

The Infant Language Research Lab Newsletter



Johns Hopkins University

June 14, 2002

You are receiving this newsletter because you have contributed to our research in infant language acquisition. This research would not be possible without your help and we are truly grateful. We hope that hearing some news of the studies you have helped with will serve to motivate you to continue to come into the lab and to tell your friends about us.

How to become a participant:

Call: (410) 516-4827

Visit our website:

www.psy.jhu.edu/~jusczyk/lab_website



General news from the lab

As many of you know, Peter Jusczyk, the principal investigator for the lab passed away in late August. He is sorely missed, but we continue to run the lab and carry on with his experimental vision. We are still motivated by his inexhaustible interest in speech research and early acquisition.

A few of our investigators are leaving the lab: George Hollich (postdoctoral fellow) has accepted a tenure-track faculty position at Purdue University and Melanie Soderstrom will be a postdoctoral fellow at Brown University in the fall. However, many of us remain to continue our research.

Recent findings from the lab

We have discovered a few interesting things about early perceptual development over the past year. We summarize a few of our recent findings in the sections below. You will also see some web addresses where you can download the papers that resulted from these studies. There you can read about the studies in more detail.

The sounds of language

One of the primary foci of the lab is discovering the ways in which infants may use statistical regularities present in the speech stream and in other modalities associated with speech to uncover the structure and units in their input language.



Sounds and sight

In one recent study, infants were shown a picture of a woman talking about a dog while at the same time a man (not seen) talked about experimental procedures. Despite the potential confusion created by having two voices talking at the same time, infants nonetheless were able to focus on the woman's voice and later recognized her words better than the man's words. The infants were aided in focusing on the female voice by what they saw. <http://hincapie.psy.jhu.edu/Research/Cocktail.html>

Sounds and music

Music and speech, although very different, are both complex systems that have patterns and detailed acoustic characteristics. Beginning when infants were 8-months-old, we visited their homes once a day for two weeks and played them a half-hour sample of a particular jazz tenor saxophonist (either Ben Webster or Coleman Hawkins). Two weeks after the home visits finished the infants came back to the lab. They were tested on passages played by the same musician and passages played by a different musician than the ones they heard at home. Infants strongly preferred to listen to passages played by the saxophonist they had heard at home. This shows that not only are infants able to recall information over an extended period of time, but that information is not restricted to speech.

Sounds and grammar

The melodic and rhythmic patterns of speech may provide infants with cues about the structure of speech. Even before they are familiar with individual words, melodic and rhythmic cues might allow infants to break a continuous stream of speech into smaller units like phrases (the big dog) and sentences (the big dog licked the baby). In some recent work we found that infants as young as 6-month-old can use prosody to detect sentences and phrases in continuous speech.

Sounds and words

Although adults feel as if they effortlessly hear their native language as a string of discrete words, English is full of words embedded in longer words. For example, the word "near" contains both "knee" and "ear". Recent evidence has shown that adults use something termed the Possible-word Constraint to help them segment speech into words. A single consonant cannot form a word in any language. If an adult hears the utterance "near", they will rule out the possibility that they hear the word "ear" because this would strand the consonant "n" as a word all on its own. Similarly, they will rule out the possibility that they heard the word "knee" because this would leave the consonant "r" on its own to form a word. Several experiments in our lab have shown that 12-month-olds use a similar strategy to segment speech.

<http://www.psy.jhu.edu/zab/pubs.html>

Sounds and other languages

Infants are very sensitive to the statistical regularities of English and these regularities help them to learn English. In a series of studies we asked whether English-learning infants could also exploit regularities in other languages, namely in German (a language similar to English) and Swahili (a Bantu language with a very different structure). We looked at recognition of grammatical gender markers (akin to the masc., fem. or neuter endings found on nouns in French or Spanish) on phrases in each of these languages. We found that even infants exposed to only English were able to exploit regu-

larities in foreign languages.

Sounds and dialects

All of the languages of the world have a distinctive rhythm. Some pairs of languages sound very similar rhythmically, whereas as other pairs sound very different. For example, romance languages such as Spanish and Italian sound much more similar than Spanish and Japanese or Spanish and English. Newborns prefer to listen to languages that have the same rhythm as their mother's native tongue, probably due to prenatal auditory experiences during the third trimester. However, newborns cannot discriminate between languages that have a very similar rhythm. A recent study in our lab has shown that infants are *extremely* sensitive to the rhythmic properties of their native language. The most striking evidence for infants' hyper-sensitivity to the rhythmic properties characteristic of their own language was discovered when we found that 5-month-olds discriminate between dialects of English (British English vs. American English).

<http://www.psy.jhu.edu/zab/NJJ.pdf>

Early grammar

Most toddlers' language production capabilities are fairly limited because their speech production apparatus is not yet fully developed, however, they have acquired quite a bit of grammatical competence at this age. In our studies of early grammar we are primarily interested in using non-verbal procedures to tap into what complex grammatical principles have been acquired before they are produced.



Learning subject-verb agreement

By the time toddlers are putting two words together to make simple sentences, there is evidence that they are aware of the some general grammatical characteristics of English. In a series of experiments with 19-month-olds we found that they prefer to listen to passages containing verbs with the 3rd person agreement ending -s (e.g. the boy bakes bread) or the plural noun -s ending (e.g. the boys bake bread) over passages without this agreement (e.g. the boy bake bread) in a variety of circumstances, including some in which this ending is ungrammatical. However, 16-month-olds do not show the same preferences. These studies suggest that by 19 months, infants are sensitive to the inflectional endings of verbs and nouns, even though they do not yet completely grasp the grammatical subtleties of their use.

Learning questions

In a recent study we asked when and how infants learned questions such as 'what' and 'where'. Infants in this study saw a video where one object (e.g., an apple) hit another object (e.g., a flower). Then the infants saw two object on a screen (e.g., an apple and a flower) and were asked three different types of questions about what they saw: What did the apple hit? (type 1), What hit the flower? (type 2), and Where is the apple/flower? (type 3). We found that 20-month-olds understood all three types of questions, whereas 15-month-olds only understood questions of type 2 and type 3. This is exciting because it shows that children can understand some pretty complex linguistic forms even at a very young age.

<http://www.ling.upenn.edu/seidlf/wh-q.pdf>

Learning the plural

'S' appears at the end of many words in English. In this study we were interested in the plural marker -s, as in "the balls". Both 19- and 23-month-olds were presented with a choice between a one-object side and a two-object side, and asked either "look at the ball" or "look at the balls". These toddlers did not show any indication of differentiating be-

tween these two auditory commands, suggesting that they may not have full understanding of the purpose of the plural marker. However, some 23-month-olds are beginning to use the plural marker in their own speech, so it is possible that they have some knowledge of the plural that is not detected by this experiment. It is not always possible to tap into early grammatical knowledge using these experimental designs, but we are finding more and more ways to do so.

Vocabulary learning

Words are of primary importance to language learning, i.e., they limit what can be said. In our studies of vocabulary learning we try to understand how children begin to learn their first words and how they begin to attach labels to objects.



Learning new words

By 24 months, infants understand many words. We looked at whether infants could use the words they know to learn new words. In this study, infants saw two objects, one they knew (e.g., an apple), and one they had never seen before. If asked to look at the apple, infants predictably did so. However, when asked to look at "blick", infants were able to guess that the unknown object must be a blick and looked at the unknown object instead of the known object (the apple).

<http://www.hincapie.psy.jhu.edu/HJB.pdf>

Learning pet names

In earlier work we found that rudimentary word comprehension skills begin to appear at a very young age. For example, when 6-month-olds were presented with a video of their mother alongside a video of their father. Infants looked towards the appropriate video when they heard the labels "mommie" and "daddy." More recently, we asked whether or not infants will look towards a video of their dog when they hear "doggie." In addition, we were interested to see if infants will also look towards a video of their dog when they heard their dog's name (i.e. Rover). Participants saw a video of their dog alongside a video of another infants' dog. In another condition, infants saw a video of a dog alongside a video of a cat. Results thus far suggest that infants recognize the video of their pet. However, more participants are needed before we can conclude that infants attach the correct label to their pet.

<http://www.psy.jhu.edu/zab/pubs.html>

Summer is a busy testing time

We will be in the lab all summer and we hope to see many of you both this summer and fall.



Best wishes for a great summer from the lab:
Amanda Seidl, Ann Marie Jusczyk, Elizabeth Johnson, George Hollich, Melanie Soderstrom, and Natasha Henline.