Linguistic Approaches to Intervention

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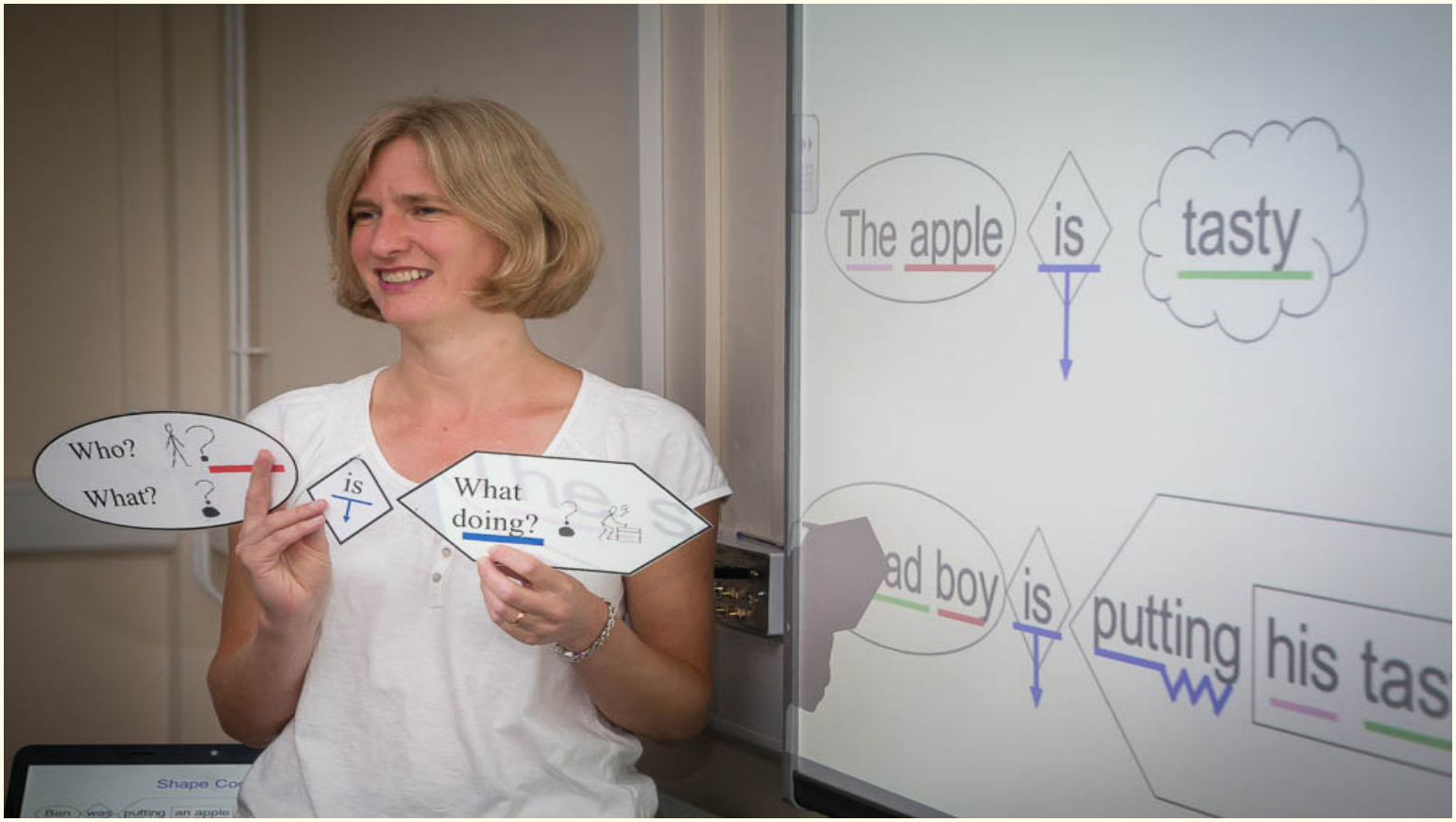
Definition

Recruit non-linguistic representations (e.g. shape, colour and gesture) to support language learning.

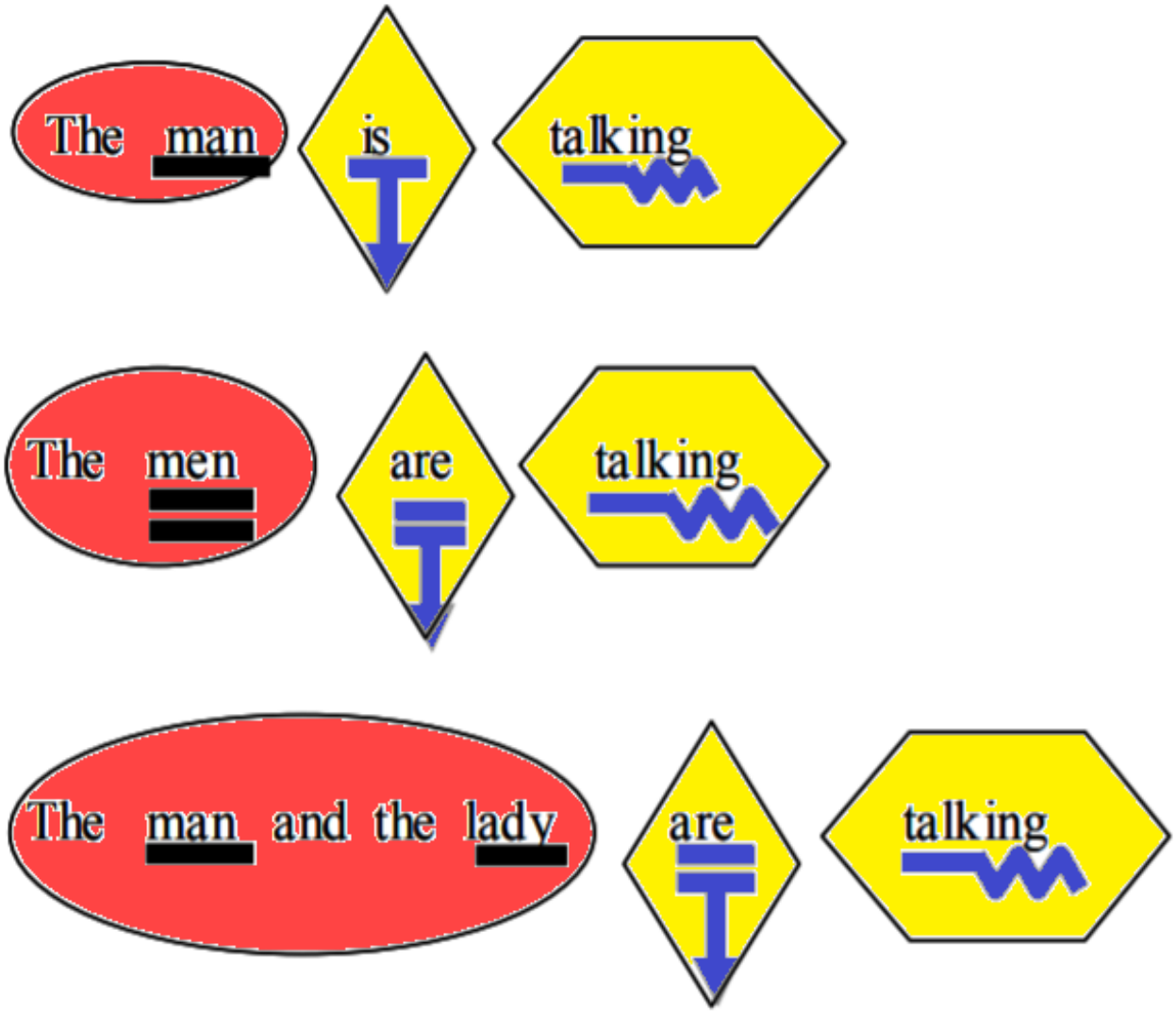
Use of shape and colour

"Shape coding" is a very popular system devised by Susan Ebbels.

Based on 'Colourful semantics' (Dorothy Bryan)



Use of shape and colour



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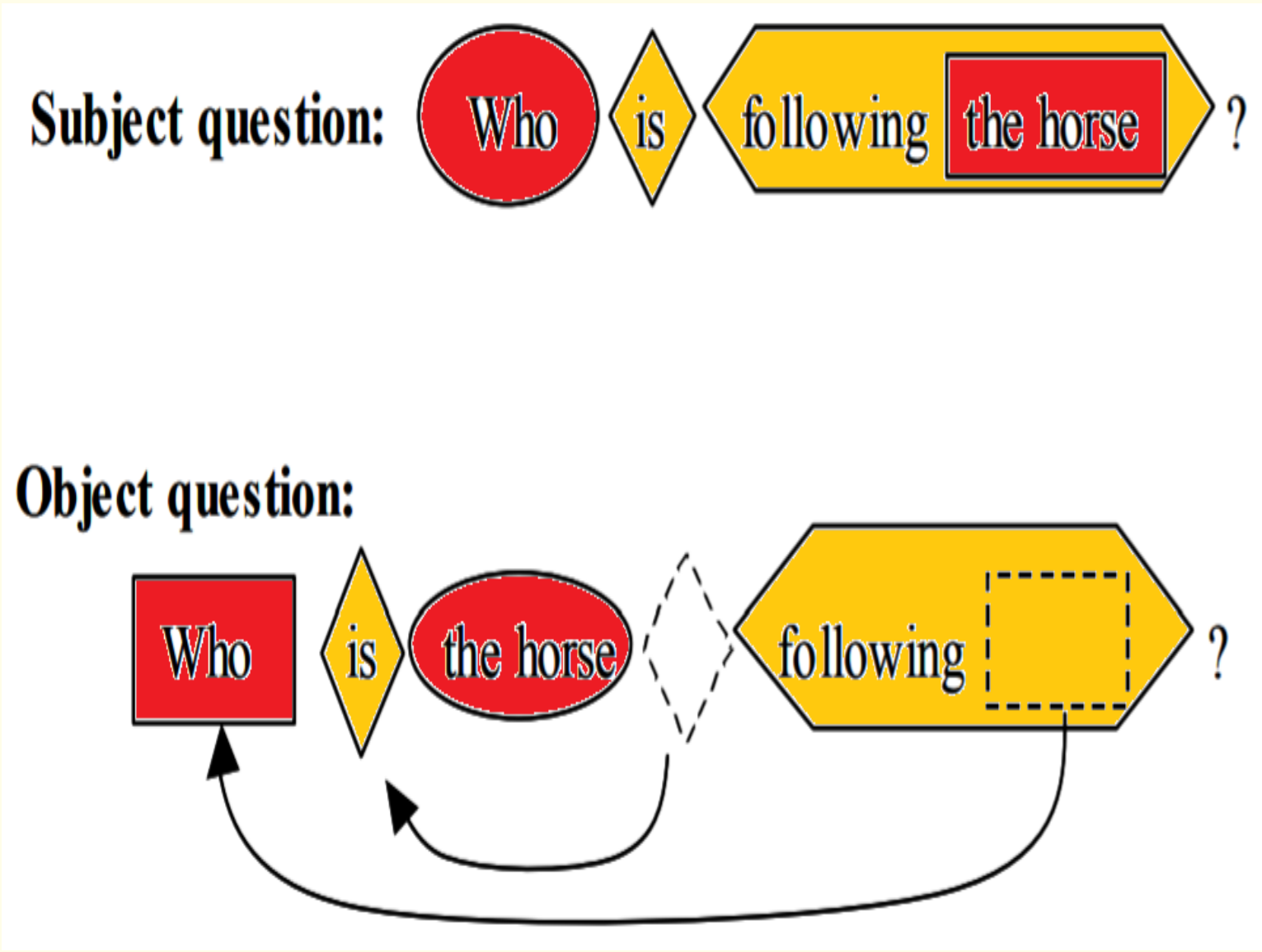

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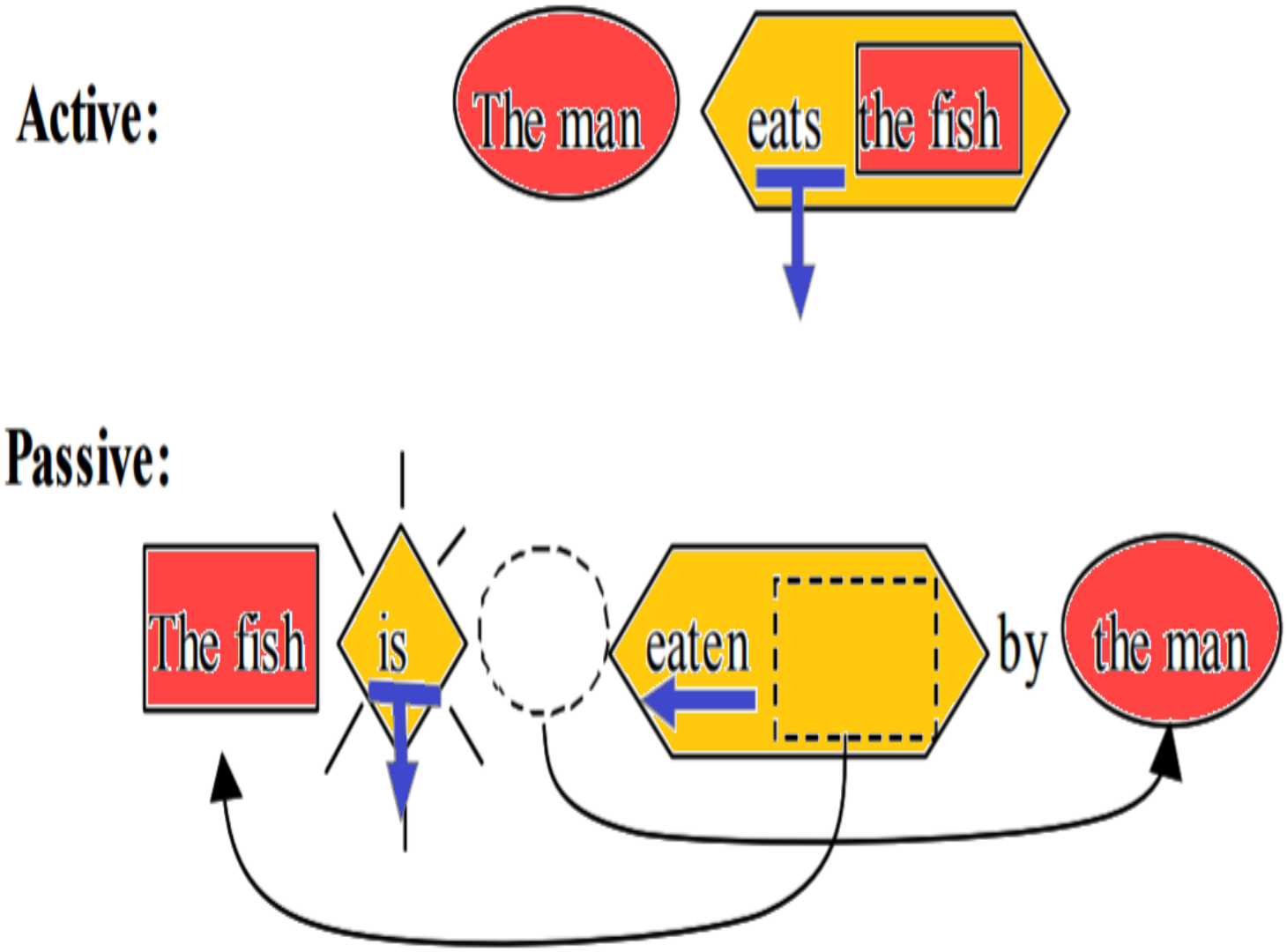


Use of shape and colour

1. Movement processes, e.g. auxiliary movement in questions, are **graphically** demonstrated
2. Subject-verb agreement is **graphically** demonstrated
3. Phrase structure / constituent structure is **graphically** demonstrated

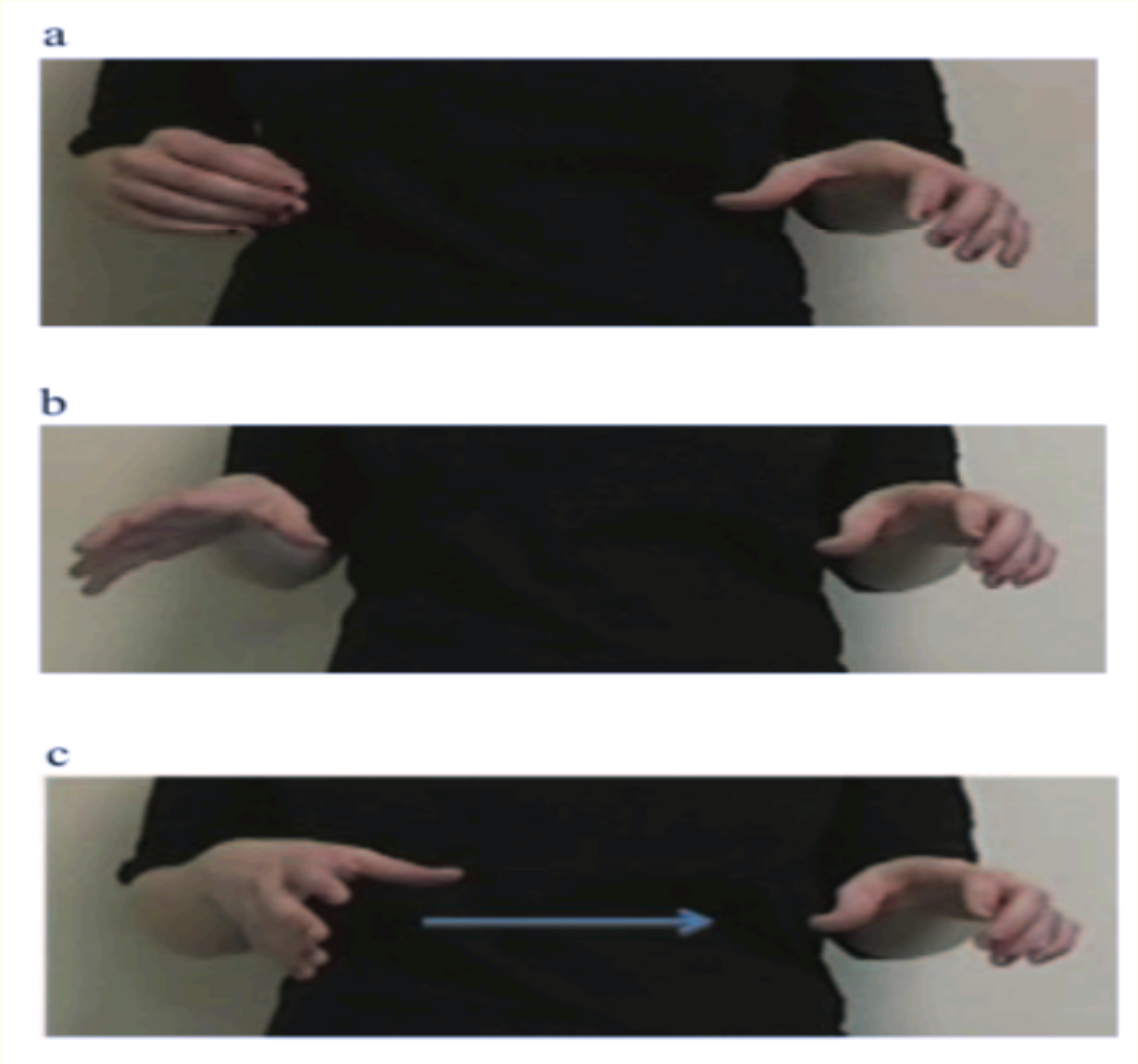
Use of shape and colour

Strong evidence base, but most data collected from older children (11;0 and above)

Use of gesture

Co-speech gestures (i.e. gestures occuring at the same time as speech) can boost children's comprehension of complex sentences (Theakston et al. 2014)

Use of gesture



What are difficulty gradients?

Recap on factors affecting processing difficulty in complex sentences

- Position of embedding (middle of sentence versus end)
- Presence / absence of animacy cues
- Discourse properties of Noun Phrases, e.g. do we use a Noun or Pronoun in subject position.

What are difficulty gradients?

(1) **The boy** [_ that pushed **the girl**] was naughty

(2) **The boy** pushed **the girl** [_ that was naughty]

What are difficulty gradients?

(3) The boy that the rock squashed _ was large

ANIMATE INANIMATE

(4) The car that the man drove _ was very fast

INANIMATE INANIMATE

(5) The cow that the pig chased _ was spotted

ANIMATE ANIMATE

What are difficulty gradients?

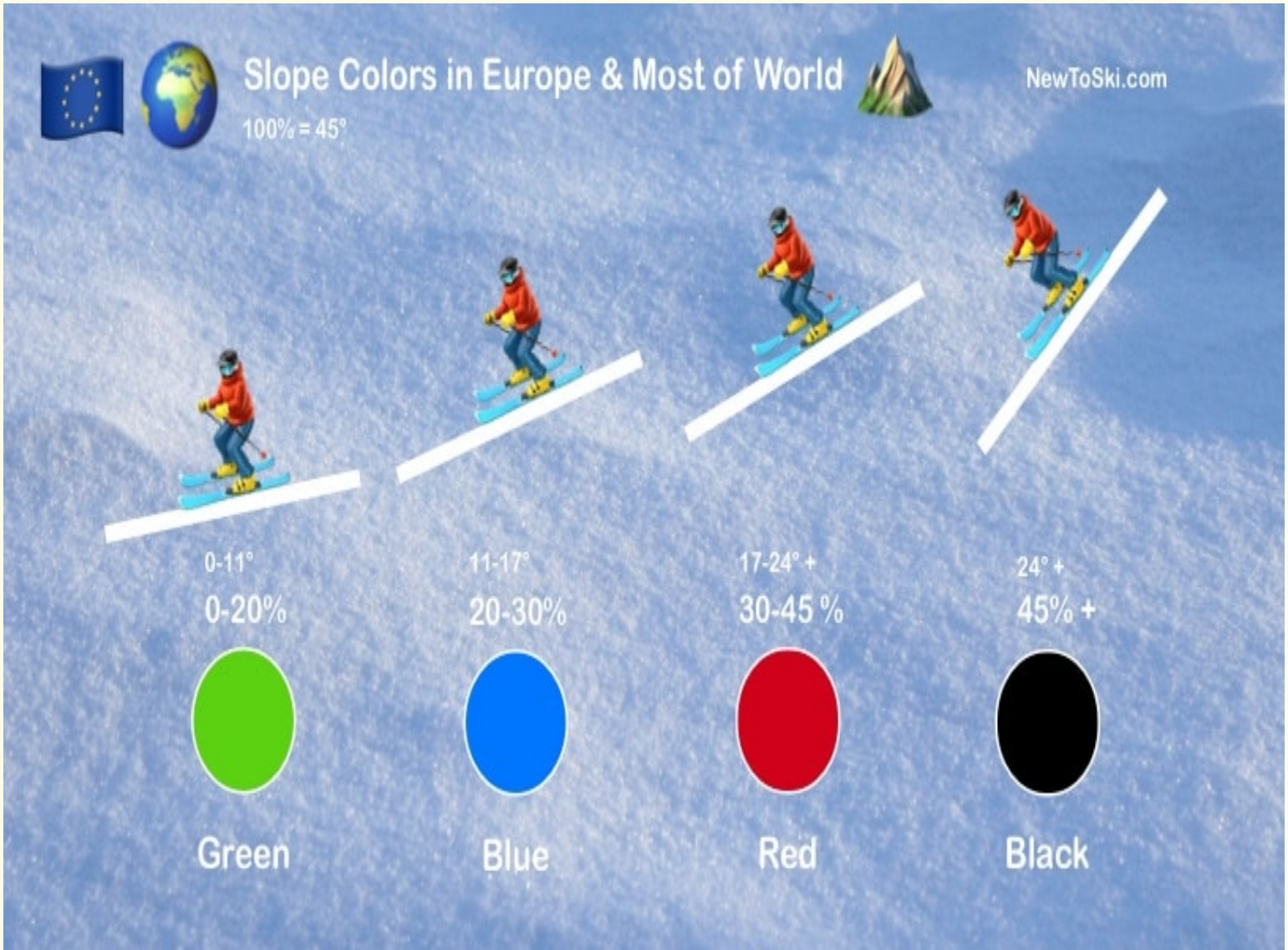
(6) The cow that he chased _ was spotted

FULL NOUN PHRASE

PRONOUN

What are difficulty gradients?

We can manipulate these factors to make a difficulty gradient?



What are difficulty gradients?

	No cluster	Cluster
Easy semantics (natural endpoint)	fried /d/	baked /kd/
Difficult semantics (no natural endpoint)	hummed /d/	laughed /ft/

Van Horne et al. (2017) - much greater learning in a complex-first condition.

What are difficulty gradients?

STATE PASSIVE (Israel et al., 2000)

(7) Car broken. (Adam 2;4)

(8) Pumpkin stuck. (Nina 2;1)

(9) Now it's fixed. (Peter 2;0)

EVENT PASSIVE

(12) That dolly's gonna be washed cause she's dirty (Nina, 3;2)

What are difficulty gradients?

STATE PASSIVE (Israel et al., 2000)

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(9) Now it's fixed. (Peter 2;0)

INTERMEDIATE PASSIVE (participle ambivalent between an event and state)

(10) I want them opened (Nina, 3;0)

(11) She doesn't need it cut (Nina, 3;1)

EVENT PASSIVE

(12) That dolly's gonna be washed cause she's dirty (Nina, 3;2)

What are difficulty gradients?

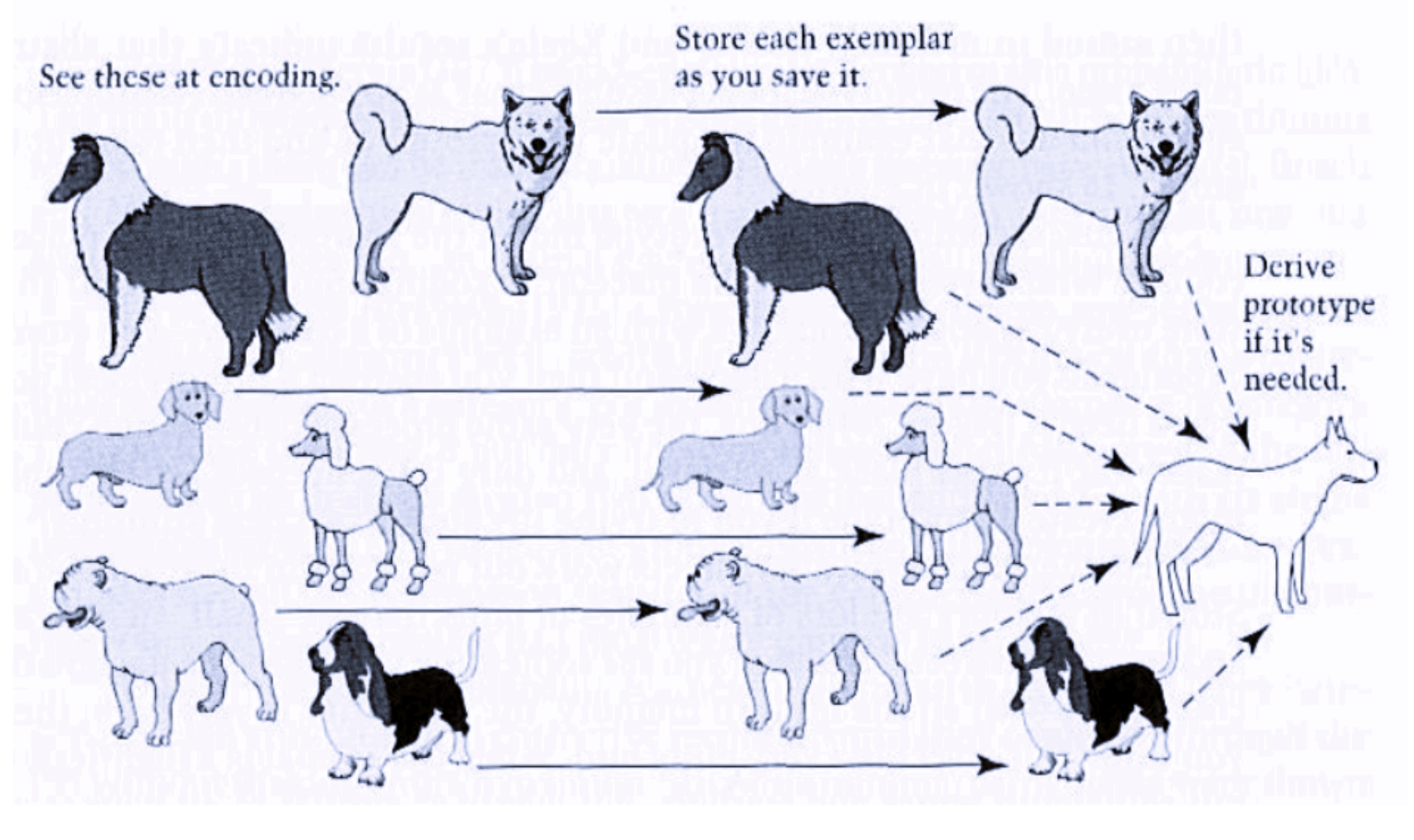
Why do we need to make items complex?

Exemplar theory: children have immature representations, or "exemplars"

These are initially overly-specific, and will become more abstract over time.

Language-impaired children may be overly dependent on exemplars (Dell and Chang, 2013)

What are difficulty gradients?



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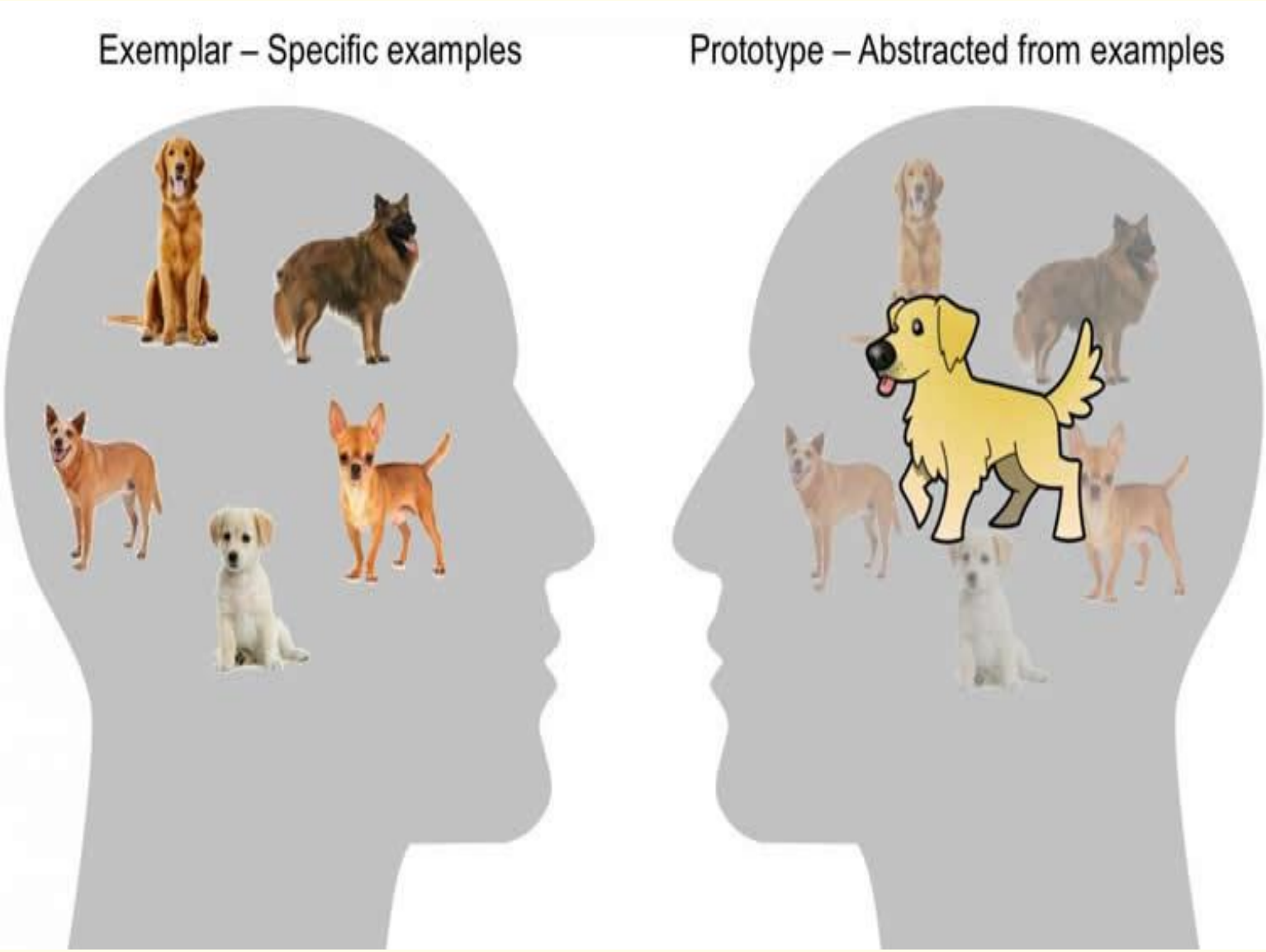

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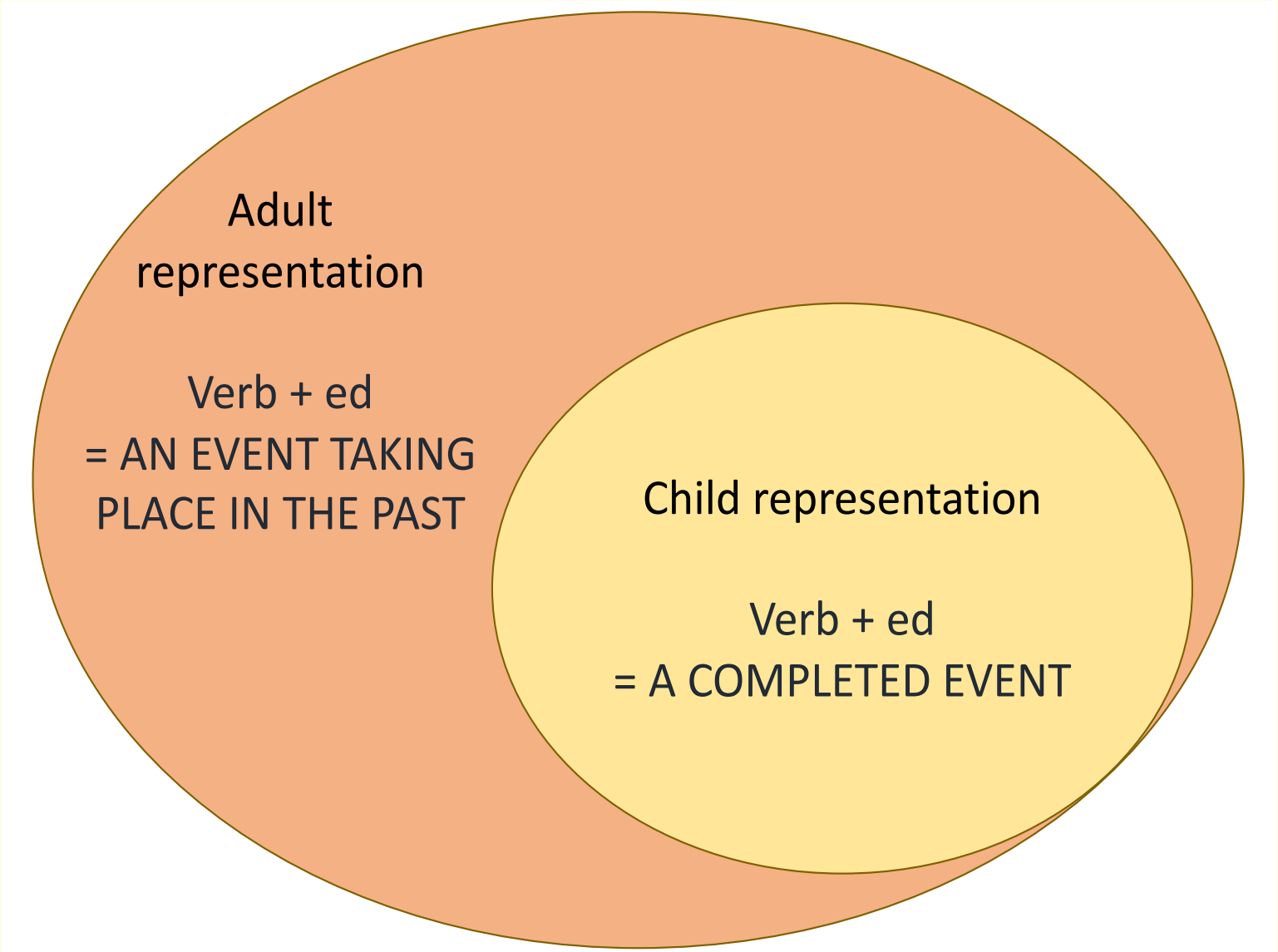


What are difficulty gradients?

A general rule of thumb is that it may be beneficial to "stretch" children by introducing complex items as long as these are not overwhelmingly complex. It is a fine balancing act.

Variation versus no variation

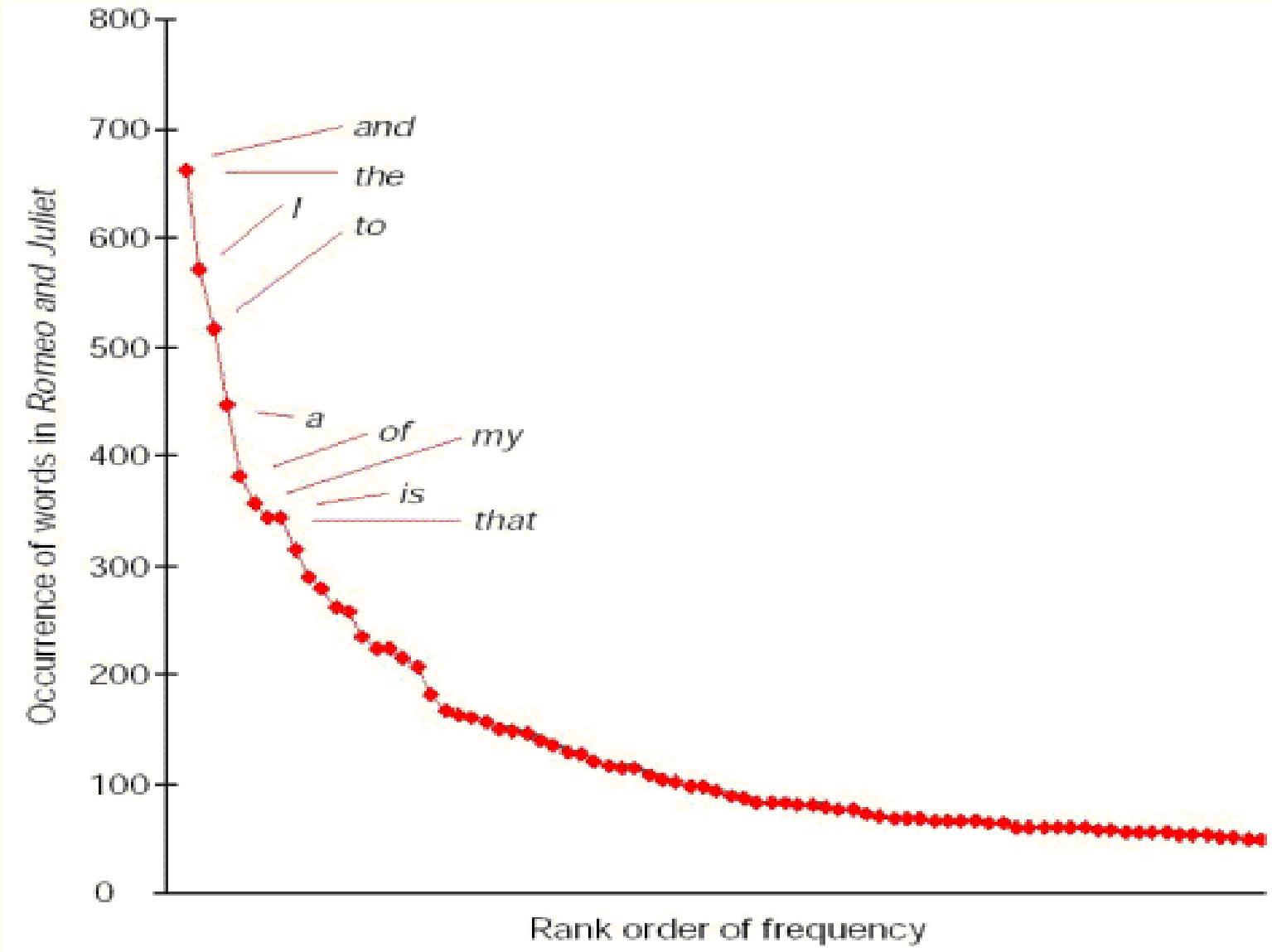
1. The dog 's dacking the ball
2. He 's dacking it
3. The cat 's dacking the pencil
4. He 's dacking it

1. The dog 's dacking the ball
2. The dog 's dacking the ball
3. The dog 's dacking the ball
4. The dog 's dacking the ball

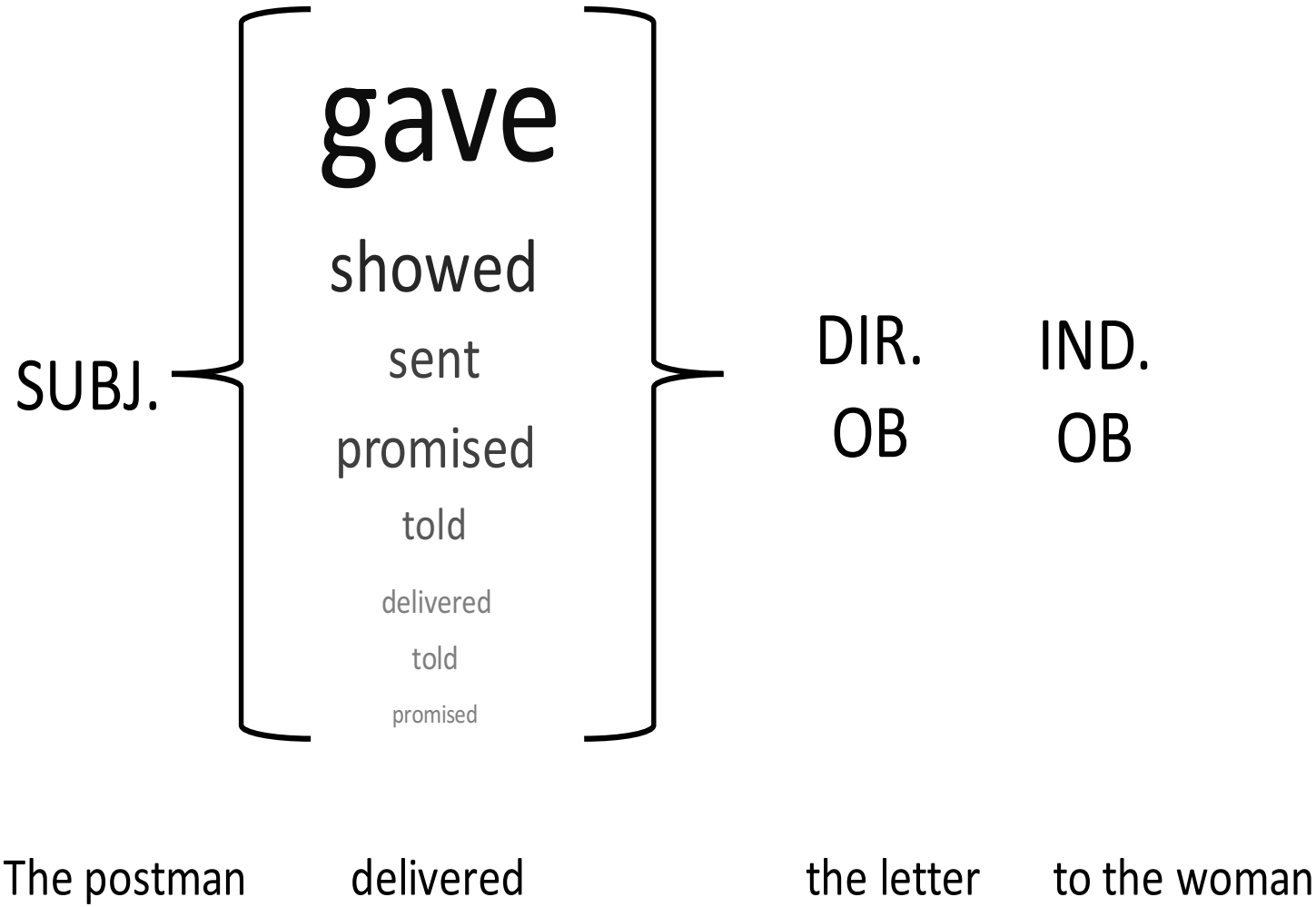
Variation versus no variation

Children (aged 2;6) trained in a high variability condition demonstrated better learning of the transitive construction (Childers & Tomasello, 2001)

Variation versus no variation

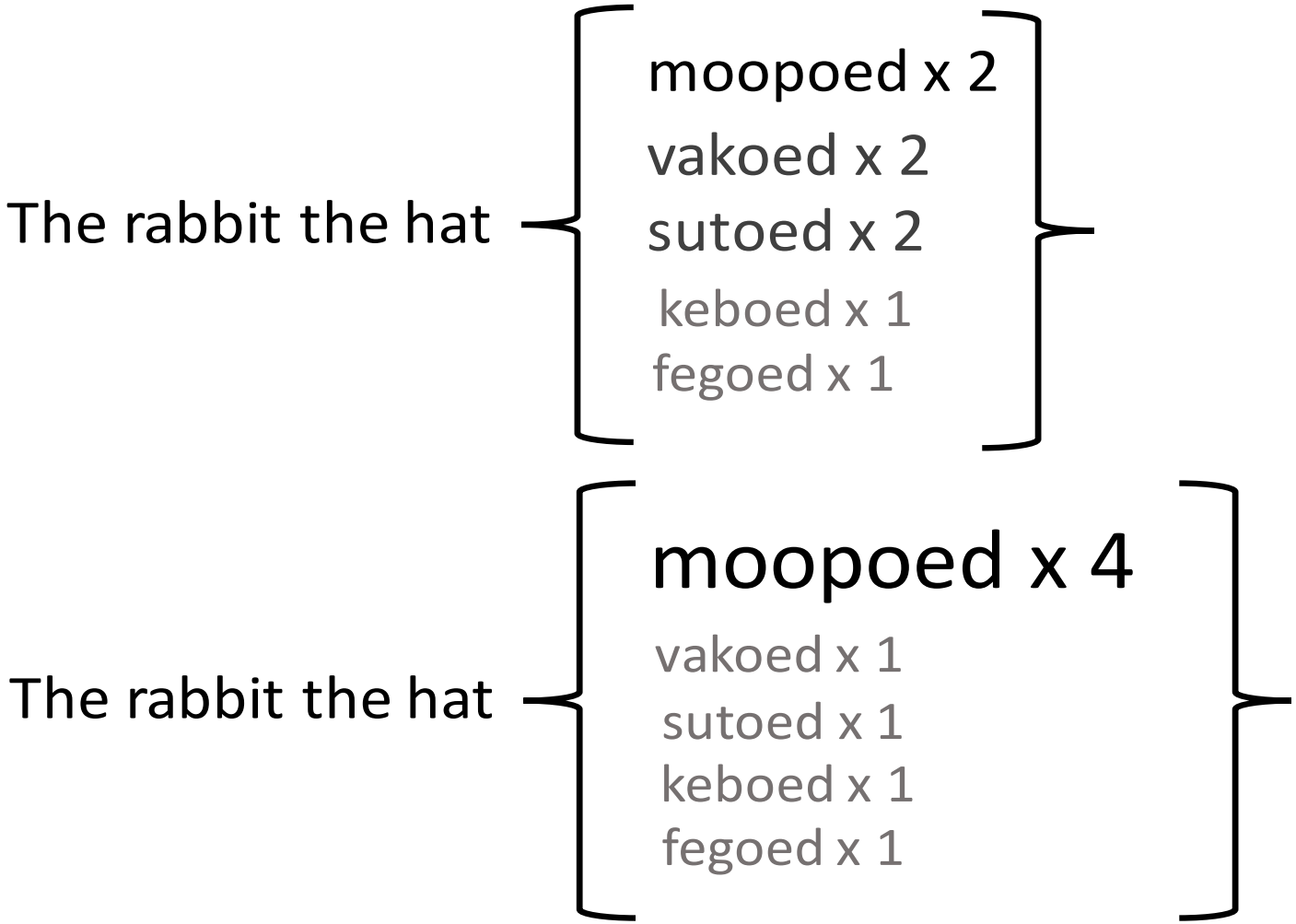


Variation versus no variation



Skewed distributions

Casenhiser & Goldberg, 2005



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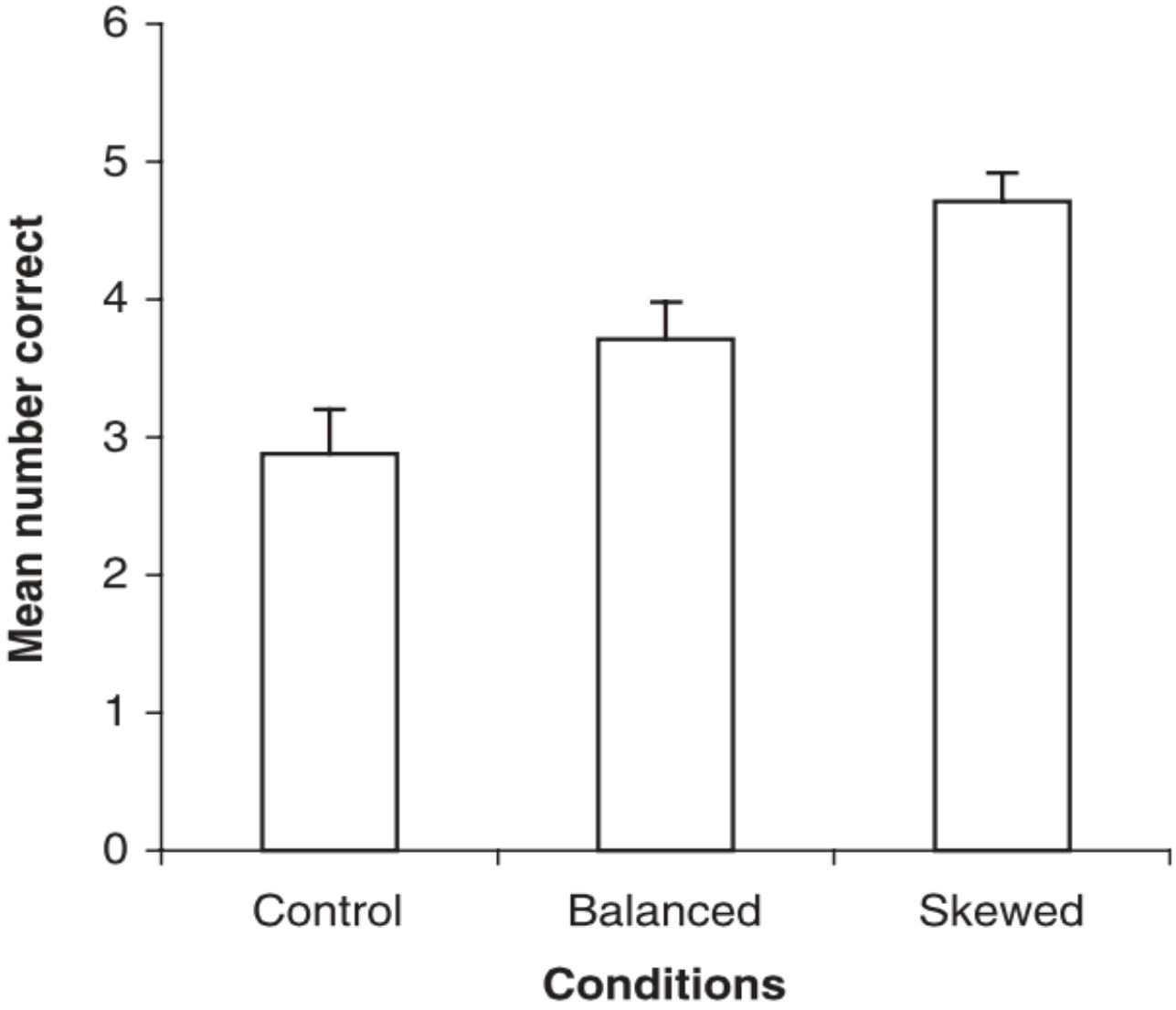
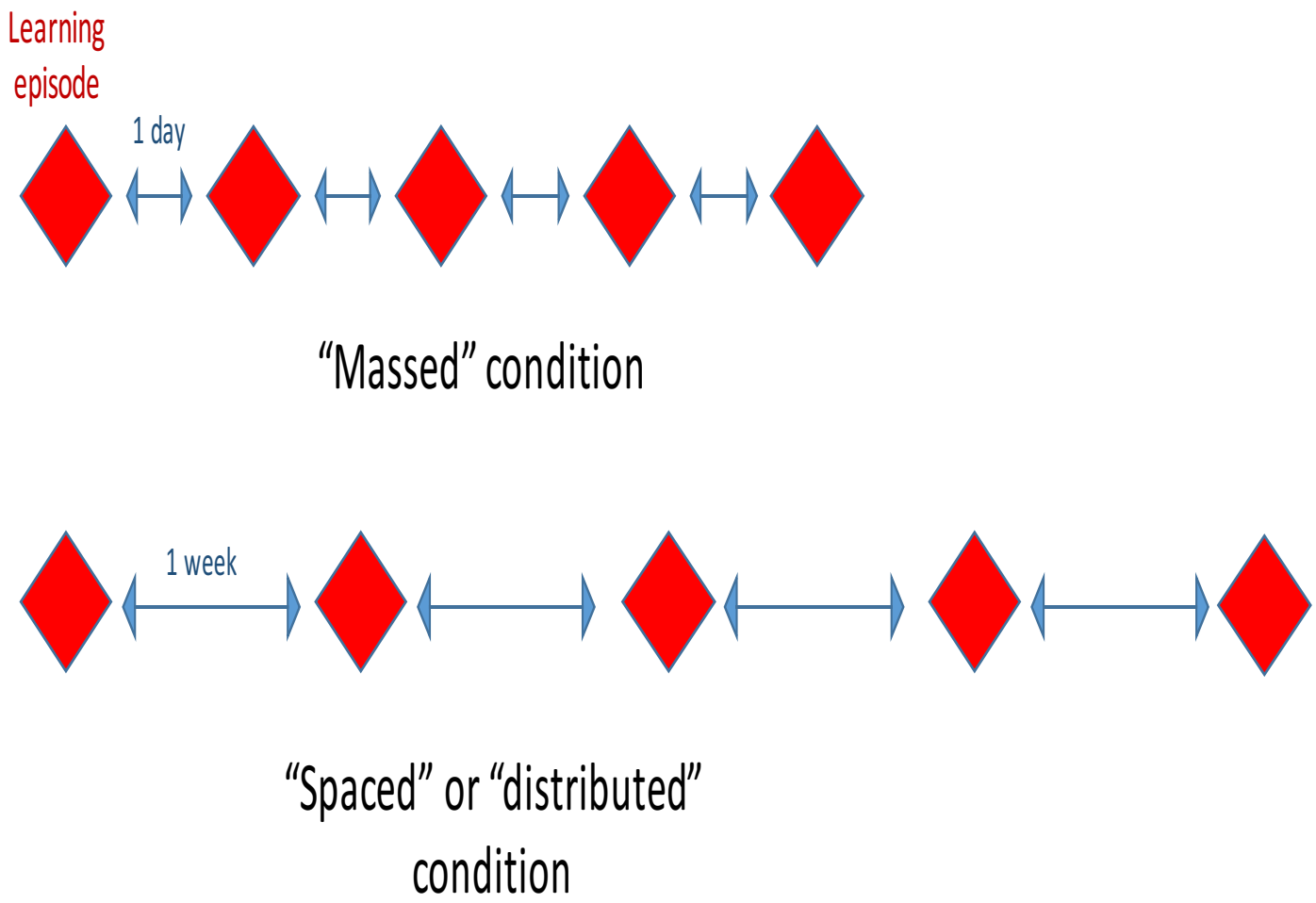
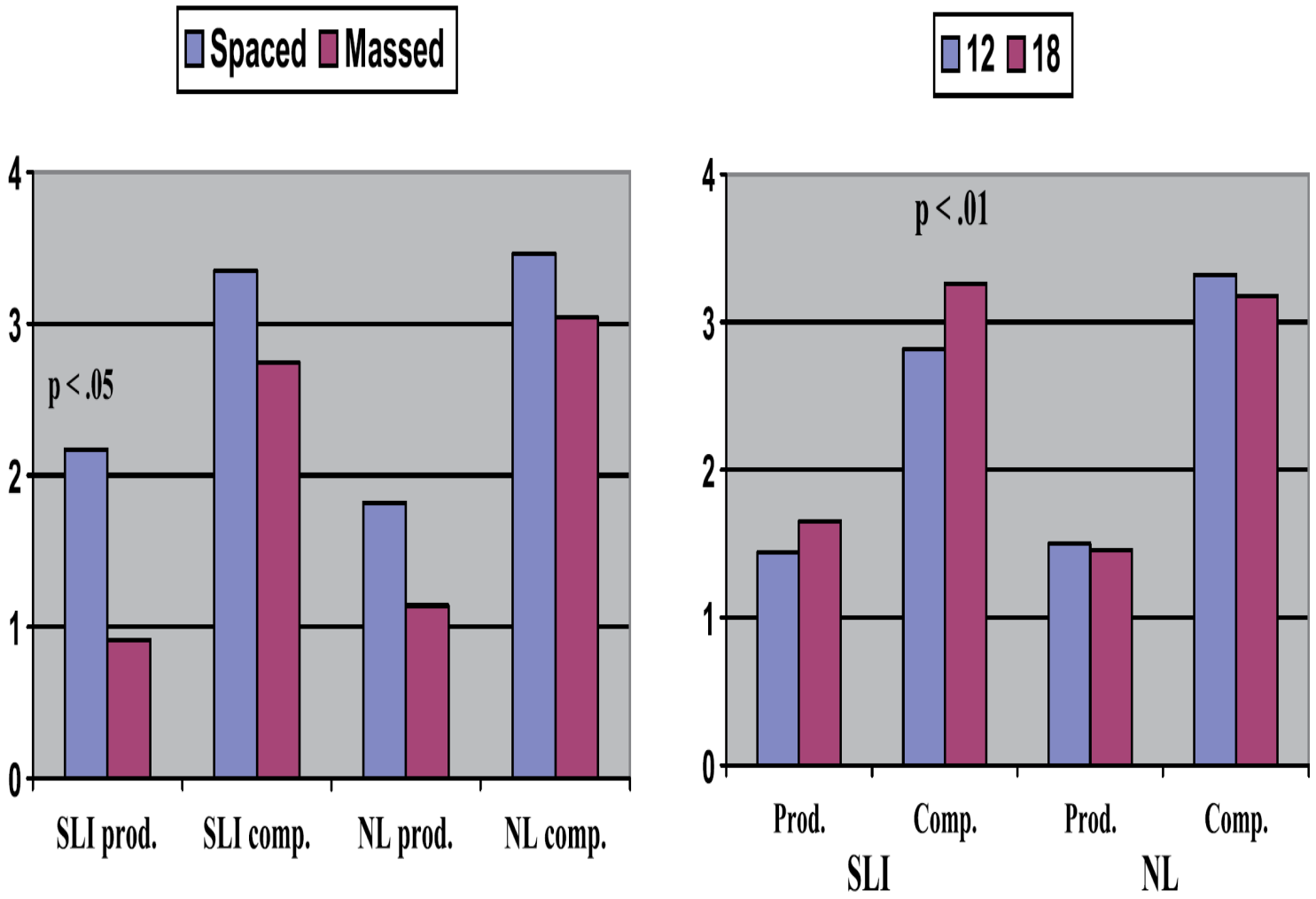


Distributed learning

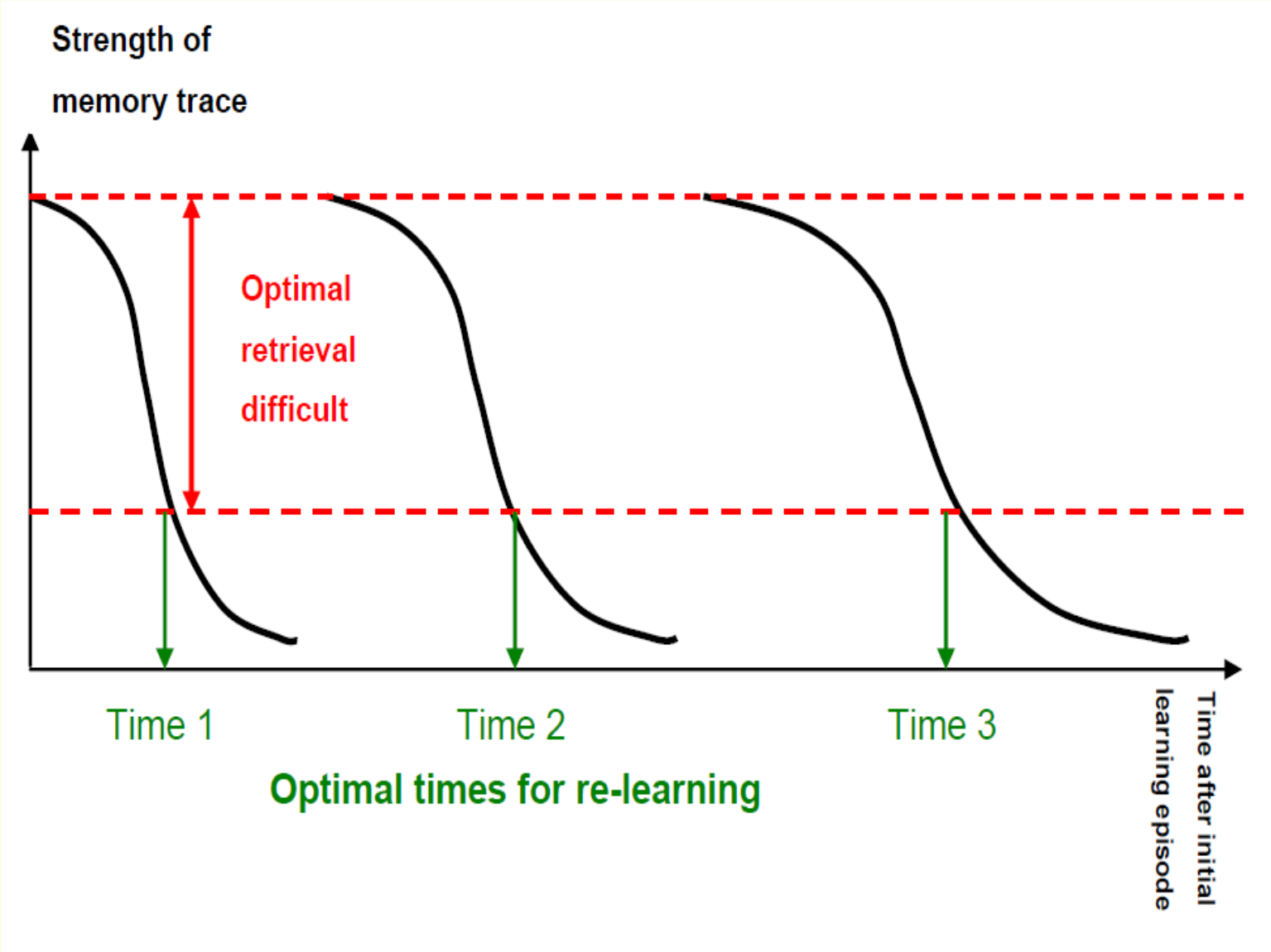


Distributed learning

Distributed learning leads to better retention of words (Riches et al. 2005)



Distributed learning



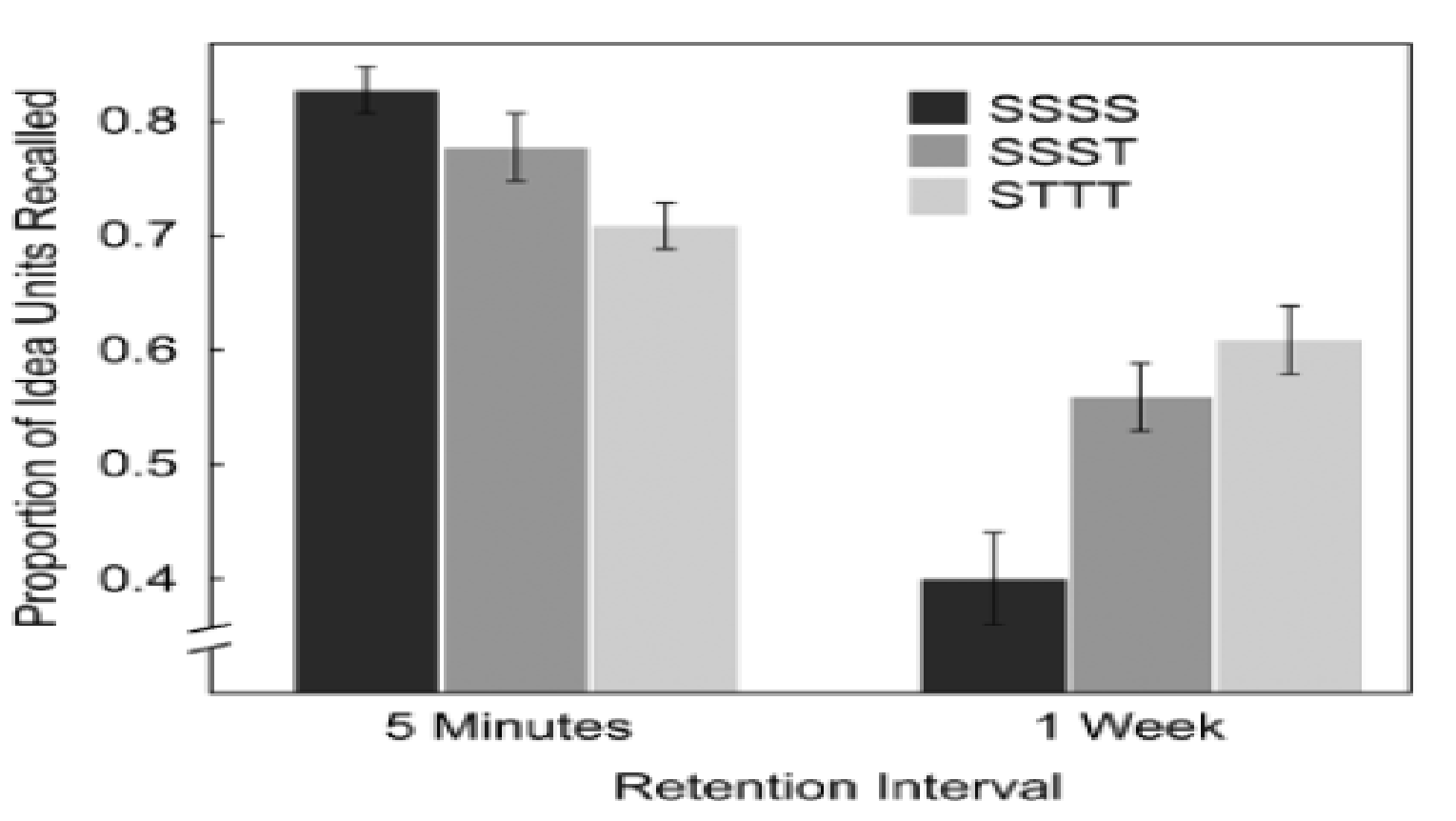
Distributed learning

But intensive training with short intervals seems to be better for motor learning, e.g. Lee Silverman treatment for Parkinson's

Active learning

We learn better when we learn actively, e.g. we continually test our knowledge of a particular topic, than when we learn passively, e.g. we just read about a topic.

Roediger & Karpicke, 2006



A lot of the language theory we have covered is directly clinically applicable!!!

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