The usage-based approach

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General assumptions

- Language is a dynamic system that emerges from the use of language in social interactions
- Grammar is much more concrete than Chomsky and other nativist researchers assume
- Language acquisition involves general learning meachnisms such as imitation, analogy, automatization, and entrenchment

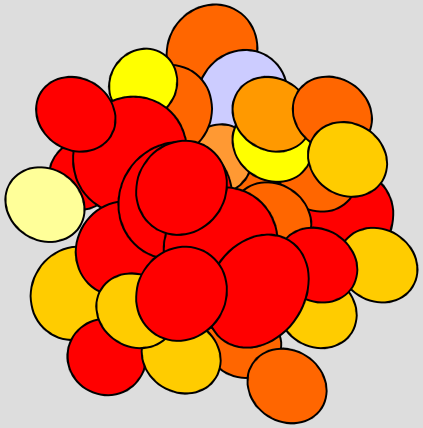
What are the general learning mechanisms involved in language acquisition?

Imitation

Emulation

Entrenchment

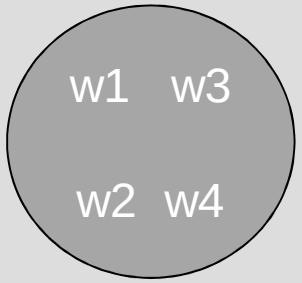
Entrenchment



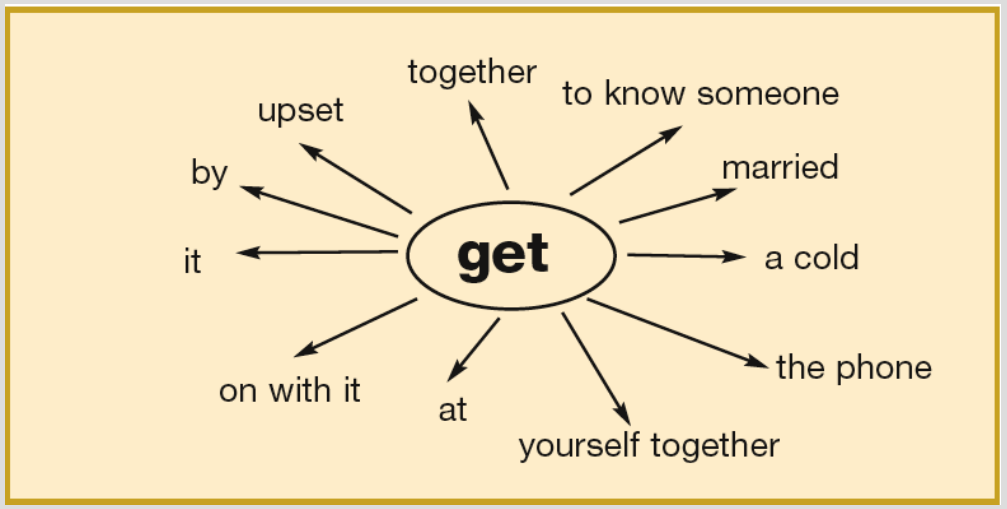
entrenched category

Entrenchment

$W_1\ W_2\ W_3\ W_4\ W_5\ \ldots.$



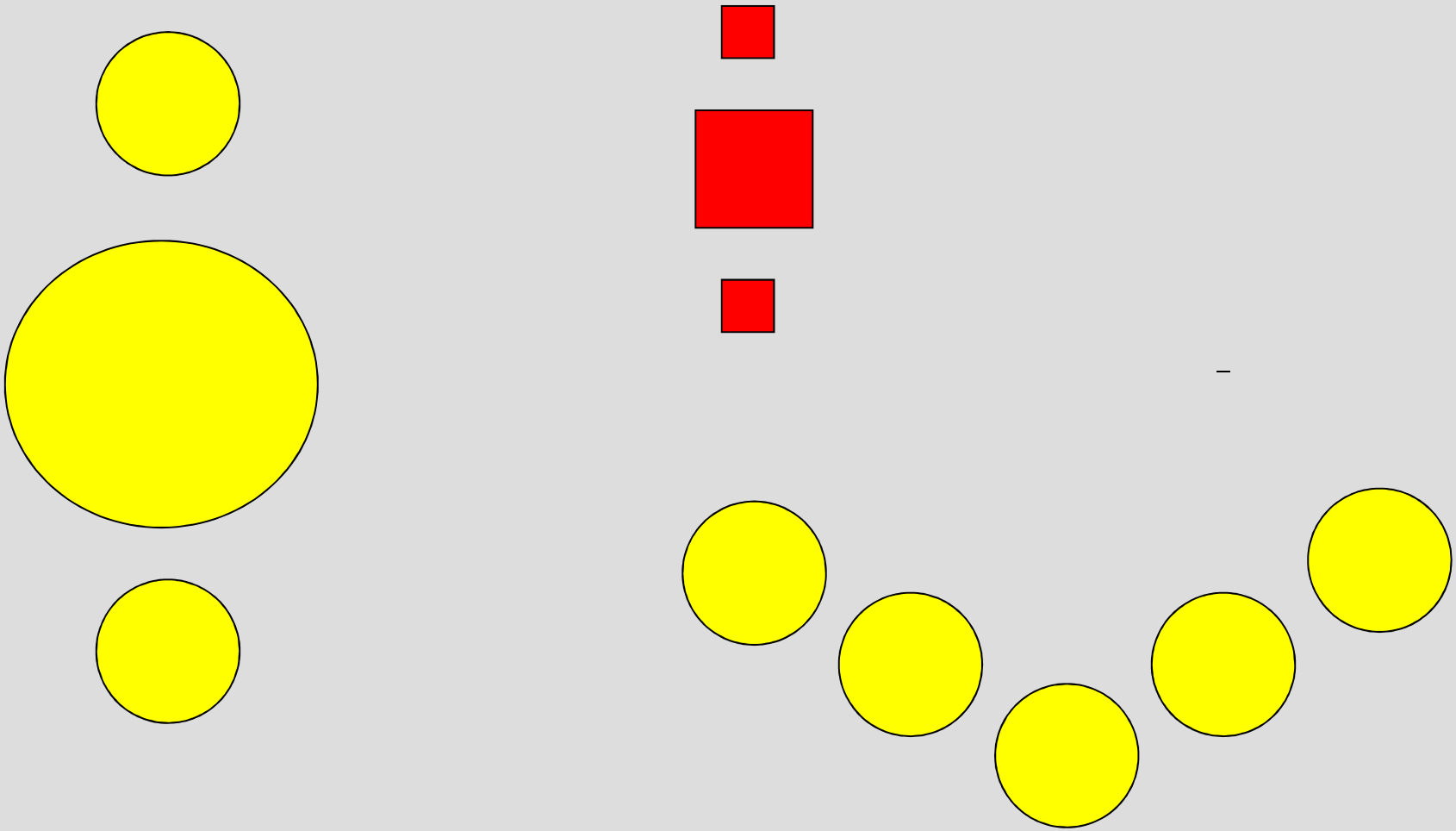
Frequently used strings of linguistic elements are converted into chunks (i.e. collocations, chunks)



Analogy

Walk	->	Walked
Talk	->	Talked
Cook	->	Cooked
Click	->	Clicked
Meek	->	Meeked

Analogy



Summary

Nativist theories	Learning theories
• Grammar is innate	• Grammar is not innate

Summary

Nativist theories	Learning theories
• Grammar is innate • Language-specific learning mechanisms i.e. parameter-setting	• Grammar is not innate • General learning mechanisms e.g. analogy and automatization

Summary

Nativist theories	Learning theories
• Grammar is innate • Language-specific learning mechanisms i.e. parameter-setting • Grammatical development needs very little data	• Grammar is not innate • General learning mechanisms e.g. analogy and automatization • Grammatical development needs robust data

Construction grammar

Generative grammar

The autonomy of syntax: Syntactic structure does not have meaning.

(1) Colorless green ideas sleep furiously.

Categories and rules: Grammar consists of discrete categories and rules.

Categories:	N, V, NP, PP
Rules:	NP $\rightarrow$ DET N, VP $\rightarrow$ V NP

Generative grammar

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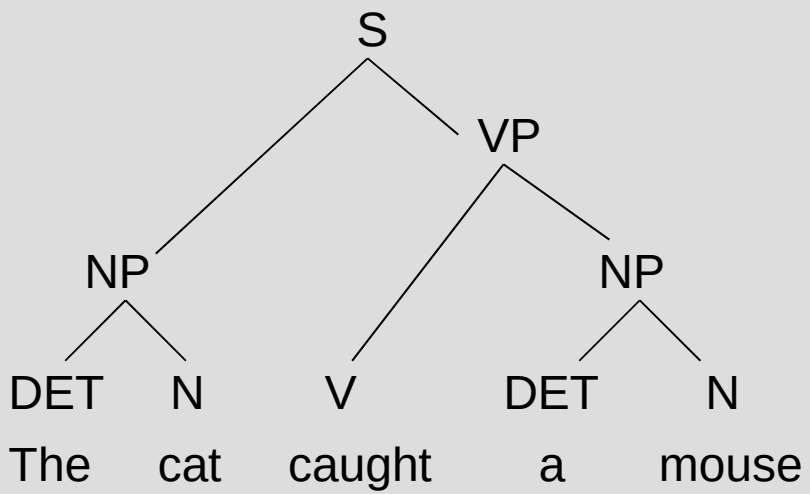
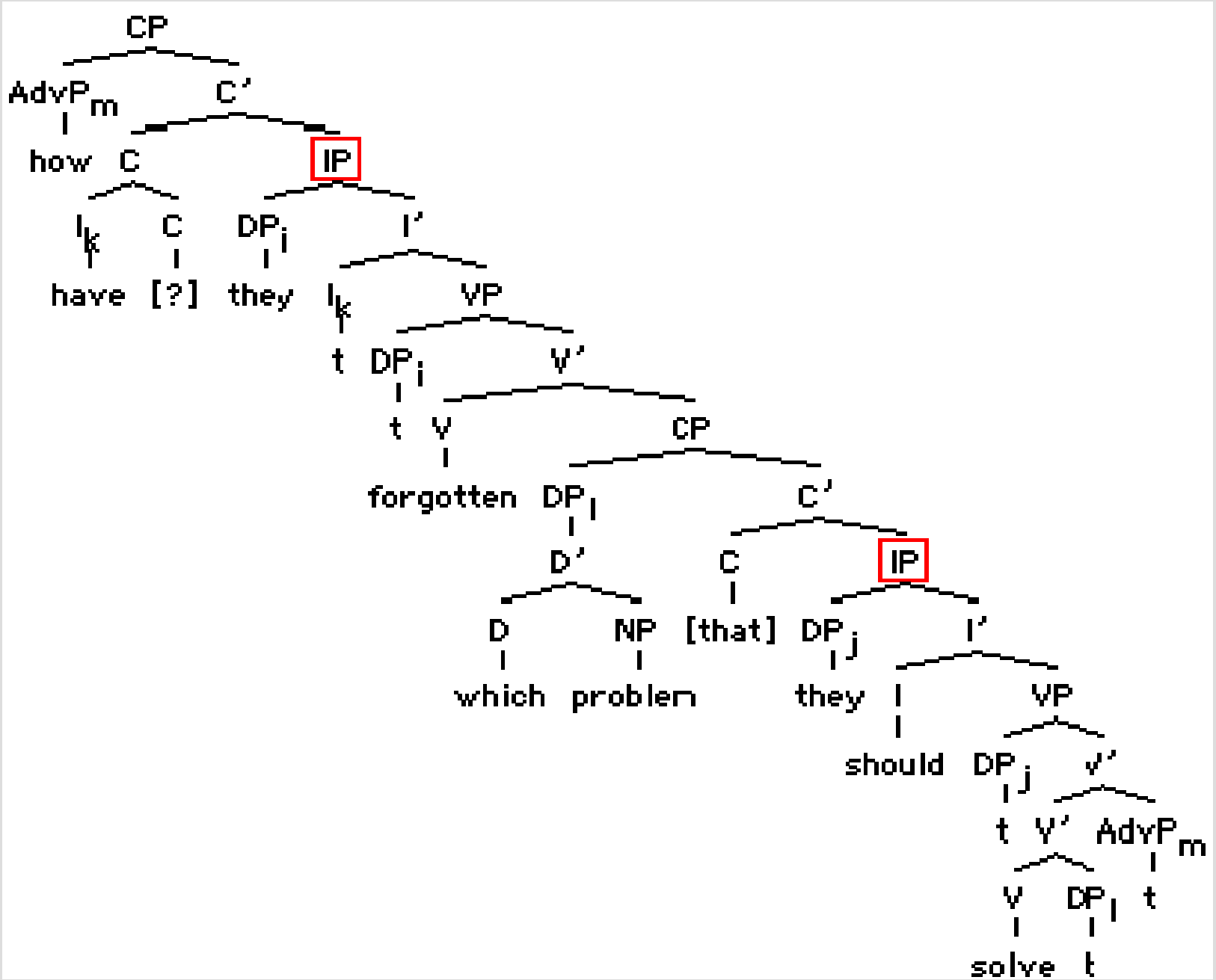



CP
AdvP m
C′
how
C
IP
I k
C
DP i
I′
have
[?]
they
I k
VP
t
DP i
V′
t
V
CP
forgotten
DP l
C′
D′
C
IP
D
NP
[that]
DP j
I′
which
problem
they
VP
should
DP j
v′
t
V′
AdvP m
V
DP l
t
solve
t

Construction grammar

Grammar consists of constructions.

A constructions is a holistic grammatical pattern that consists of at least two linguistic elements, i.e. two words or phrases, that are associated with a particular function or meaning.

(1) Open the door!

- Uninflected word form
- No overt subject
- Directive speech act

Construction grammar

(1) The meal was cooked by John.

- The subject functions as patient
- The verb occurs in a particular form
- The by-phrase denotes the actor

Construction grammar

Like words constructions combine a particular form with a particular meaning.

Constructions are ‘big words’ (Dabrowska 2000).

[sun]


V_{base} [$NP_{non\text{-}subject}$]!
Directive speech act

The acquisition of constructions

Early constructions

(1)	Get-it	Holophrases: unanalyzed chunks of speech
(2)	All-gone	
(3)	What-s-that?	
(4)	Put there	Early multi-word utterances
(5)	All-gone doggy	
(6)	More milk	

Children‘s early use of multi-word constructions involves two strategies:

- Combination of two words or fragments of speech under a single intonation unit (classic scenario)
- Segmentation of frozen multi-word expressions into separate units (e.g. *All-gone, look-it, that’s)*

Early item-constructions

More __	**All __**	**No __**
More car		
More crereal		
More cookie		
More fish		
More hot		
More juice		
More sing		

Martin Braine (1976): ‚Pivot grammar‘

Early item-constructions

More __	**All __**	**No __**
More car	All broke	No bed
More crereal	All clean	No down
More cookie	All done	No fix
More fish	All dressed	No home
More hot	All dry	No mama
More juice	All shut	No pee
More sing	All wet	No plug

Martin Braine (1976): ‚Pivot grammar‘

Early item-constructions

Find it __	**__ get it**	**__ gone**
Find-it funny	Block get-it	Peter Pan gone
Find-it bird	Bottle get-it	Raisins gone
Find-it chess	Phone get-it	Doo-doo gone
Find-it bricks	Towel get-it	Cherry gone
Find-it Weezer	Bedus get-it	Fox gone
Find-it ball	Coffee get-it	Hammer gone
Find it stick	Mama get-it	French fries gone

Michael Tomasello (1992): ‚Item-based constructions‘

Early item-constructions

Dat Daddy.	2;0
Dat's Weezer.	2;0
Dat my chair.	2;1
Dat's him.	2;1
Dat's a paper too.	2;4

Spoon back.	2;2
Tiger back.	2;3
Give back.	2;3
Ball back.	2;3
Want ball back.	2;4

Boot off.	2;0
Light off.	2;1
Hands off.	2;1
Pants off.	2;1
Hat off.	2;3

Clock on there.	2;2
Up on there.	2;2
Hot in there.	2;2
Milk in there.	2;4
Water in there	2;5

All gone milk.	2;2
All gone shoe.	2;2
All gone juice.	2;2
All gone bear.	2;3

Adult item-based constructions

(1) The ___ the ___.

(2) Let’s do ___.

(3) I was wondering if __ .

(4) I don’t known __ .

(5) How about __ .

(6) Would you mind __ .

Elaborating ‚slots‘

(1) Can I Ving.

(2) Can you Ving.

(3) Can Mommy Ving.

(1)	I wanna bag.	Sarah 2;3
(2)	I wanna ride (my horsie).	Sarah 2;3
(3)	I want ice cream in the refrigerator.	Sarah 2;10
(4)	Want me open it?	Adam 2;9
(5)	Do want he walk?	Adam 2;10

Extending the use of verbs

2. Extending the verbs of item-based constructions to novel constructions:

In adult language, verbs can often be used across constructions:

(1) He *broke* his arm.	Transitive construction
(2) The window *broke*.	Intransitive construction
(3) She *broke* the vase into pieces.	Caused motion construction
(4) The mirror is *broken*.	Passive construction

Two strategies to study the emerging flexibility of verbs:

- Overgeneralization errors in spontaneous speech
- Experiments designed to encourage children to employ novel verbs in novel constructions

Overgeneralization errors

(1)	Kendall *fall* that toy.	2;3
(2)	Who *deaded* my kitty cat?	2;6
(3)	They just *cough* me.	2;8
(4)	Don’t *giggle* me.	3;0
(5)	I am gonna put the washrag in and *disappear* something under the washrag.	3;7

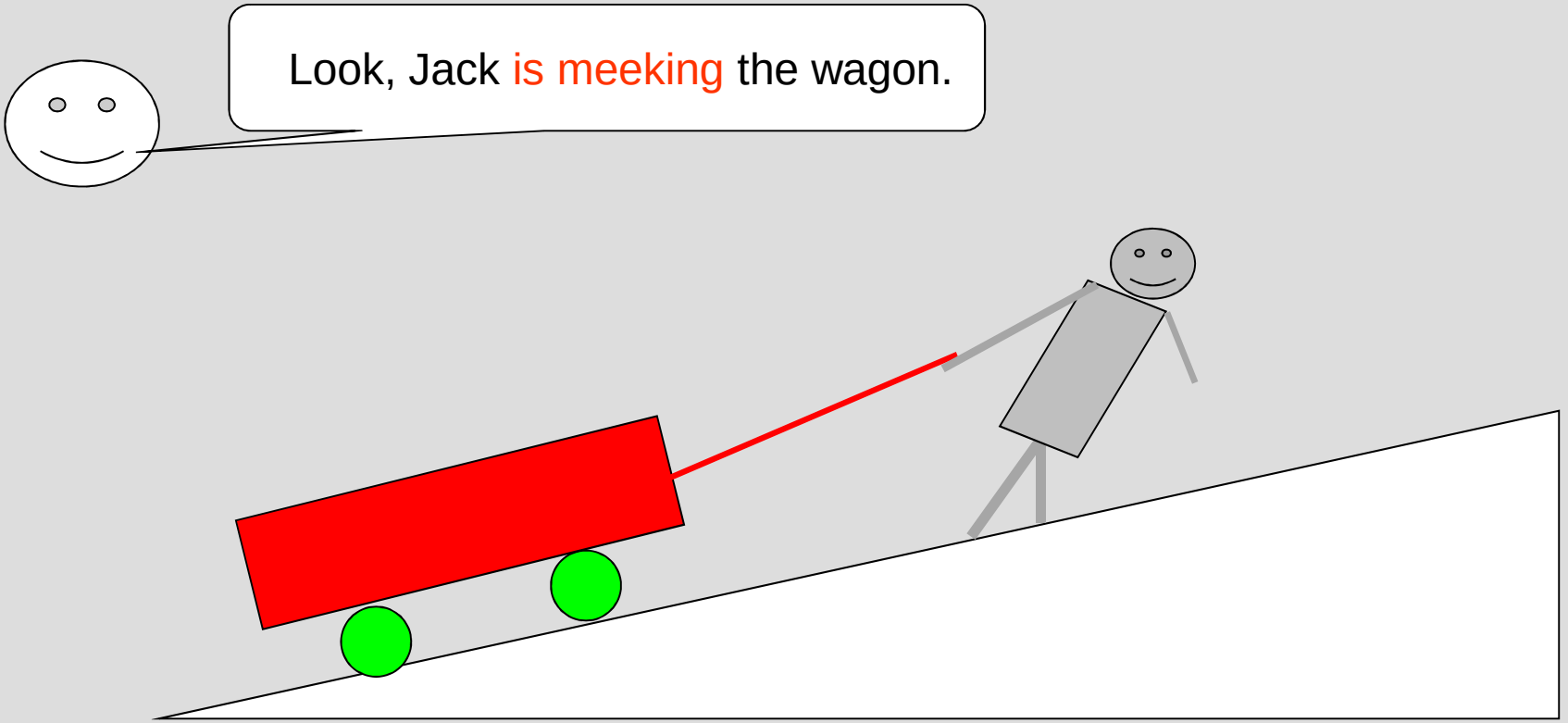
(1)	The flower cuts. [= The flower can be cut]	2;8
(2)	Bert knocked down. [= Bert got knocked down]	3;0
(3)	They don’t seem to see. [= They cannot be seen]	3;8

Overgeneralization errors

(1)	He get died.	3;8
(2)	I don’t like being falled down on.	age unclear
(3)	I don’t want to get waded (on).	age unclear
(4)	I’ll brush him his hair.	2;3
(5)	I said her no.	3;1
(6)	Button me the rest.	3;4

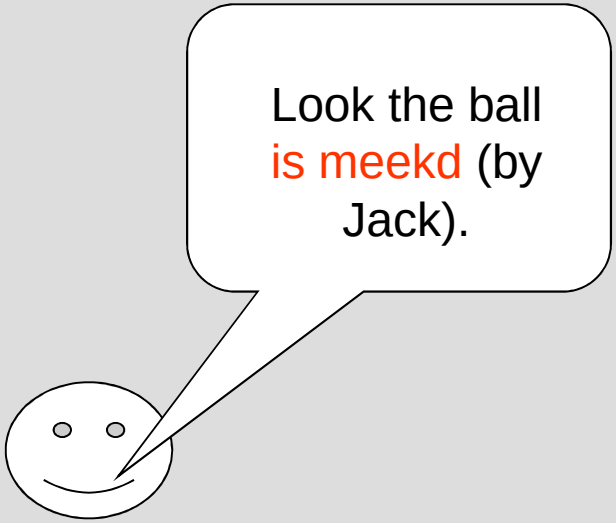
An experimental study

Brooks and Tomasello 1999



2;0-3;0 year olds

Brooks and Tomasello 1999



Brooks and Tomasello 1999

Passive condition

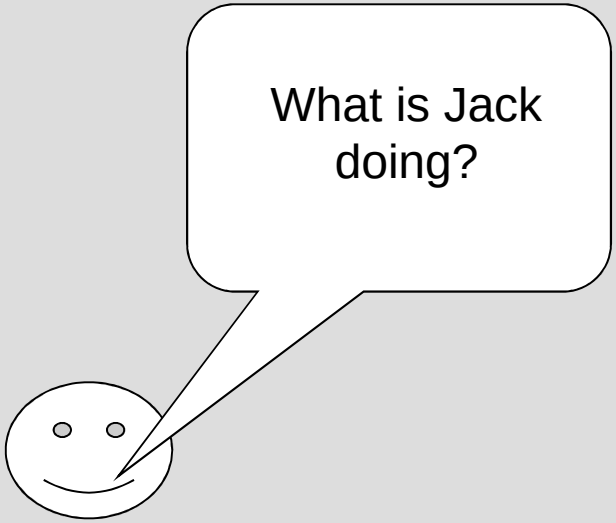
Look, the car is going to get meeked.
The car is going to get meeked by Big Bird.
What's going to get meeked? (experimenter points to the car)
That's right, the car is going to get meeked.
The car is going to get meeked by who? (eperimenter points to Big Bird)
Yes, the car is getting meeked by Big Bird. (while performing action)
Did you see what got meeked by Big Bird? (experimenter points to the car)
Exactly! The car got meeked by Big Bird.

Brooks and Tomasello 1999

Active condition

Look, Big Bird is going to meek something.
Big Bird is going to meek the car.
Who's going to meek the car? (experimenter points to Big Bird)
That's right, Big Bird is going to meek the car.
Big Bird is going to meek what? (experimenter points to the car)
Yes, Big Bird is meeking the car. (while performing action)
Did you see who meeked the car? (experimenter points to Big Bird)
Exactly! Big Bird meeked the car.

Brooks and Tomasello 1999



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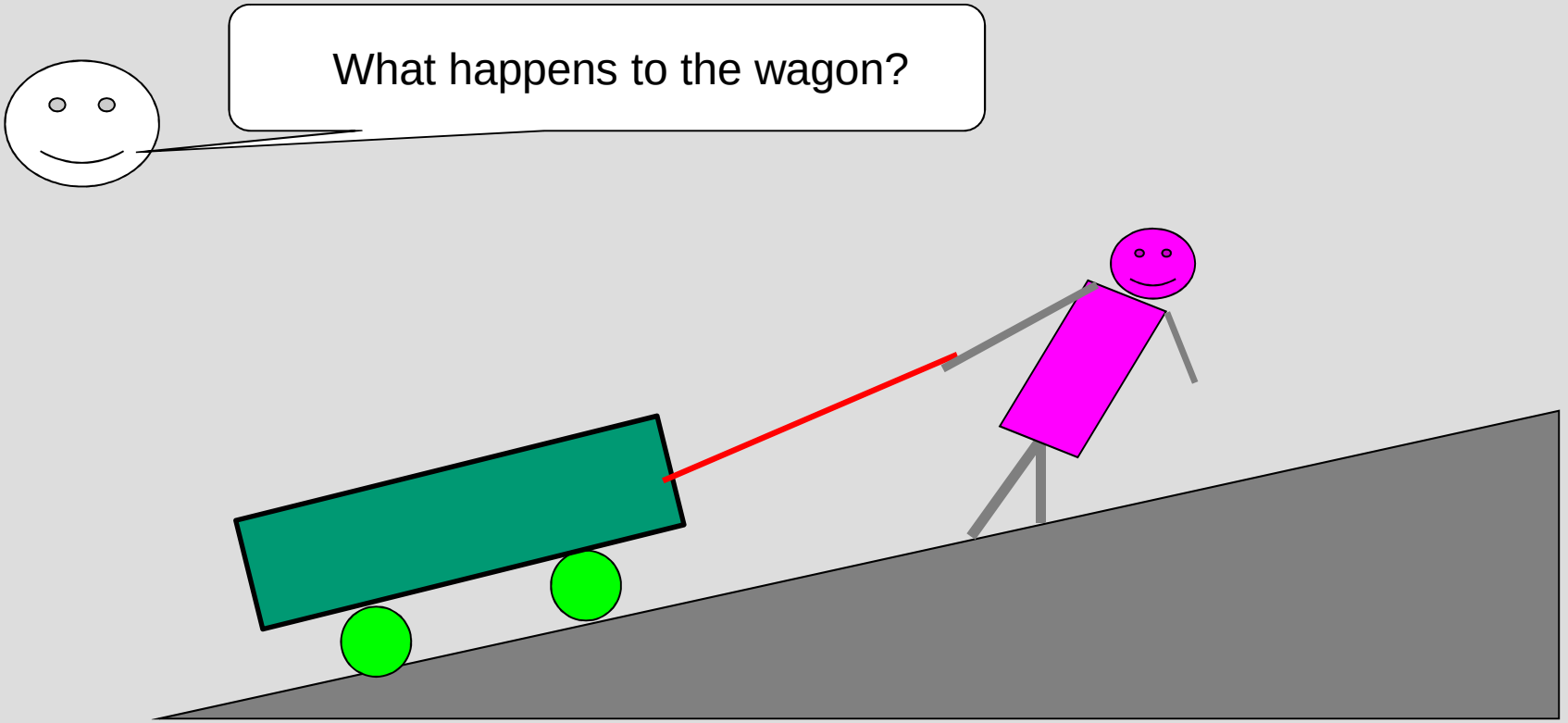


2;0-3;0 year olds

Brooks and Tomasello 1999

	Passive training	
	Passive response	Active response
What happened to the PATIENT?	85	5
What is the AGENT doing?		

Brooks and Tomasello 1999

	Passive training	
	Passive response	Active response
What happened to the PATIENT?	85	5
What is the AGENT doing?	45	15

Brooks and Tomasello 1999

	Passive training		Active training	
	Passive response	Active response	Passive response	Active response
What happened to the PATIENT?	85	5		
What is the AGENT doing?	45	15	0	100

Brooks and Tomasello 1999

	Passive training		Active training	
	Passive response	Active response	Passive response	Active response
What happened to the PATIENT?	85	5	12	88
What is the AGENT doing?	45	15	0	100

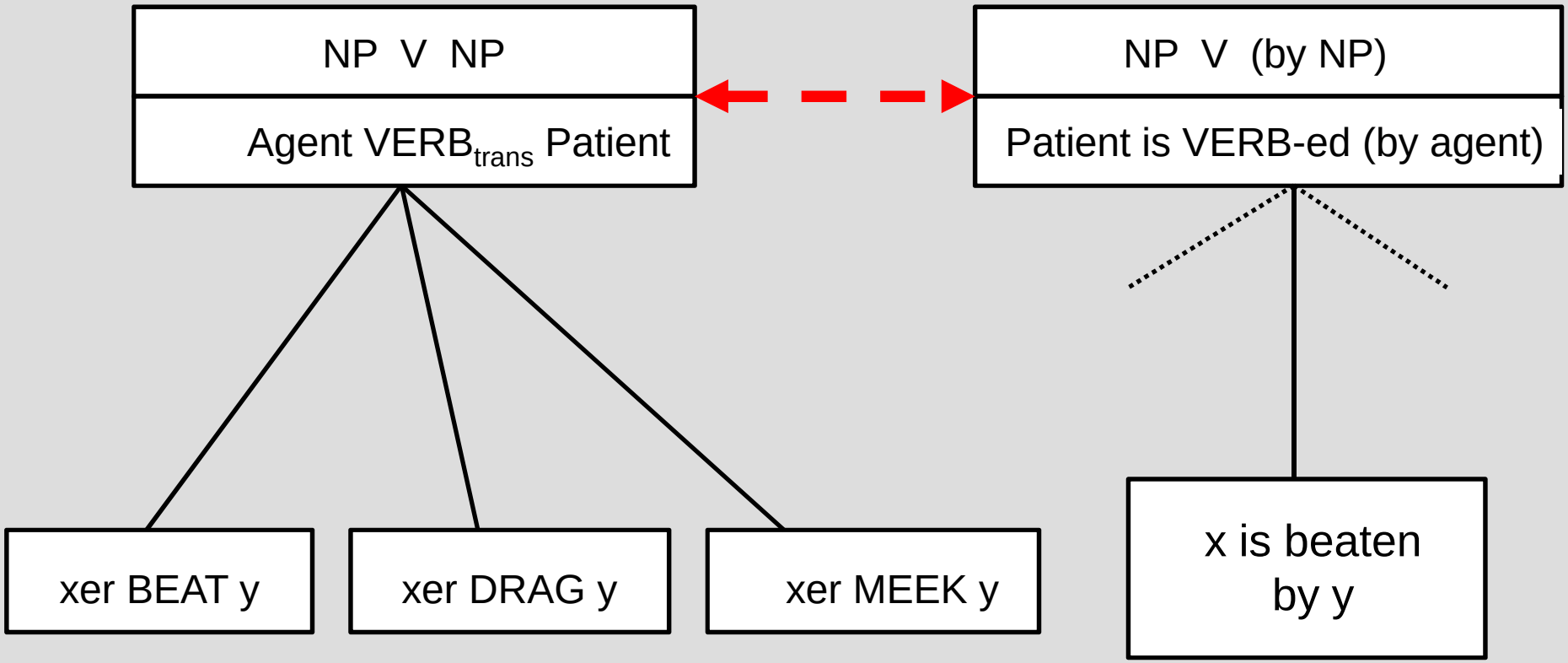
Brooks and Tomasello 1999

	Passive training		Active training	
	Passive response	Active response	Passive response	Active response
What happened to the PATIENT?	85	5	12	88
What is the AGENT doing?	45	15	0	100

Brooks and Tomasello 1999

When Brooks and Tomasello repeated the study with 3-year-old children, they found a much larger number of children generalizing from active to passive sentences and vice versa.

Network of constructions



Summary

Item-specific constructions help to bridge the gap between word learning (=route learning) and grammatical development (=system building).

They involve both object similarity and structural similarity.

The acquisition of passive sentences

The acquisition of passives

- Comprehension studies
- Production studies

The acquisition of passives

Group 1
The boy sees the girl.
The pig pushes the cow.
The car hits the truck.

Group 2
The man feeds the horse.
The boy carries the chair.
The girl kicks the ball.

Group 3
The boy is seen by the man.
The cow is pushed by the pig.
The truck is hit by the car.

Group 4
The horse is fed by the man.
The chair is carried by the boy.
The ball is kicked by the girl.

The acquisition of passives

Group 1 reversible
The boy sees the girl.
The pig pushes the cow.
The car hits the truck.

Group 2 irreversible
The man feeds the horse.
The boy carries the chair.
The girl kicks the ball.

Group 3 reversible
The boy is seen by the man.
The cow is pushed by the pig.
The truck is hit by the car.

Group 4 irreversible
The horse is fed by the man.
The chair is carried by the boy.
The ball is kicked by the girl.

The acquisition of passives

Subjects:

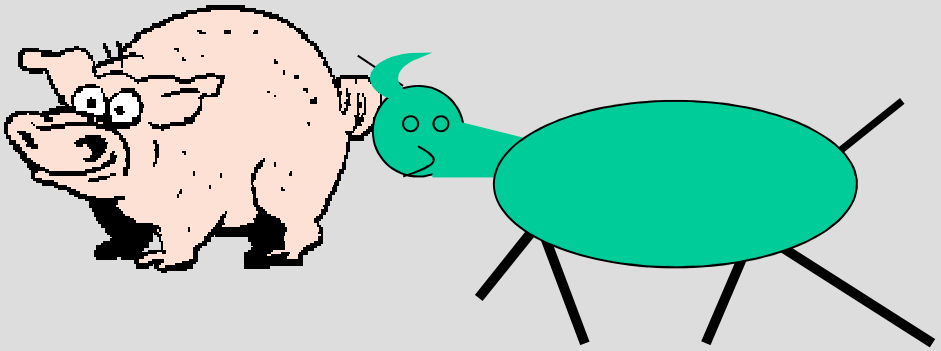
1. nursery children
2. kindergarten children
3. first grade children
4. third grade children

The acquisition of passives

Does the girl kick the ball?

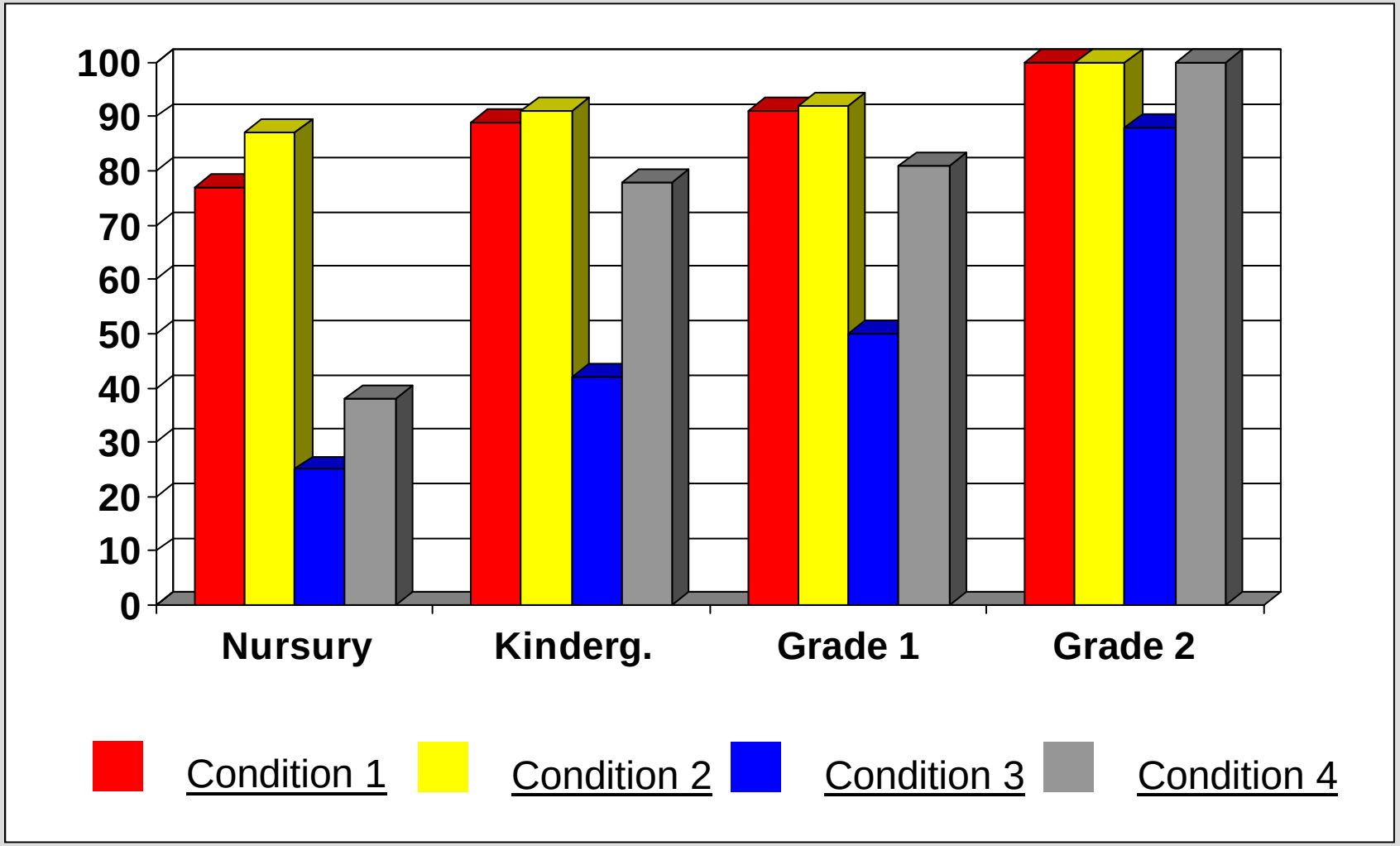
The acquisition of passives

Does the girl kick the ball?



Does the pig push the goat?

The acquisition of passives



The acquisition of passives

- Performance improves with age
- Active sentence cause few problems than passive sentences.
- Irreversible passive sentence cause few problems than reversible sentences.

Hypothesis:

Children interpret passive sentences as active sentences if that is semantically plausible.

The acquisition of passives

Canonical sentence schema (Bever 1970)

NP	V	NP
Agent	Action	Patient

The acquisition of passives

Door shut.	[Peter 1;11]
Get hurt.	[Nina 2;0]
That’s fixed.	[Nina 2;3]
Car broken.	[Adam 2;4]
It’s all finished.	[Nina 2;4]
I wanna get dressed.	[Nina 2;4]
I got scared.	[Nina 2;5]
Is it locked?	[Adam 2;8]
It’s frozen.	[Peter 2;9]
It’s fold up.	[Adam 2;9]

The acquisition of passives

- Agent is not expressed
- Sentences describe states
- Participial forms are lexicalized

The frozen milk
The broken car
? The attacked city
? The given key

Lexical passives

The acquisition of passives

Why are children's early passive sentences lexical passives?

Hypotheses

- That's what they hear in the input.
- States are easier than activities.
- Lexical passives have the same structure as copular clauses (cf. NP is/got ADJ)