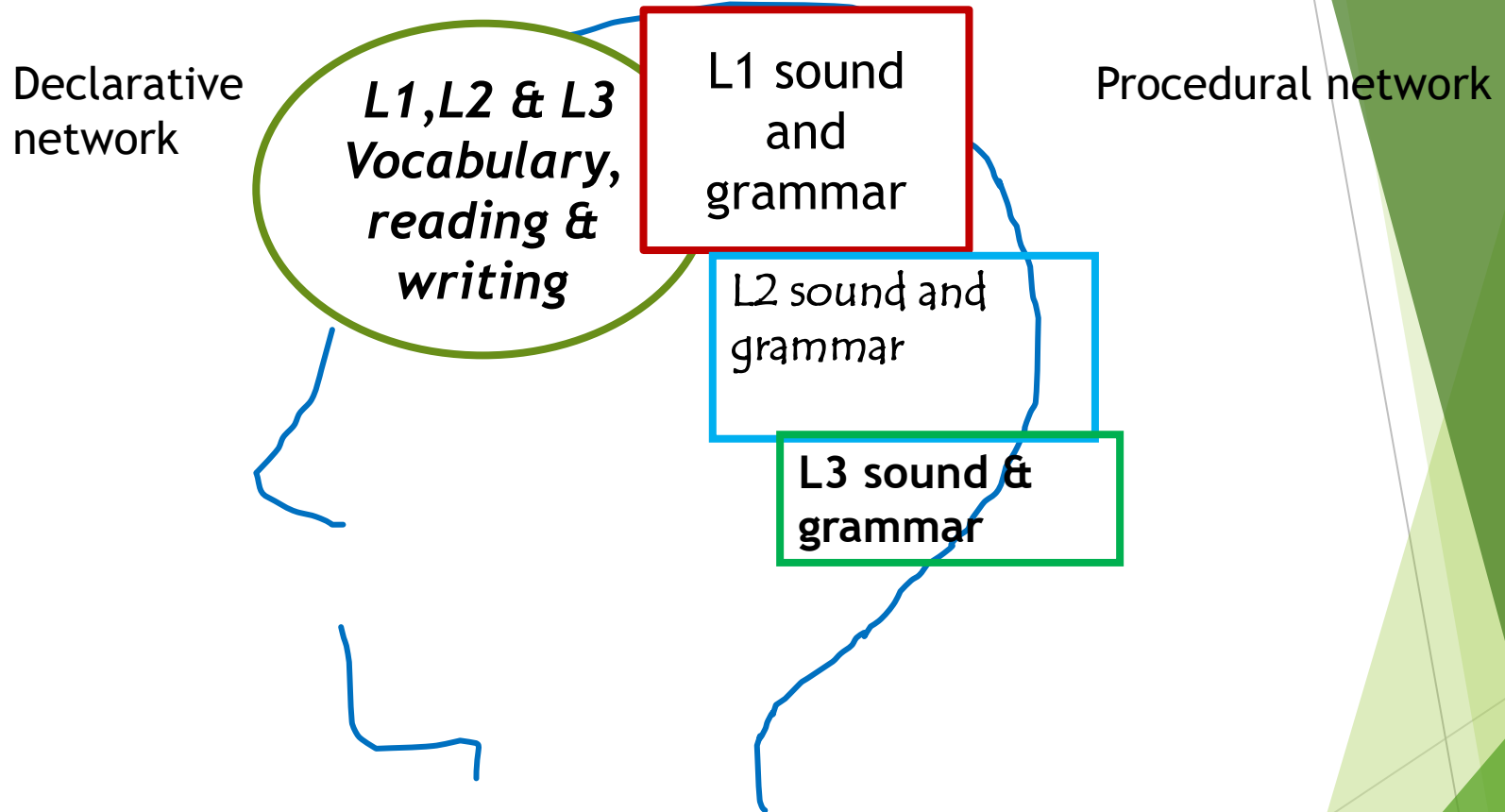
The more fluent that L2 speakers are, the more use of implicit processes they make (Ullman 2001).

brain

Procedural memory:
we can't hear
the uptake is implicit
automatic
unstoppable
unstartable

It's automatic FOR CHILDREN.

CHILDREN

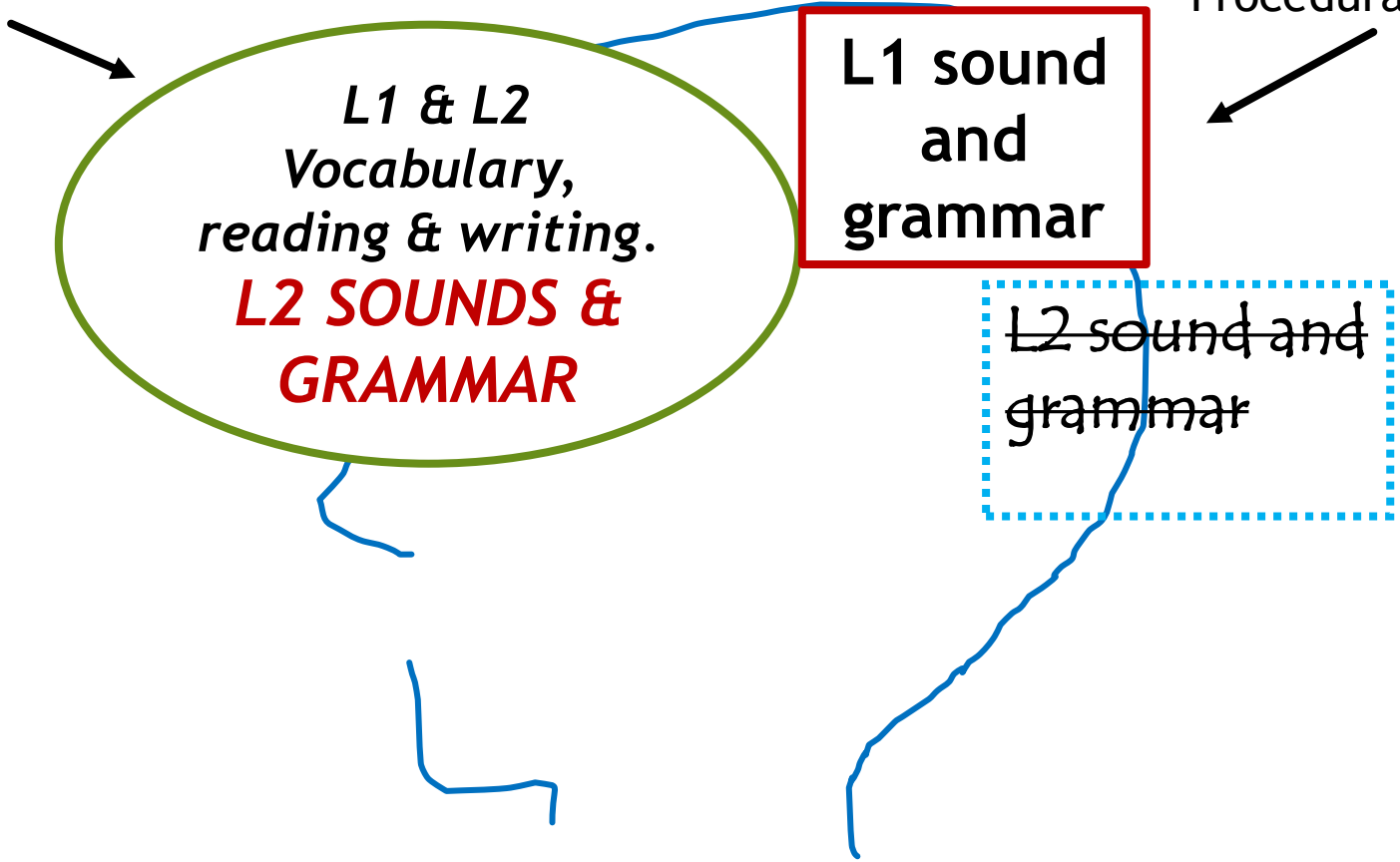


brain

ADULTS

Declarative network

Procedural network



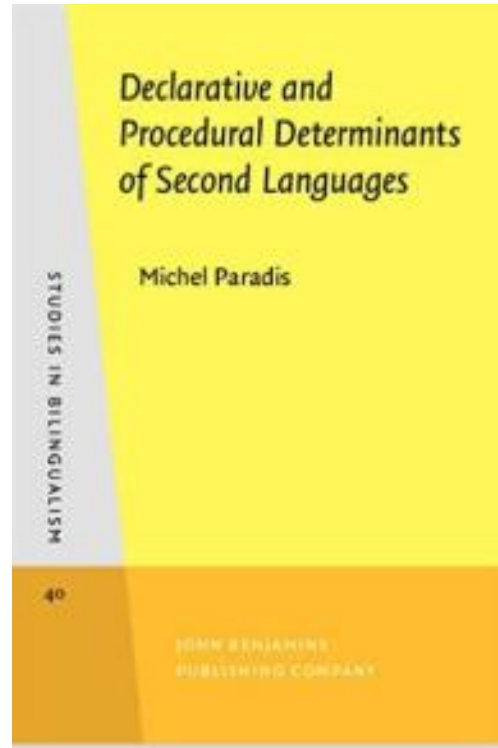
THE BRAIN

- two memory networks

HOW DOES SPEECH GET TAKEN UP INTO PROCEDURAL MEMORY?

- **How does speech get taken up into procedural memory?**
- **What is “under the bonnet” in the brain?**
- **Which language features are taken up into procedural networks?**
- **Why can't we use all that for adults?**

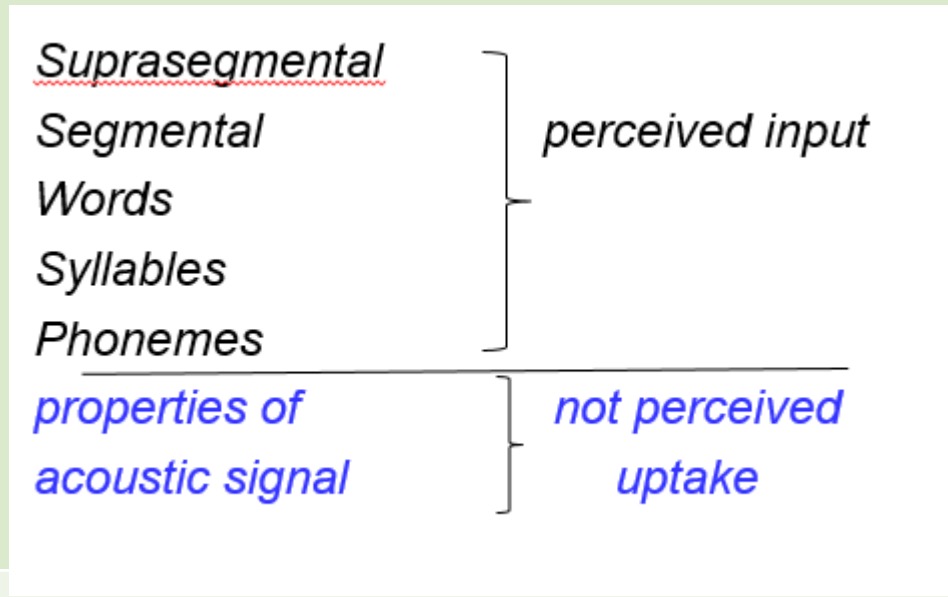
Michel Paradis (2009)

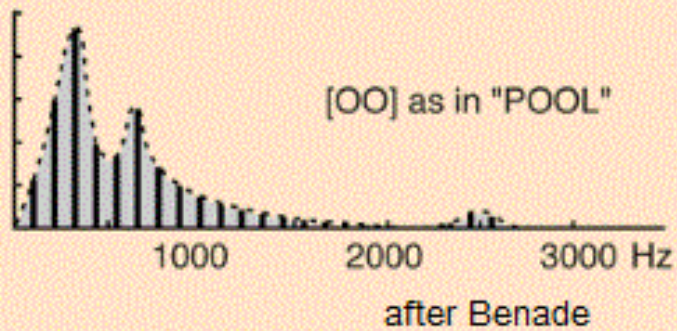
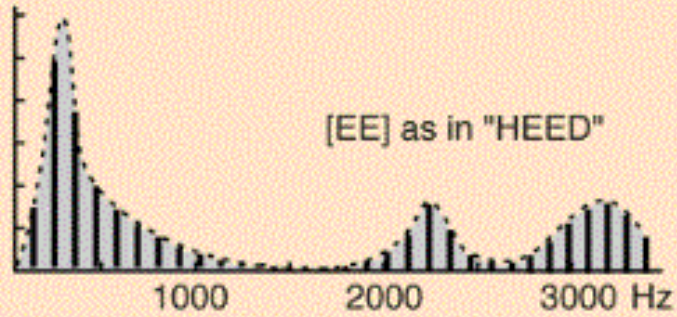
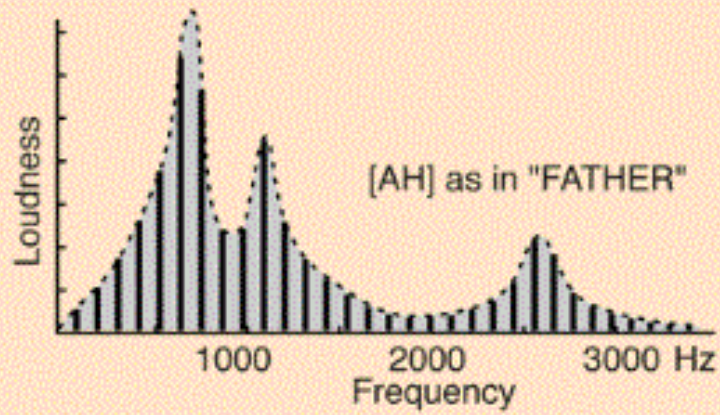
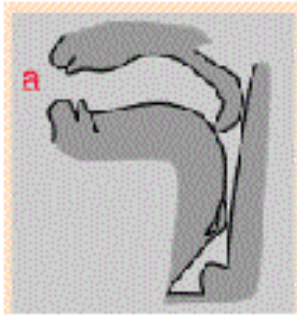


Studies in Bilingualism, 40. John Benjamins.

We acquire the first language from

- surface statistics of the speech signal, e.g. Formants & Wavebursts.





<http://hyperphysics.phy-astr.gsu.edu/hbase/Music/vowel.html>

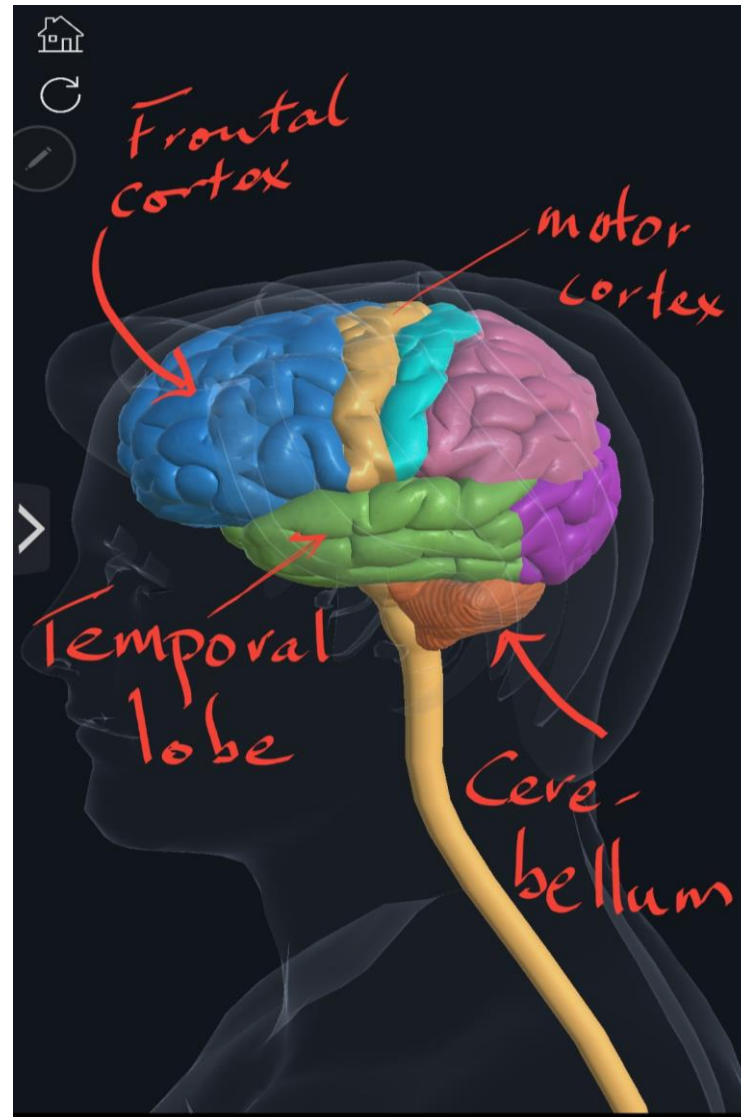
What goes on “under the bonnet”?

The establishment of a system of weighted connections induced by tallying the frequency of occurrence of any combination of items.

Both what is tallied and the tallying process are implicit.

We don't know they're happening and we can't influence the process.

brain



Download APP Brain Anatomy <http://play.google.com/store/apps/details?id=com.visual3dscience.brain>

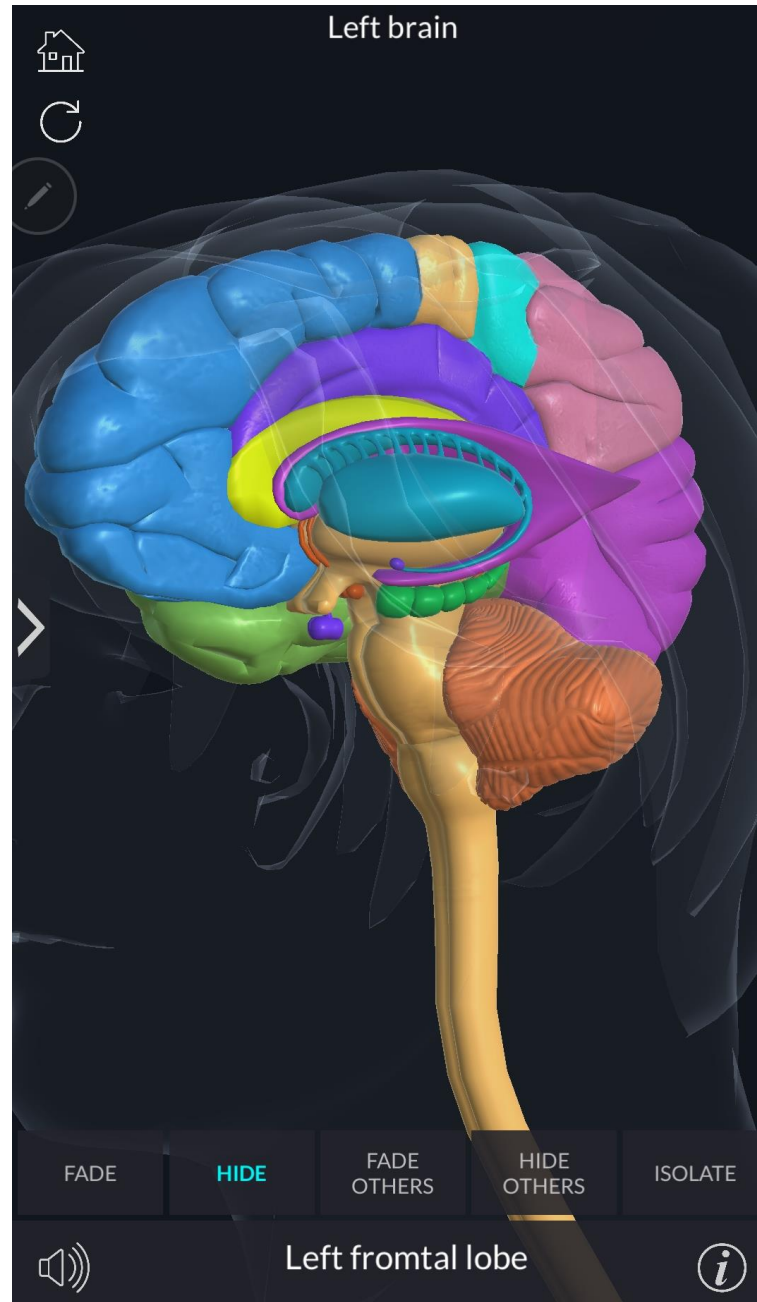
brain

procedural memory

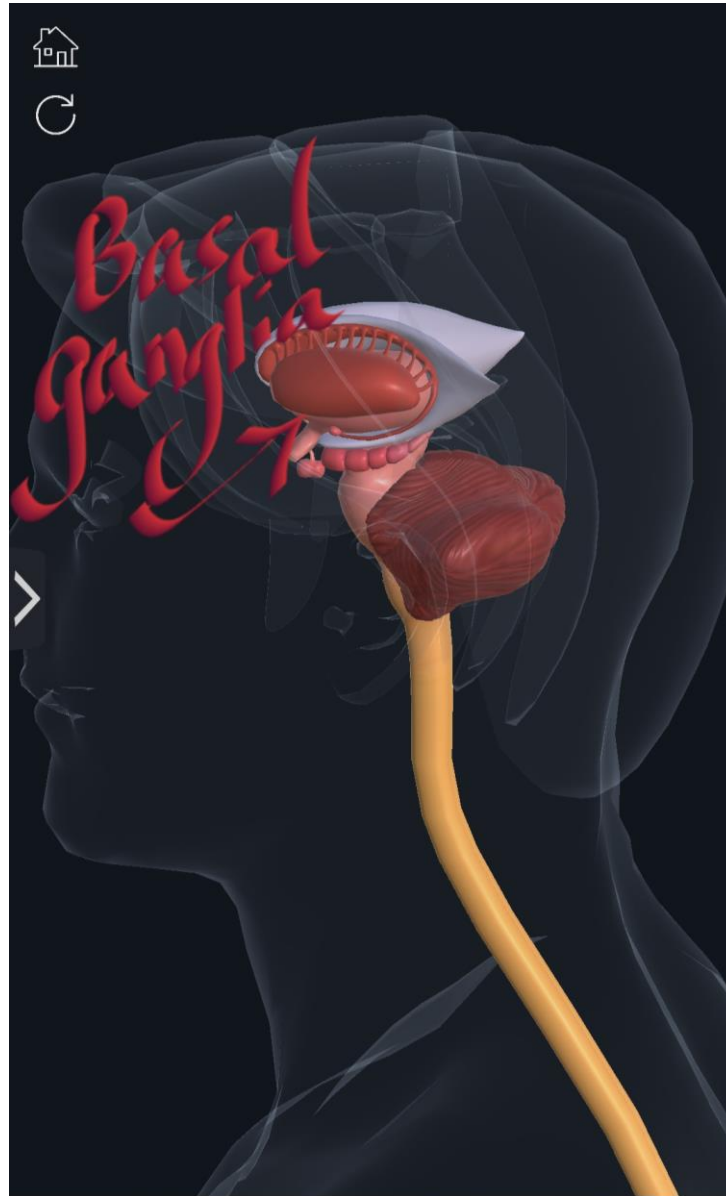
activates
cerebellum,
basal ganglia
&
perisylvian cortical areas

declarative memory

activates
hippocampal system,
parahippocampal gyri,
mesial temporal cortex
& anterior cingulate



brain



What has this got to do with pronunciation?

- ▶ “axonal rewiring” (Uylings 2006) for these functions which have a critical period like language may be difficult.
- ▶ Specially designed strategies might be necessary to obtain better plastic changes in adult learning.
- ▶ MacWhinney, Squire, Uylings and others in neurocognitive field suggest **a rich environment of repeated input** may induce plasticity in adult networks.

What has this got to do with pronunciation?

- ▶ Decoding fluent speech requires automatic linguistic competence in segmenting, in phonological representations and in syntactic competency.
- ▶ The linguistic demands of segmenting fluent speech and accessing adequate automatic phonological representations requires fast procedural memory networks.
- ▶ Automatic linguistic procedures are inadequately initiated and activated in AL2

SPEECHSTREAM

SPEECHSTREAM

Speech stream exercises

An experience where students

- Listen and repeat fluent natural speech
- Which is partly **incomprehensible** to them
- Which they will gradually unfold/ decode with teacher support.

The speechstream exercise

- The decoding process happens
- when understanding is absent.

- When understanding is absent,
- processing occurs.**

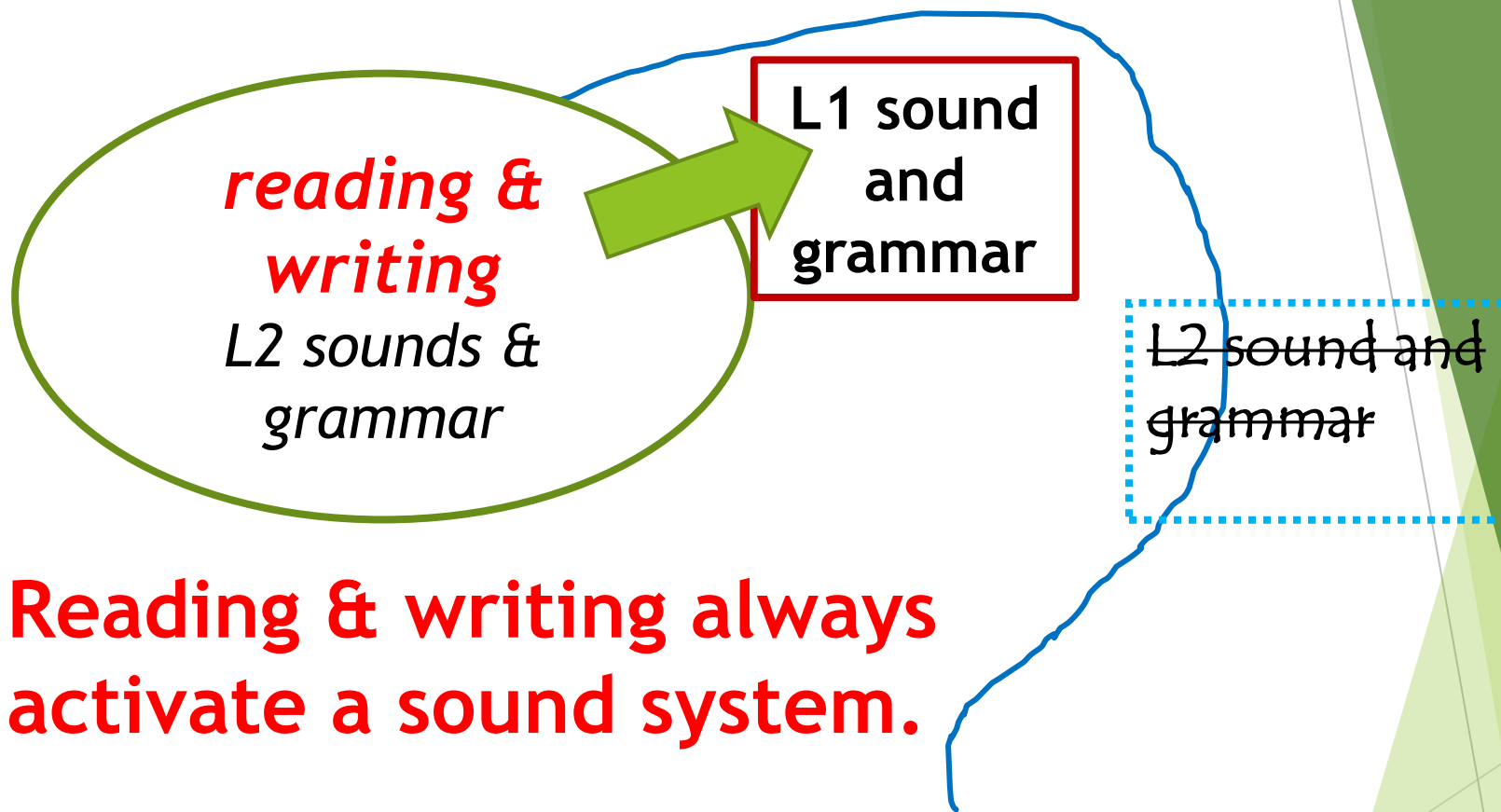
Speechstream

I wanted to trick the childhood learning networks into opening up for my adult students.

I concluded from my reading & experience that TEXT blocks adult uptake **because text activates their first language sound system.**

brain

ADULTS



Reading & writing always activate a sound system.

We always sound the words we read, even if we don't notice that.

TEXT blocks adult uptake

Because text activates their first language sound system, the brain cannot create a new sound system for adults if the old one is active.

Paradis, (2009)

SPEECHSTREAM

- No text;
- No understanding;
- Intense repetition;
- No homework;
- No re-visiting the bunch of words;
- Encouragement & trust;
- Enjoyment.

STAGE 1: *scanning*

STAGE 2: *decoding*

PROCEDURAL MEMORY

ca. 5 – 10 mins

DECLARATIVE MEMORY

ca. 10 to 15 minutes

SCANNING

- ▶ intense focussed repetition
- ▶ NOT understanding
- ▶ physical effort
- ▶ Feedback

DECODING

- .. begin finding words
- .. continue articulating
- .. various exercises
with sound, grammar

When the brain focuses on incomprehensible speech it opens up the processor to deal with it.... And begins creating a second automatic sound system for the new language.

Students enjoy speechstream despite the effort involved - because they appreciate the immediate delight of decoding the tangle - and the longer term progress in better listening to real live language.

We can't teach pronunciation, can we?

We can't teach pronunciation,
can we? YES!

We will continue to use the
rich resources we have available.

And we can take the information that is
overflowing from the **neuroscience** field
looking at new approaches and new angles
for creating the best learning environment
for adult learners.



Many thanks to pronSIG, Beata, Adam
& Gemma and
to all the participants.
Hope you enjoyed our webinar.
You can contact me at
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PRONUNCIATION

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