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## News from our lab 2010

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### Parts and Wholes

What if we told you that *Two men lifted a piano*? Would you think that the men worked together to lift this heavy object, or would you think we meant that both men were incredibly strong, each lifting the piano on his own? Philosophers and linguists have studied sentences such as this one quite intensely, because it could actually have both meanings. What allows this ambiguity is the fact that once you have a group of individuals, they could share a property as a collective, or have a property assigned to each member of the group. We wanted to see whether preschoolers recognized this ambiguity.



We videotaped scenes of actors doing less strenuous things, like assembling puzzles and stacking sets of rings – either together or separately, and asked children about these scenes. In one version, we asked them if the corresponding sentence was true. In another, we asked them which scene version they preferred for that sentence. We found that preschoolers allow both readings, but prefer the separate scene – whereas adults prefer the collective scene. This finding is interesting, because it means that children have the requisite linguistic machinery to represent these sentences like adults do, but something has to happen in the course of development to cause their preferences to shift. This ‘something’ could be the frequency of these sentences and their intended meaning in everyday speech. We are currently investigating whether real world knowledge – such as knowing about how big and heavy a piano is – factors into preferences of interpretation.



### Counting Strategies

Have you ever watched your child count objects? You have probably seen him or her do some funny things. She might tag each object but skip one, or count through the objects quickly. She might even count the objects correctly, but when asked how many objects there are, give you the wrong number. These are not only



*Can you give Big Bird 3 dinosaurs?*

normal responses, but they are almost a rite of passage into an adult-like ability to count and identify cardinality.

In one set of studies, we are interested in children's counting abilities and their counting strategies. We begin by asking them to count a set of 10 objects. We then play a 'give a number' game, where we ask them to give a puppet a certain number of objects. Then we ask them to sort cards with pictures of objects, telling them we are looking for cards with 'two things' and so forth. We are looking at correlations with children's performance on these tasks and their developing counting abilities – whether they are more prone to double count, skip, or count too quickly. The results are giving us a clearer picture of how all the pieces come together to help children become skilled counters.

### Young Children Know How to Speak Clearly

Adults are very good at altering the way they speak to make themselves sound clearer. For example, if you are speaking to someone who is a non-native speaker of English, or if there is background noise, chances are you will speak louder, make your vowels longer, and 'hyperarticulate' your vowels. Adults do the same thing when they are talking to infants and children, presumably to help them acquire their language more easily. We wanted to know how early this ability develops. We asked three- and four-year olds to repeat a series of one-syllable words like *sheep* and *moon* we said each one of them. We then introduced them to a puppet, who – we told them – was learning words. This time, we showed the children a picture of the object being labeled and asked them to say the word clearly for the puppet's benefit, modeling clear speech for them.



When we analyzed the words children produced using speech analysis software, we found that children were incredibly good at doing this. Many years ago, psychologists might have doubted that they could do this, since the assumption was that children at this age are egocentric. This does not appear to be the case at all. In future studies, we are going to see whether children need the adult model of clear speech, or if they are perceptive to the word learner's needs enough to alter their prosody on their own. As a follow-up to this study with children, we took the words we recorded from the children and presented them to undergraduates at Rutgers University to see if the students could tell whether the words were said in a list or as part of a word learning scenario. Undergrads were very good with pairs of words from both tasks. We are now seeing whether they are just as good when they hear individual words.

### THANKS!

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