

Landscape of Word Learning— Revisiting Translation Equivalents

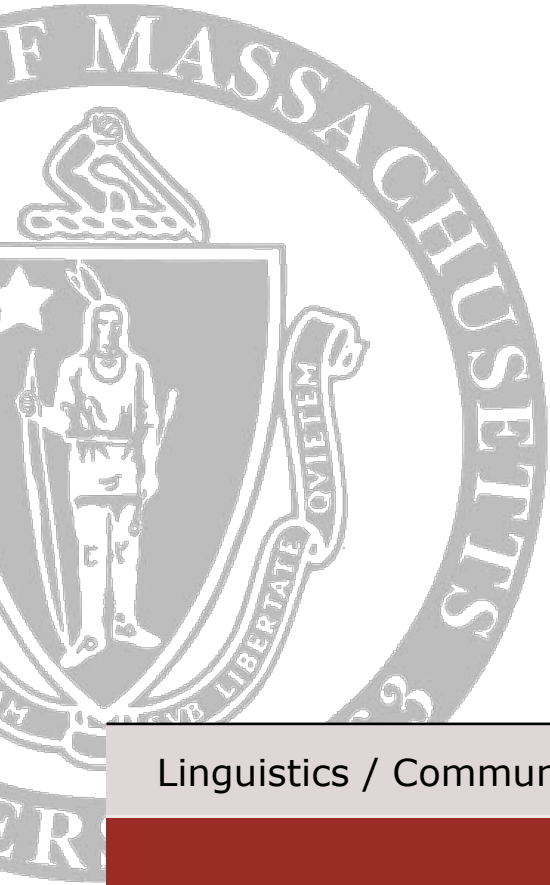
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Acquisition"*

Relationships between words in L1 and L2

Quantifiers in L1 and L2



From Dong, Gui, & MacWhinney, 2005

- ***[very] asymmetrical links between concepts and lexical names [in the two languages]***
- ***What are the implications for development in one's native language***
- ***AND***
- ***For learning in an L2 (or 3, 4, etc).***

First, my thanks to

- Bilingualism Study Group-Univ. of Miami
- Tom Roeper and colleagues at UMass & Smith
- Brian MacWhinney (about Competition Model, but I'm still so grateful for CHILDES—starting it with Catherine, but then continuing to develop and support it)
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 - "Diagnostic Evaluation of Language Variation-DELV*
 - "DELV Screening Test" (2003) and "DELV Norm Referenced" (2005)*
 - "Dialect Sensitive Language Test" (DSLIT, 2000)*
- Some of the materials and conceptualization during a stint at the University of Wales, Bangor –



Translation Equivalents (TE)

- TE an idealization
- Works pretty well with infants in most domains
 - Child uses label for same object in each language
 - But even with nouns, that are TEs for adults, can have separate intensions and extensions for the child.
 - Cross-linguistic differences in nouns (Malt, and others)
- Idea of equivalence breaks down pretty completely for quantifiers – faced with “radical translation” problem of the field linguist when we go from L1 to L2 or vice versa

Acute learnability problems in one language – or two.

In both L1 and L2—long learning trajectory.

- Cues not consistent; not transparent; weights vary within language as much as across. Interactions with different facets of language.
- Not clear what the target is.
- Child learner and Adult L2 learner at same disadvantage.
- Not always aware when the bias is the same, when it's different, when L1 “works” or not in L2.

- Child learns them early “all gone” “more”. Some translate directly *all/ alles uno/one*
 - Not a color word
 - Tells about quantities and relationships
- Interpretations of quantified situations based on implicit knowledge
 - Lexical meaning adds only a tiny piece to the interpretation of the word.
- What about L2 learner? How become aware of differences?

Plan of today's talk

Given notion of “asymmetrical links”

Briefly introduce some of the work we've been doing with quantifiers – in the context of asymmetries

1. How does child tell “how many” we're talking about?
2. Deal with lexical/semantic ambiguity (each vs. every)
3. Know implicit semantic properties; syntactic interactions, e.g. wrt distributivity
4. Contribution of Pragmatics—If it's not in the sentence, is it in the world??
5. Developmental trends (L1)
6. Cultural differences; search for linguistic differences (for L2 learners)

Design

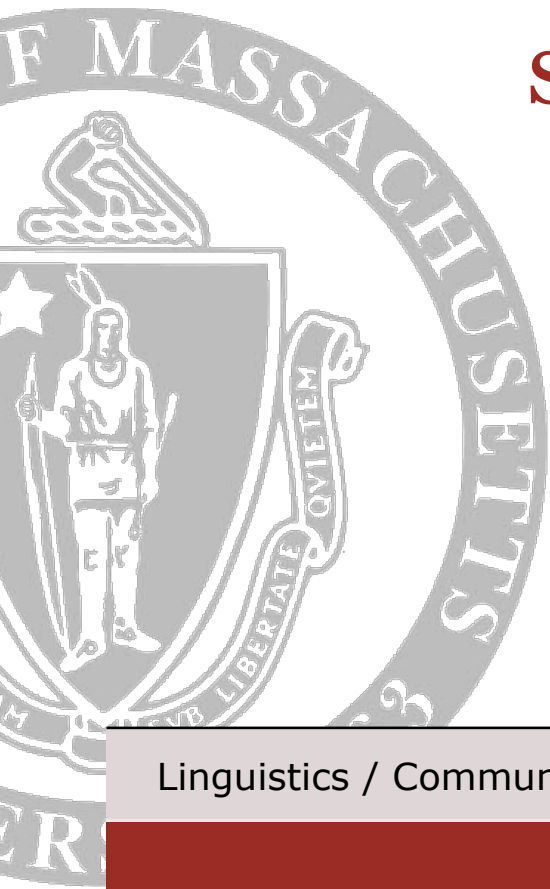
- 3 groups: L1 (English) adults/ L1 children/ L2 adults
- Adult data from websurvey
- Children (ages 4-12) tested with PPT adap the survey, individually at their schools



L1 Adults	L1 children	L2 Adults
33	52	31

- L2 adults, 9 Romance, 5 Germanic (Dutch, German, Danish etc.), 8 East Asian (Chinese, Korean), 3 Hebrew, 6 Slavic, Ages 20-70+ (this group not controlled for AoA)

[http://www.kwiksurveys.com/
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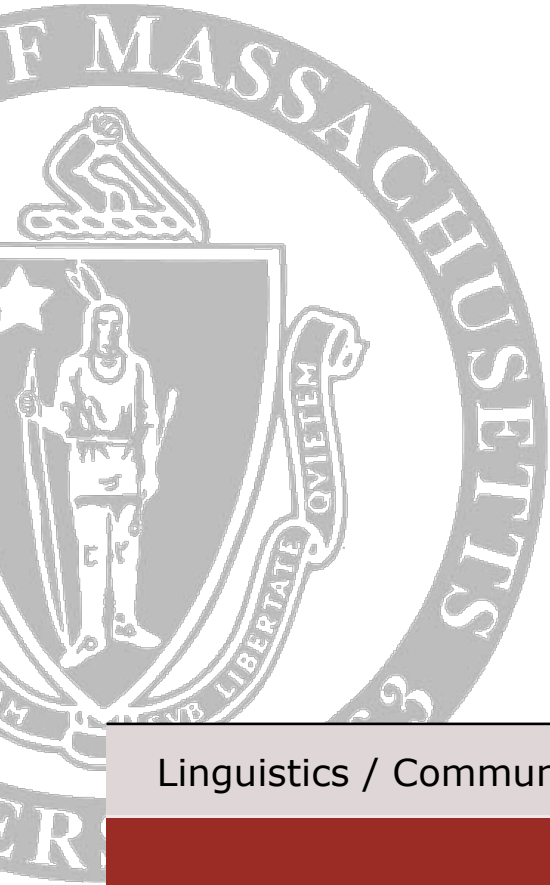
Wrinkles??

- There's more to learning the extension/ intension —the meaning—of a word
- Syntactic interactions
- Semantic properties (implicatures)
- Pragmatic conventions that can change how quantifier is interpreted
- Cultural background
- Dynamic changes of discourse setting and language being used

Factors not so crucial

- Frequency
 - Phonological sensitivity
 - Memory
-
- Semantic sensitivity
 - Negative evidence/ subtle triggering

How many are we talking
about?



How many hands do the children have?



(Is that *each* (distributed) or *all together* (collective)?

Do the boys have two hands or four hands?

Hands -- Distributive and Collective Responses by Group

	L1 adults (n = 33)	L1 children (n = 56)	L2 adults (n=31)
2 hands (dist)	46%	66%	61%
4 hands (coll)	42%	16%	23%
Qualifies with "each" or "together"*	6%	16% (no preK)	23%

* Adults more like to add "each" than "together" 2:1; If they say "together" they use both ("2 together, 1 each")

Body parts are special. How about books?

**How many books do
the boy and the girl
have?**



On DSLT (Seymour, Roeper & de Villiers, 2000)

Morphosyntax – Item 9

Books -- Distributive and Collective Responses by Group

	L1 adults (n = 33)	L1 children (n = 56)	L2 adults (n=31)
1 book (dist)	15%	36%	3%
2 books (coll)	64%	43%	71%
Qualifies with "each" or "together"*	18%	21%	23%

* Adults more like to add "each" than "together" 2:1; Children use both equally, and sometimes use both at once ("2 each, 4 together")

Distributivity continued

Nonnative

- Romance, German, hands all distrib (vs. 50-50 English speakers), (almost) all collective books (like English speakers)
- Slavic, same tendency, but more collective hands than the others
- Asian, more collective generally; no distrib books without explicit qualifier ("each" or "in all")

Distributive or Collective bias (or tendency)?

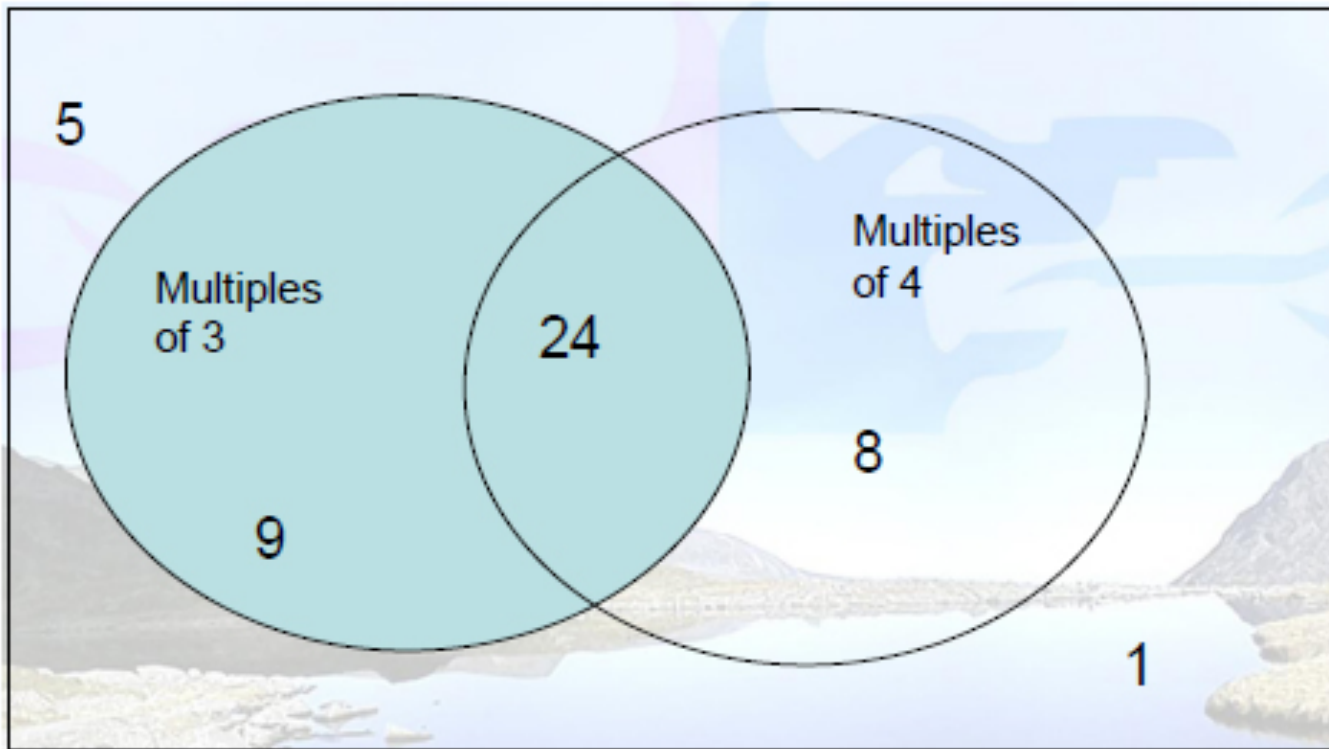
- If you were collective on hands, you were collective on books (except one L2). But if you were distributive on hands, half of those were collective on books.
- Direction of development seems to be toward more collective
- Kids and L2 adults more distributive for hands than L1 adults (who were about 50-50)
- L2 distribute like kid on hands, but not at all on books.

Some practical interest : 2 children found 4 caterpillars?

How many did each child find? How many altogether?

- Textbook expects response distributive about the children, collective about caterpillars. (Asks about each child, and a total of 4 caterpillars.)
- Younger kids especially gave collective/ collective (each kid 4, 4 altogether--kids together found 4) or distributive/distributive—4,8, each child found 4 for a total of 8.
- Tried: “4 boys bought 8 cookies for \$1.”

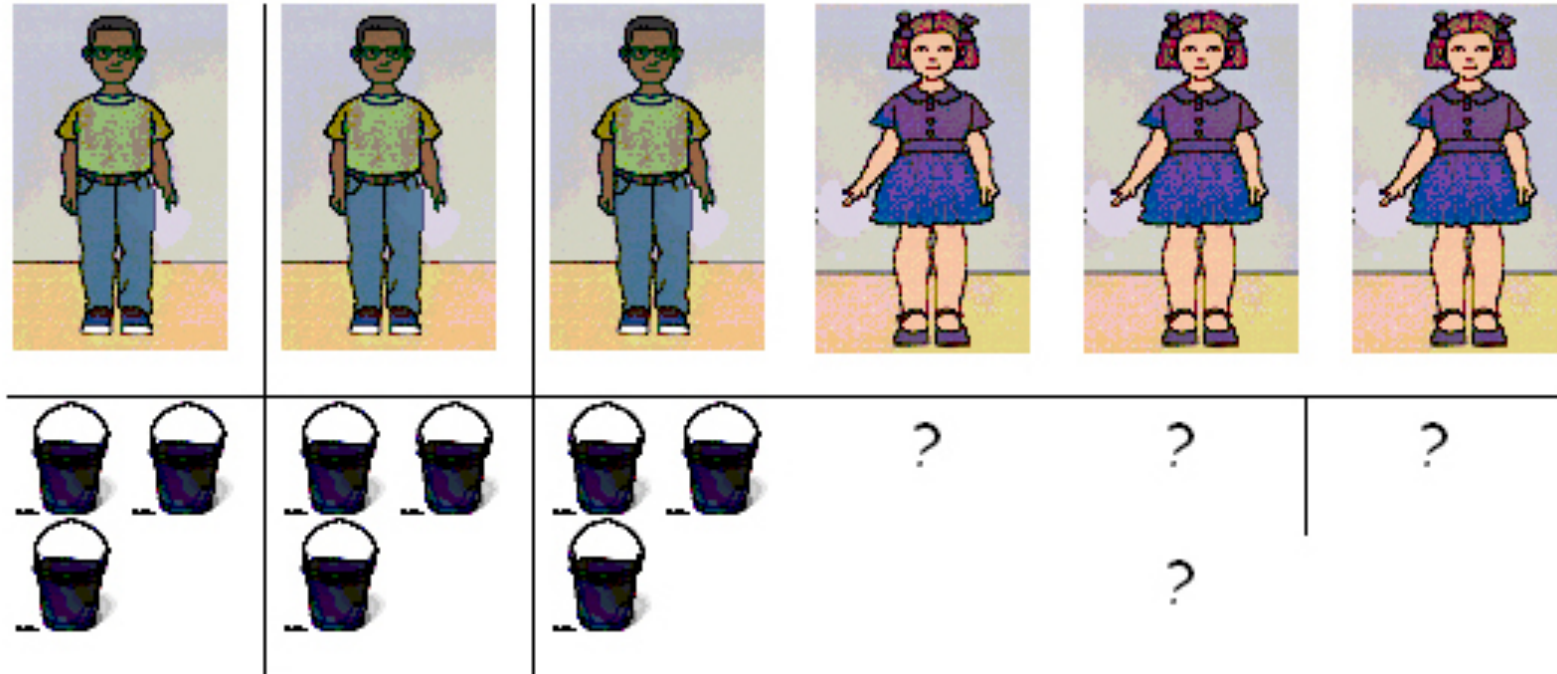
“Give me a number that goes in each of the spaces in the diagram.”



We asked, “how many numbers are being asked for?”

(How many spaces? Same or different? makes a difference in how hard it is to answer)

Intentionally ambiguous!



- Every boy has 3 buckets, and these girls have one bucket.

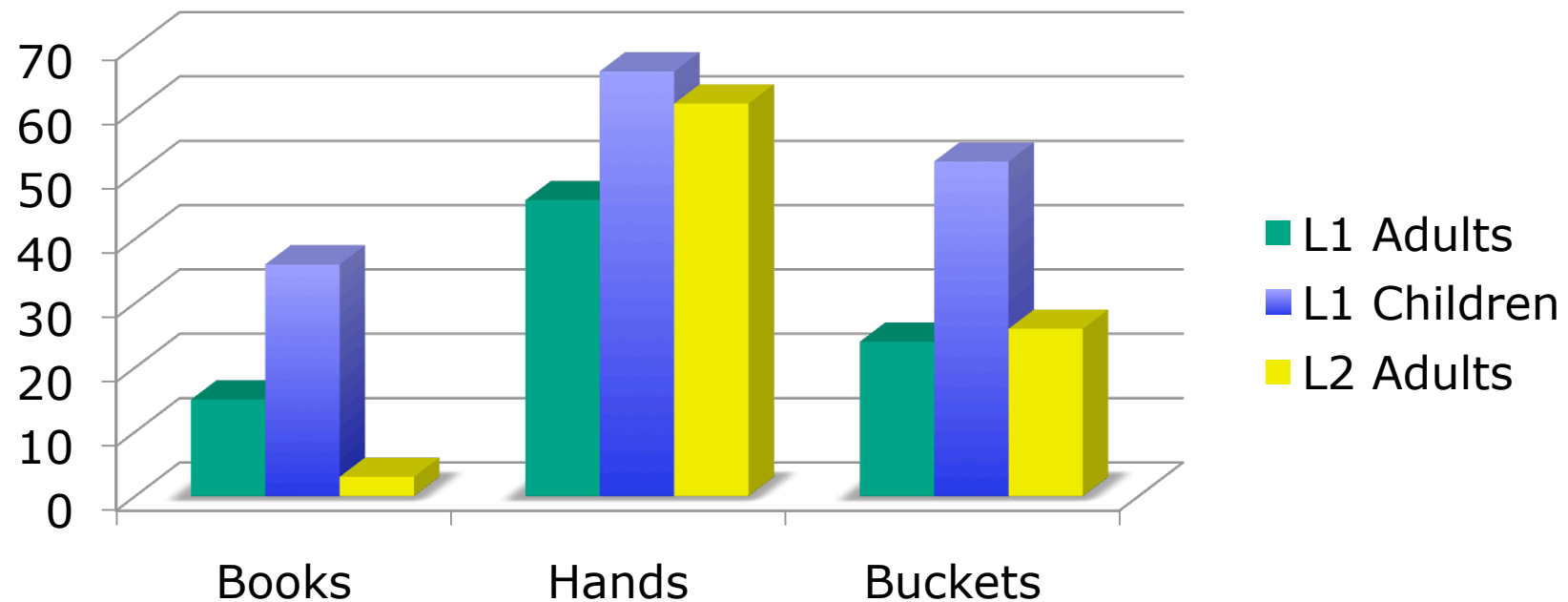
Is that one bucket for each girl? Or all together??

Buckets -- Distributive and Collective Responses by Group

	L1 adults (n = 33)	L1 children (n = 56)	L2 adults (n=31)
1 each (dist)	24%	52%	26%
1 together (coll)	52%	48%	45%
Qualifies with "each" or "together"*	18%	"explanations" not clear	42%

* Adults more likely to require "each" than "together" 2:1; Children explained much less. Were more likely to use the other part of the sentence as guide.

Percentage of Distributive Responses by Group



- Hands, as expected, more distributive than other objects for all groups, but least for L1 adults;
- Children most distributive in all contexts;
- L2 like children for hands, more like L1 adults for others
- L2 adults required more explicit markers ("each"/ "together")

Markedness?

- More people requiring “each” to distribute
- Smaller number who required “in all” not to.
- Sounds like collective is the default, but kids need to learn it. Mastering 1-1 for number sequence, overextend distributivity.
- L2 close to L1, but much more likely to require explicit direction to distribute (e.g. 8/8 Asian)

How use syntactic cues in ambiguous sentence?

Could go both ways:

Use parallel—carry clear distribution from one part of sentence to the next (7)

Use “contrast” of each versus “group” (3)

1 used number agreement on verb to disambiguate: “these girls have” means a group

Non-native—more used parallel; native tended to say “‘these’ says the girls are a group.”

Distributivity interaction with syntax

Distributivity of subject allowed (but not required) in simple sentence, but
is Blocked from entering embedded clause.

Example 1 – Different constraints under embedding

- *In our hospital, a nurse cares for every patient.*
- (say there are 100 patients)
- How many nurses are there? (you can give a number or a range)

Say why.

Embedding example

- In our hospital, a nurse wants to care for every patient.
- (say there are 100 patients)
- How many nurses are there? (you can give a number or a range)
- Say why.

Native speaker pattern

People didn't like the idea of one nurse for 100, but typically said

- a) could be any number of nurses, but
- b) had to be just one

25 of 33 (76%) restricted distributivity when embedded

Non-native speakers, > half, no clue

16 of 31 (51%) got the distinction

9 made no distinction between the sentences

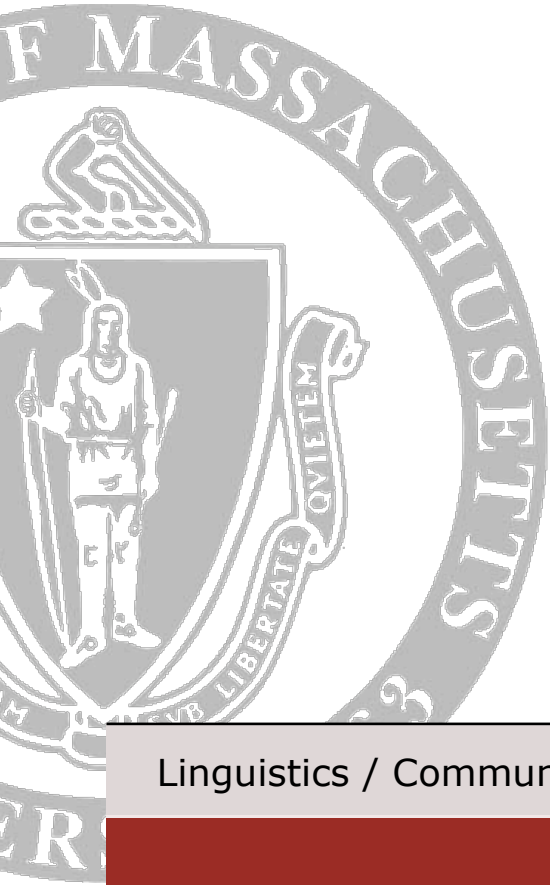
3 said “it doesn’t say”

3 said “at least one” for the last sentence.

(What does “at least one” mean--when the answer is 1?) to me, could be more, but not less—but I’ve learned not to assume it means for others what I think it means

Every and Each

Lots of languages have an
“all-each” contrast.
Where does “every” fit?



Some distinctions between *each* and *every*

- Tunstall (1998)
 - He lifted all the glasses.
 - He lifted each glass.
 - He lifted every glass.
- Partitive
 - Each of the boys
 - *Every of the boys
- “Floating”
 - They (each) got a lollypop (each).
 - *They (every) got a lollypop??

How are each and every different?

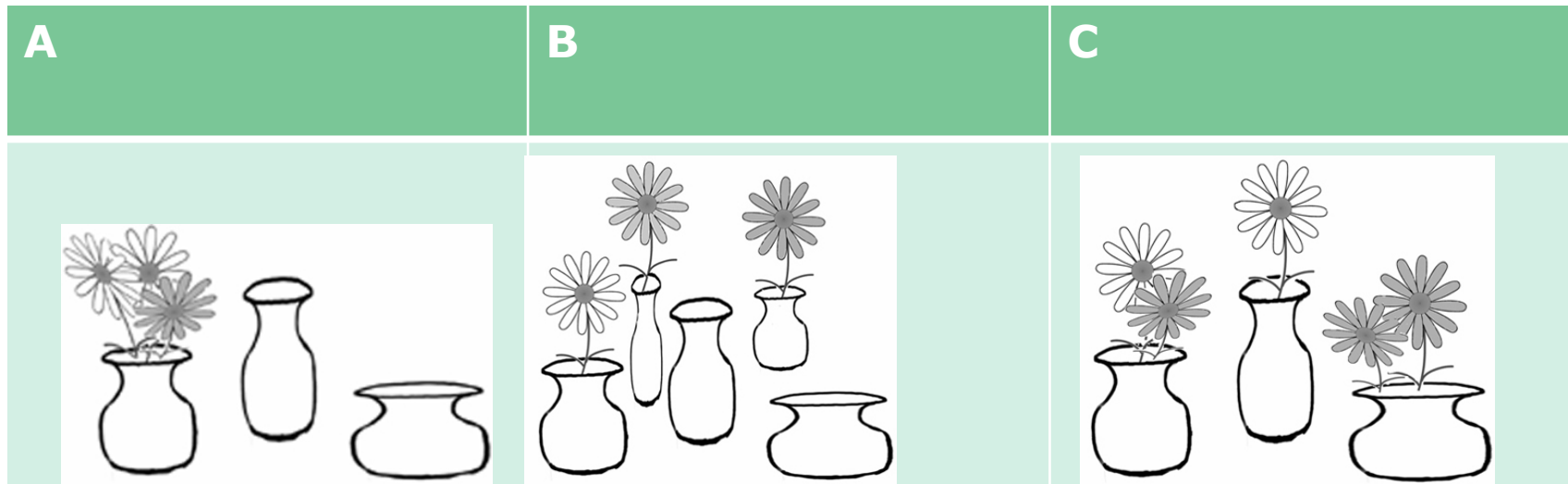
- Everybody (collective) v. every person ~collective
 - A. Everybody surrounded the house
 - B. *Every person surrounded the house.
- Every – generic/ Each –specific (presupposes a defined set)
 - Does every cow have one tail? (every cow in the world)
 - Does each cow have one tail? (in the set under discussion)
- Each can float/ Every can't

More on floating

must be learned within the context of specific languages:

- it does apply to *jeder* ['everyone'] in German (6c), indicating that the properties
- c. Die Kinder singt jeder allein ['the children sing every alone']
- Floating does not entirely constrain scope assignment, which remains ambiguous.
 - a. Each of the children has one angle on the view
 - b. The children have one angle each on the viewIn (a), several children could share one angle, but in (b), there is 1-to-1 distribution of angles to children.

Tease out biases (following Brooks et al. 2001)



All the flowers are in a vase.

Every flower is in a vase

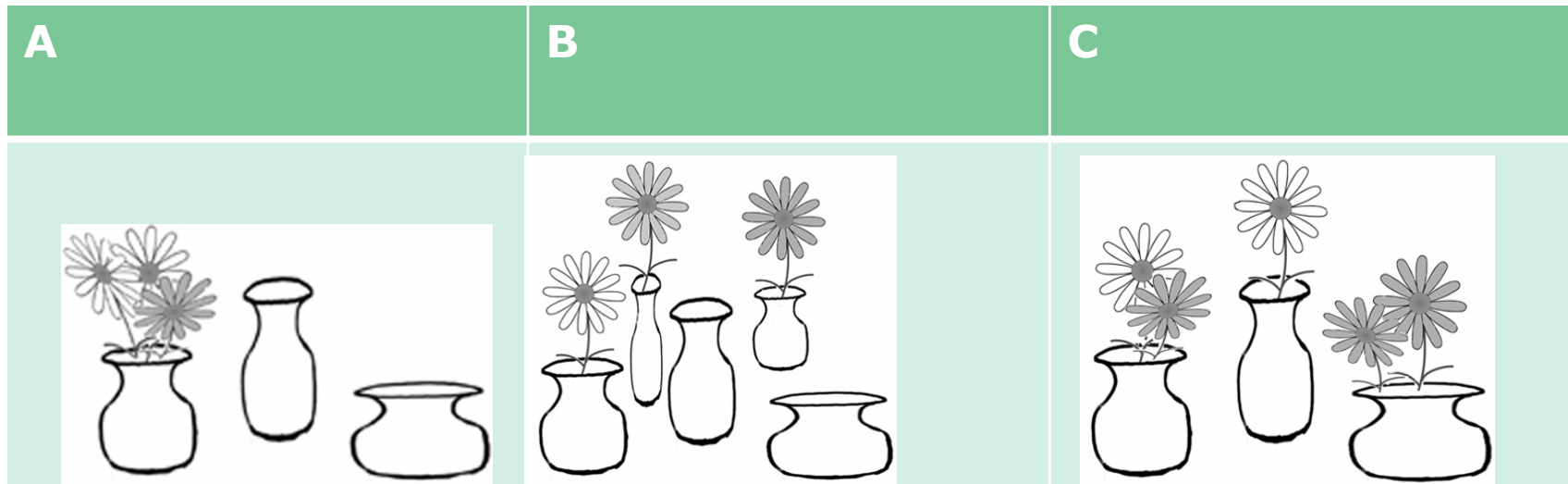
Each flower is in a vase

All versus Each versus Every—with flowers

Every	All OK	A best	B best	C best	Reject B
L1 Adults	94%	21%	36%	18%	0
LI children	2%			60%	
L2 Adults	75%	32%	32%	10%	3%

Each	All OK	A best	B best	C best	Reject B
L1 Adults	17%		90%		0
LI children	2%	24%	26%	32%	62%
L2 Adults	48%		80%		0

L2 adults like L1, but preferences weaker; less distinction between the 2.
 For large percentage of children,
 it was not about flowers—it was about VASES.



"[C], it's the only one with flowers in every vase." (9;4)

* "all vases are full" (8)

• "flowers in all [vases]" (7;9)

•* "not A or B, no flowers in those two vases" (6;2) (7;8)

* "No, they don't have flowers in all vases." (9)

What is the sentence?

“Every flower is in a vase.”

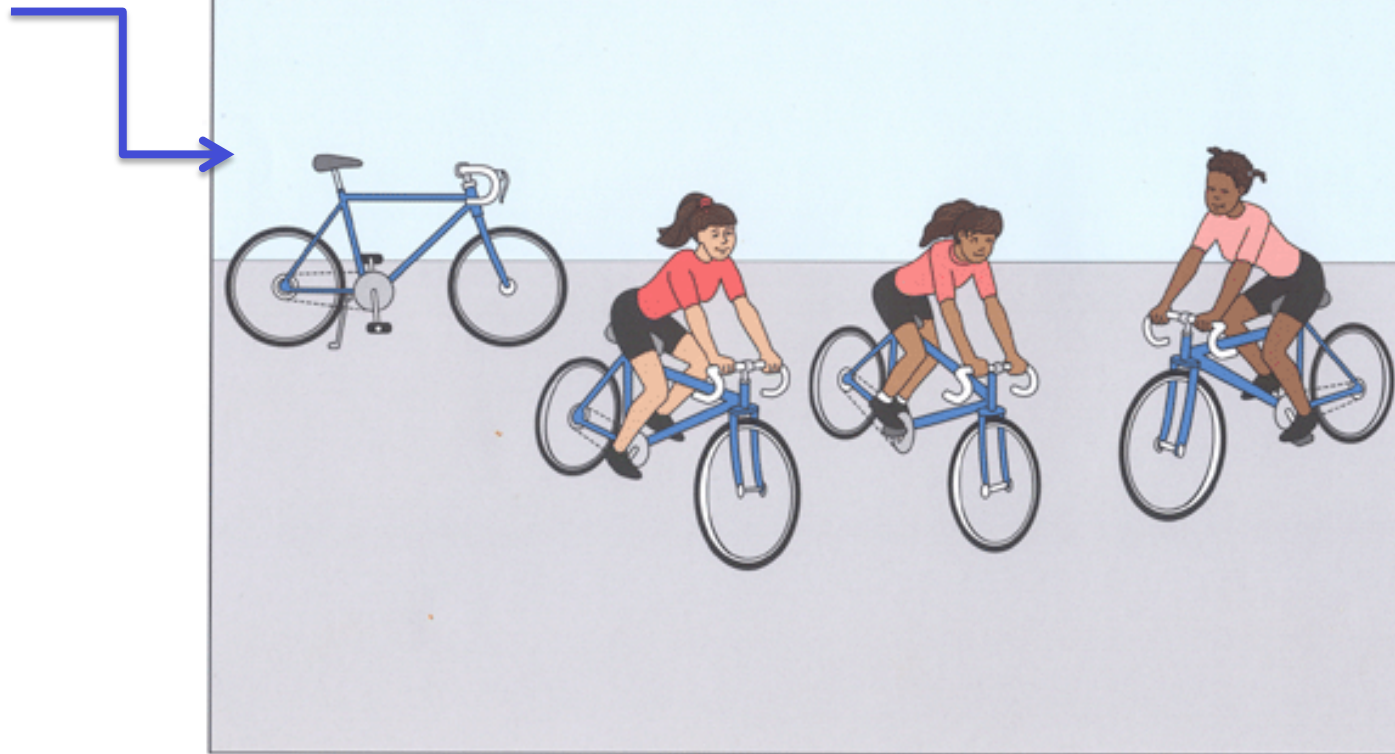
CHI: “looks like every flower
is in every vase”

What’s the scope of *every*?

Spreading??!

Example (from *DSL*T*): “Is every girl riding a bike?”

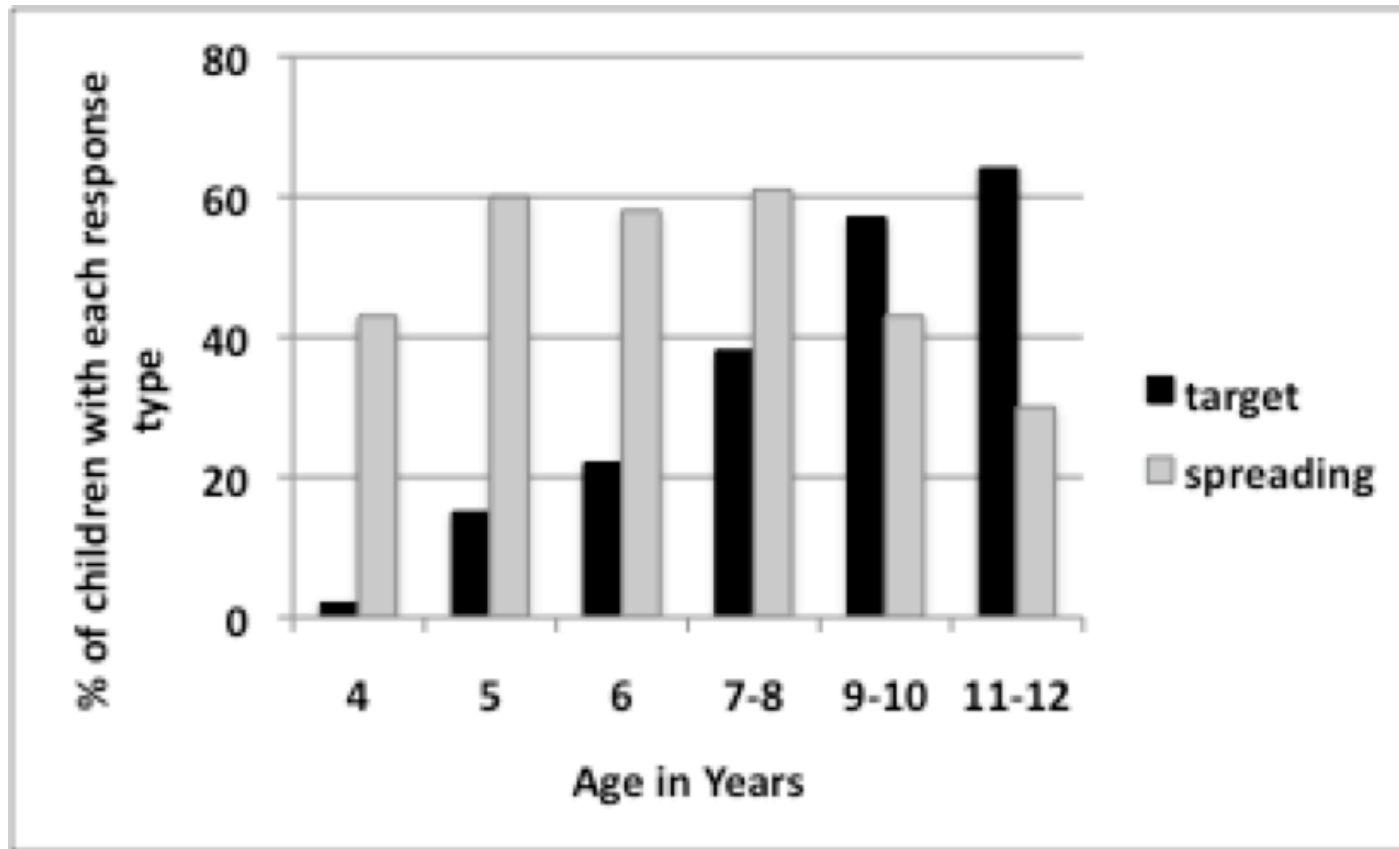
No, not this bike.



Quantifiers – Item 2

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Spreading Responses by Age



N=333, Typically-developing General American English speakers

“Classic Spreading”

Single quantifier applies to both nouns:

Is every girl riding a bike?

= every girl rides (every) bike

= and every bike is ridden by a girl

Find spreading with other quantifiers:

- Such as *all*, *some*, and *most*

Example

⇒ some of the circles are red =>

some of the circles have (some) red

(Piaget, 1954; Matthei & Roeper, 1975; Philip, 1995)

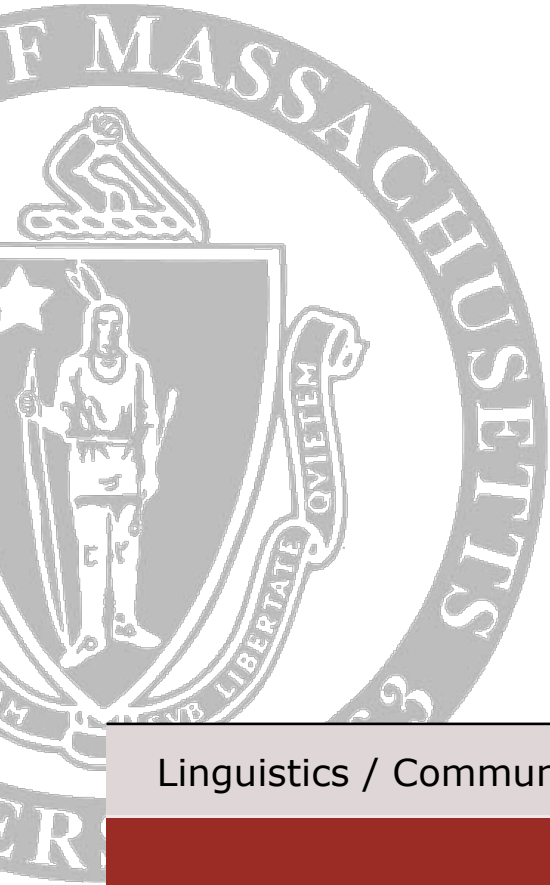
Also work by Drozd, Crain, Stickney, others)

Is it syntactic or semantic or both?

What were they thinking?

- ? Other displacements in syntax
 - Adverbial versus DP
 - Possibility of floating (French “quantifier at a distance”)
 - Weak quantification: “Many Scandinavians have won the Nobel Prize” (about Nobel winners than Scandinavians.”)
 - Scope of *not* in universally quantified sentences

Cross-linguistic dimensions



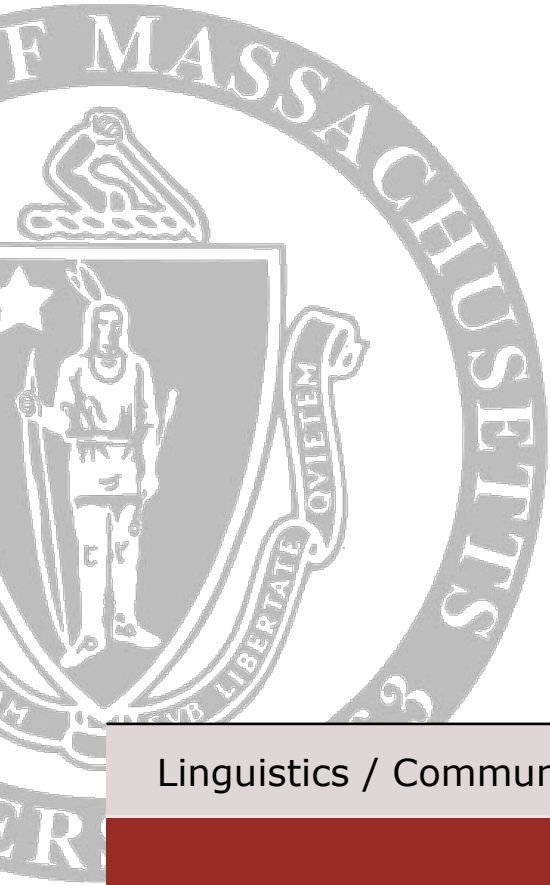
Areas of vulnerability

- Conventionalized scope changes
- Concord may sensitize for spreading
- Uno = one; but also “a” = uno Make the “A alternative better?

Implications for Learnability

Not saying it can't be
learned. Kids learned it—

(Don't have clear enough
data yet on L2 adults)



“The sentence doesn’t say”

- Kids learn as customary procedures—don’t entertain other alternatives, even when pointed out.
- (Changes in “Caterpillar” interpretation with age and experience)

L1 -- How does it go away?

- Can be some negative evidence, when people's assumptions collide. ("first shelf" (to put a mousetrap) for me was the top shelf, for my husband the bottom shelf —as we just found out.)
- How block the "high" attachment of "every"?
 - Maybe fill the slot with another quantifier,
 - "Every dog is eating some bones" (if there are more bones), may not say "not this one." (Need to do the experiment...)

Pragmatics?? More real-world knowledge

- Decisions about whether to distribute or not based on the object involved:

Four people bought a dozen cookies for \$12.

Did each person spend \$12?

Four people bought a dozen roses for \$3.

Did each person spend \$3.

Same grammar, different decisions

	Split cookies?			Split flowers?	
	N	Y		N	Y
All	14	40		28	26
Non-native	3	12		6	9

Only one person didn't split the cookies but split the flowers. Twice as many people would not split the cookies but would split the flowers. Gave reasons based on normal cost of the objects.

Summary

QUANTIFIERS – are a real challenge

Each vs all together

Every vs each

Where do they fit in sentences?

- How do they derive or change meaning according to the syntax of the sentence or pragmatics of the situation.
- How do we learn them?
- (or “unlearn” them)?

Lots more questions

- Lots more phenomena
- Lots more language groups.

<stop here>

THANK YOU!!

Questions??

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Out-takes (left in - placeholders)

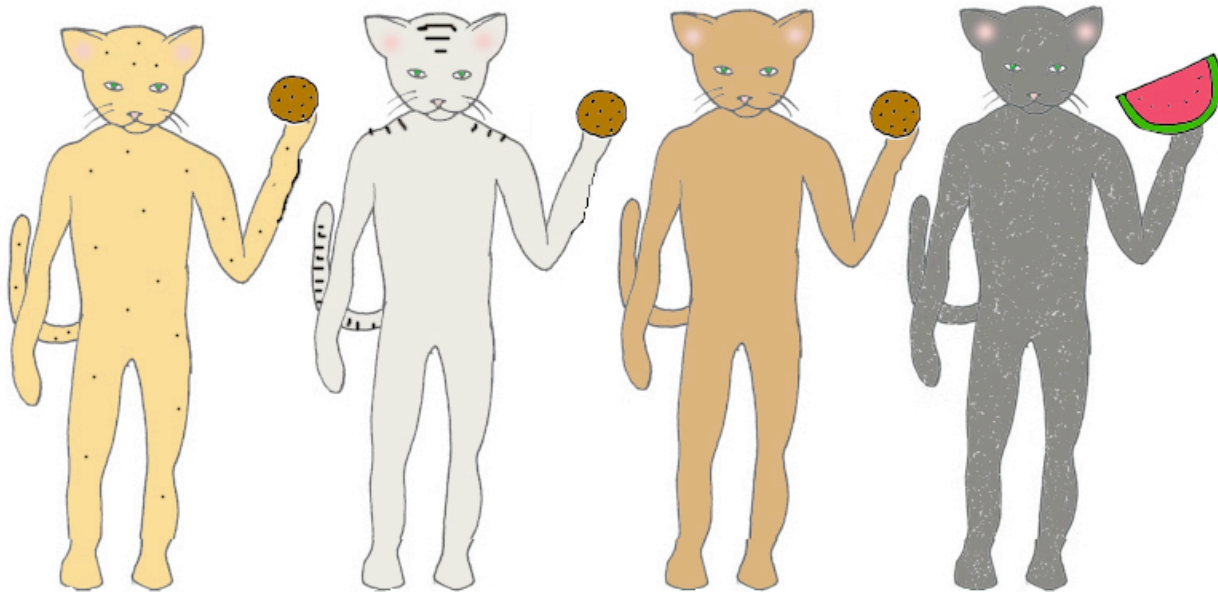
Displacement Examples

- Sign in a railway car: All doors do not open.
- Are we stuck (in the railway car)?
- Native English: 24 change to “not-all doors” [not stuck]; 13 said “none do” [we’re stuck]
- *(but 6 of the 24, answered based on the situation, not the sentence. “people who write train signs aren’t very careful,” “how did we get in?”)*



- Non-native: 8 no [not stuck], 9 yes ["All-not"/stuck]
(vs. almost 2:1 not-stuck to stuck, among native speakers)

More displacement: Example 2

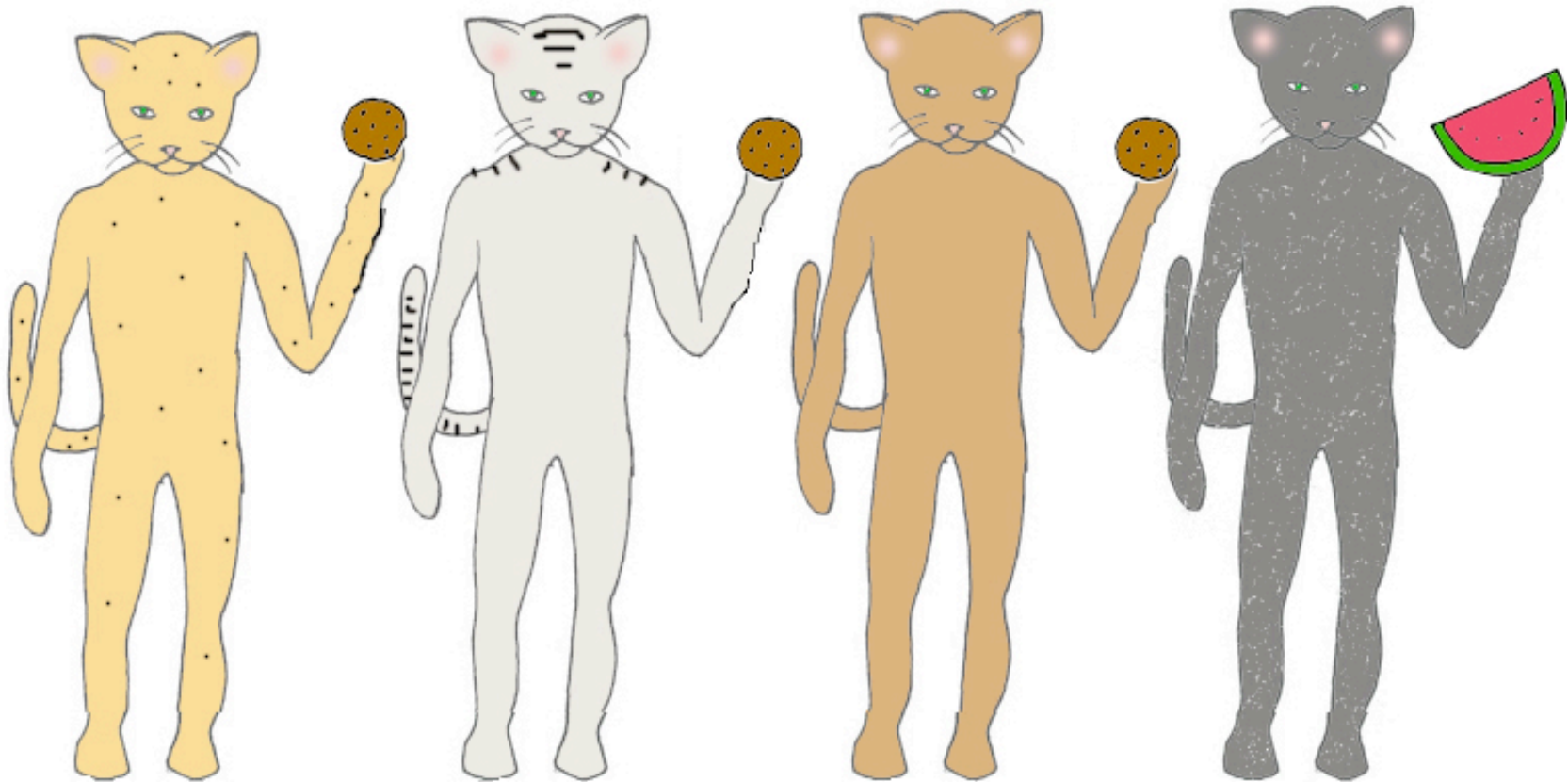


“Every cat does not have a cookie? Is that right? Show me.”

Answer Yes (displaces) i.e. = (not every cat) has a cookie—Will point to the cats with no cookie

Answers No i.e. = every cat (does not have a cookie) = every cat has no cookie → point to cats with cookies

All the cats don't have a piece of
watermelon.



How consistent were people?

- Native speakers: displace on all 3 or not displace on all 3 = 25 (15 : 10)
- Non-native: 7:5 displace to non-displace

Especially for the train-door example, we saw them abandon the sentence and just give answer based on reality.

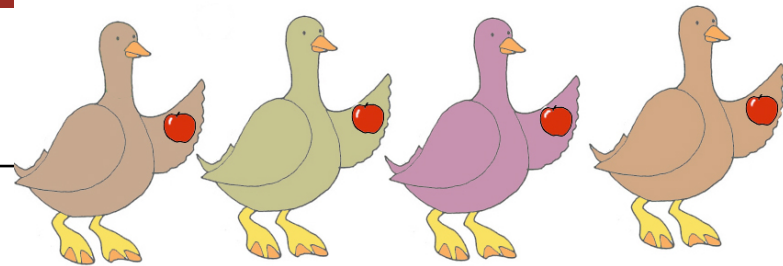


- (Somewhat surprised at the 13 “stuck” responses among native speakers.) How many who gave an “All-not” interpretation here did so on other similar items?

For example, my niece and my sister-in-law both did the questionnaire: the niece (age 28) displaced (all not → not all) on all three such items; the mother, 50+ didn’t displace any of them.

Of the 13 (native-speaker) “No-doors-open” people, 10 were consistent on all 3, 3 did the 2 cat examples “not-all”

Example (not from our 3 properties)



- *(picture of 4 ducks with apples)* Q: "Some ducks have apples." Is that right?
i.e. Is "all" ok for "some"?
 - No = 14
 - Yes = 16 (of 39)
 - Plus 9 "yeses" who made reference to other ducks not in the picture. So for them "all" is not "some."
 - Reasons given:
 - No's, basically should say "all" if it's all
 - Yes's, some includes all/ indef: "There are some ducks. They have apples." (some as plural of "a")
 - **Non-native, also split, not-ok / ok: (9-7)**