

Lecture 9:
Learning Word –
Meanings...

Hello and welcome, to the course introduction to the psychology of language I am Dr. Ark Verma, from IIT, Kanpur and this is the second week of the course. In this week we have been talking about various ways, in which children acquire language and acquire different aspects of language, what are the tasks and challenges, that children kind of need to undertake, in order to acquire, language like adults have. In the last three lectures of week, we have talked about different aspects like, phonological perception, categorical perception; you talked about segmenting in one of the last lectures. Today we will start talking about some of the other aspects of acquiring language, more importantly, that today's lecture will focus on, how to acquire word meanings. Now, if you remember, one of the things that children need to do, while they're processing this continuous flow of speech, is that, they need to segment, this speech down into shorter segments, these shorter segments are basically words, which obviously have some correspondents or meaning, in the larger scheme of things. For a child, for example, it is very important, once the child has, segmented this stream of speech into shorter words, for a child it's, very important the child now makes up, what each of these segments corresponds to, what is the meaning of each of these segments? This is precisely, what we will be talking about, in today's lecture.

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No trivial task...

"Children start to produce words at about the age of 12 months ... if we stick to the more conservative estimate of 60,000, ... equates to about 10 new words a day up until the end of high school".

- Paul Bloom, How Children Learn The Meaning of Words. (from Traxler, 2012).

So, I begin with a quote that Traxler puts forth and this quote is from Paul Bloom, who's done a lot of work, with respect to children language acquisition. Now, if you look at this, he says Paul Bloom, says she wouldn't produce start to produce, word sat about age of 12 months, if we stick to the more conservative estimates of let us say, a Revelry of 60,000, this already equates to, in learning up to 10 new words each day, till the end of high school. Now, this quote, kind of tells us, about the enormity of the task at hand, children in the course of their education or say for example the course of their lives, starting from let us say, 16 to 18 months when the child starts speaking, its first verse and, then there's the vocabulary verse and then the child you know? Starts speaking in telegraphic speech, eventually the child speaks full sentences, during this period, which is the early period to the period when the child enters, school obviously studies more complicated subjects, talks, in more adult like manner. So, to speak children, develop astoundingly large vocabulary, as and I mean as they are, growing from children to adults, they are picking up so many, things. Now, how many of these words you would think that children are basically learning through explicit instruction, especially in the beginning days, how many of the

words? Let us say, I think in one of the last lectures I probably mentioned that or maybe here today we can talk about that one of the first things that a child kind of does, or one of the first words, that a child picks up, is probably through, isolated word learning, which probably might have been facilitate through infant addicted speech, child directed speech or the child would have picked that word from a sentence, embedded in a particular nursery rhyme, or so on and so forth. Now, how many of these words? First 30, 40 words the child learns are actually taught through explicit training, that's one of the questions that we can talk about today. Okay? But, the bottom line is that, for a fact that children are, extremely good at learning words and this is something, that they more often do, without explicit instruction, they pick up some of these words, they create new words, they come up with all sorts of utterances, which they use to describe the world around them. Okay? So, they're very good, at picking these words quickly, as I was saying earlier, it takes about 18 months for a child to learn his or her first, words and after that they experience a dramatic, change in their vocabulary and in their ability to acquire words. Okay? This dramatic change is referred to as the vocabulary spurt, or the word spur thereafter it is said, the Chilean kind of start picking up words at a very rapid pace,

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- Children are extremely good at learning words, again, something they do without explicit instructions.
- While, it takes about 18 months for a child to learn his/her first 50 words, they experience a dramatic change in their word learning capabilities post that, which is referred to as a *word spurt* (McMurray, 2007).

Before this, is much slower. Al right?

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• Challenges abound...

- *Poverty of Stimulus* – the environment does not provide a lot of help to child, to be able to deduce one & only one meaning of an uttered word. For e.g. *gavagai*.
- *Point – and – say* – Some theories propose that children might be picking up word meaning, by using the point and say method; where in parents/other adults point at objects and utter their associated words/names; and the child would make that association between the word and the object.
 - this could work for concrete objects, but what about abstract nouns and/or verbs?
 - also, blind children learn words at the same rate as normal children do. How do we explain that?

So, there are challenges to doing this. I mean, we have been talking about this in some of the earlier lectures as well, but there are challenges in to say for example, how does the child pick up, his first words maybe, through association maybe say for example, when I said pen and I looked at this object, the child kind of made a mental note in his or her mind and Okay? Pen the sound, pen corresponds to this object or say for example, when people say to the child this is your mama, or this is your papa and then the same person appears consistently at, saying that particular sound, again and, again over a period of time, maybe the child associates, that word mama to that, to his mother or the word Papa to his father or her father and this is how, children are doing it. However, doing this consistently for so many objects, is not something that the child will very, quickly achieve. Okay? And there are, obviously a problems that canaries, problems of interpretation, problems of multiple things, kind of coming together even when one word is said and on the basis of this, if you remember in, one of the last lectures also, I discussed a little bit about, the problem that Norm Chomsky, a pointed out and this problem was referred to as the, poverty of stimulus problem. So, poverty of stimulus problem, basically again as pointed by Chomsky, to kind of counter the argument of the rationalist, slash behaviorists, that language could be picked up, from the environment what Chomsky said? Also, kind of apply is here, the environment does not provide a lot of help, to the child with respect to choosing, the correct correspondences, between sounds and objects or between sounds that represent words and the objects in the real world. Okay? That is something interesting. So, for example, children here so many, different sounds. Okay? And say for example, a child hears ,mama, papa, bat, ball can you milk, food, so many, different things, a lot of things when you are saying food, you probably might be saying food, in respect to milk as well, with respect to say for example, you know? Baby foods, Cerelac etc, as well with respect to vegetables as well, with respect to fruits as well and you're still saying, your food is here and the child has no way, of kind of really making a correspondence of the word food, with any of these things. But, food in that sense is sort of a basic, category word we will talk about this in a little bit more, detail as we move further, the food is a basic category but, it does not understand for apple or oranges or milk or Cerelac or anything for that matter. So, I'm just, trying to give these examples again and again, to make you appreciate, that the environment, per se can really mislead the child, as to interpreting what the meaning of specific words could be like. Okay? Moving ahead, some people have proposed that maybe children are kind of making correspondence between words and meanings, by using methods like say for example the point and say method. So, you know? We do this with children all the time. So, you look at that ,that is, a cat look at

this, this is a chair, look at this, this is a pen and what we are doing is, the pointing our fingers and saying something, the point. So, what the child does, is the, child is making note of what is the, object in the world that I am pointing my finger to. So, what I'm doing is? I'm drawing the attention of the child to that particular object, once? I'm drawing the attention of the child, to that particular object and saying a particular word consistently, over a period of time, I am probably trying to help the child, to make this match between what I am saying? And what is that object, that I'm pointing out however, this is also something that can run into problems, there's, a very interesting example that I think Quin takes up and Traxler also discusses it in, some detail and this example is about a story and the story goes like there were two tribal men and there was this tourist and the stories, were was going with these tribal, men in a jungle and suddenly what they see, is that, is a hare rabbit, is just hopping, passed by them. Okay? So, when the rabbit is hopping passed by them, one of these tribal guys, looks to the other and says Gavagai. Okay? So, this says Gavagai and the person kind of I don't know, what they respond, but the idea is, that the tourist listens to this and the tourist, who does not speak their language and it was just seen an event happening, is trying to make out, what does Gavagai mean? Now, there seems to be a very, trivial problem but let me just complicate it for you Gavagai, could mean rabbit, it could mean the rabbit is running, it could mean the rabbit is white in color, it could mean that the rabbit is awesome food, it could mean that rabbit is running very, fast, it's going to its house, it's indicating some danger or what a beautiful rabbit you know? Anything of this, now this is the, problem with this, point and same method or this is the problem with, the poverty of stimulus argument. So, you can kind of use this example to argue for both of these problems, which kind of are just, trying to demonstrate, that it is indeed, difficult it's a difficult proposition for a person, a child that we are talking about or say for example again, I as I said you try and listen to the meaning, listen to a movie or a song which is not in your language and you have no, idea about that language and you try and kind of make out the meaning, of what the things are so, you know? This is something that tells us, that some of these methods that we can sometimes you know? Usually assume, that are helping Chilean acquired meanings, might not be as good after all. Okay? So, the point and say thing, the Chilean the proposition is that a student might be picking a word meaning by the point and say method, it is, sort of something that does not really help, I'm sure it, helps to an extent, I am sure it is helpful, to an extent but it is not the complete answer to how children might be picking up word meanings that's, that's what I, want to say? Okay? Also, there is another problem with point a and say you know? Point and say could work for concrete objects, I'm showing you this is pen, I'm showing you say for example they say there's a chair, there's a table and there's a camera, I can show you say of so many, of these things and I can say these words, that is one but say for example what about abstract nouns, what would happen? If I am talking about, I am feeling sad today, or let us say I am feeling happy today, in some of these cases say for example you can show, the expression on your mouth and you can say. Okay? Feeling sad looks like this but, in most cases say for example, I am feeling very, excited today. Okay? A lot of times, what we are say for example how do you talk about kindness or guilt or say for example, any of those abstract things, how is the child going to achieve those meanings by point and say, how does the child know what is good and bad by point and say. So, there are some of these problems here, also there is data that says that you know? Blind children, they learn words about the same rate as seeing children do, blind children do not really have, the advantage of point and say. So, how is it, that they are also acquiring words at pretty much the same rate? So, these are some of the questions that we are posing, in front of some of these theories and we're trying kind of trying to ask, how is it, that the child is learning meaning. Now, another problem, is also when you see how are the children acquiring word meanings, is how are the children acquiring meanings for particular classes of words.

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- Verbs ...

- We do not usually label an action, while we are engaging in the same. Also, learning the meaning of the verb, requires one to take into account aspects like, agent, patient, perspective of the utterance & so forth.
 - For e.g. *chasing*. X is chasing ; is also an instance of Y fleeing X.
- Hence, there must be additional sources of information for the child to be able to learn the meaning of verbs.

So, mostly when you talk, about concrete objects and so on, you're talking about nouns. Okay? But, what about verbs? How, does a child are asked the meaning of a particular verb, why and the problem is this, when you talk about you use a particular way suppose I am picking this up and I'm, saying pen, I'm, using this particular object or say for example I could be using it with my ring or with my watch or any ring of life, however when I'm, clapping or when I'm, smiling or when I'm, speaking, I'm not necessarily naming, that look at me now I am smiling or look at me now I am, clapping or look at me now I am speaking, we do not usually, name the actions that we are performing and it is, in that sense, slightly difficult for the child, to pick up what action can be represented by, but what word. So, that is something that child has to make sure of, also when you're talking about verbs, say for example the cat chase the rat. Okay? Now, cat chase the rat, basically is as, lightly difficult thing to grasp, for a child who's, just picking up language, is we got a cat chase the rat, can also be said as the rat is running from the cat. Okay? All say for example, you can say cat is being chased by the rat or cat is chasing there anything of that sort, one of the things that kind of understanding of verbs is slightly more difficult and we'll, discuss that in later section of this lecture also, is this concept of agent was patient, who is acting? Who is the recipient of that action? What is the object using which action is happening, suppose say for example Ram hit, sham with the bat, something like that. Okay? Now, you have, two nouns here and you have a third down which is the bat, one is the actor, one is the patient, one is the object of that action and one is the action, how do you think that the child is kind of going to understand this, or pat is being beaten up by arm, by the bat. Okay? So, there are all sorts of utterances, that we speak and children come across and it is, in that sense very difficult for the child to grasp any of this. So, that's something that, is a sort of relevant for us to ponder about when we, are pondering about how, children are acquiring word meanings, having said that, it with these examples, it must be kind of clear, that it is not only point and say that works and it's also not only the environment that can kind of provide enough information, for the child to acquire meanings. Okay? So, there must be something else, that might be happening.

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- One solution, referred to as *genetically guided learning hypothesis*, proposes that children possess innate categories, such as nouns & verbs, which they seek to eventually populate with specific words from their native language; further, infants populate the categories by attending to salient bits of speech and trying them out as nouns or verbs (Pinker, 1984, 1996).
- Another alternative offered, refers to a more *general purpose learning mechanism*, according to which children have a general ability to pick up and remember linguistically conveyed information (Swingley & Fernald, 2002).

So, let us look at, what are the other proposals on the table, one of the proposals basically from the natives' school of thought, is the proposal about genetically guided learning. So, there is this hypothesis, refer to as the genetically guided learning hypothesis, which says, that children are born, with innate categories and these categories are for specific classes of words. So, children are born with basic categories of nouns, of verbs, of adjectives and of adverbs and maybe so on and so, forth and what the child actually needs to do, is basically just try and populate, each of these categories, with their experience, the more they come across objects, they populate the category of nouns, the more they come across actions and things happening in the world, they populate their category of verbs and then they soon and so, forth. Okay? So, this is one hypothesis, which says that children have an, implicit idea innately so, of what classes of words, that might exist and what they just have to do is they have, to just populate those categories and on the basis of those, populating examples and does reach an understanding of each of these categories. So, this is what the genetically guided learning hypothesis says? Steven Pinker is one of the proponents of the hypothesis and he talks about, that in some detail. Another slightly more simplistic, alternative to this particular hypothesis, has been referred to as the general purpose learning mechanism, or general purpose learning mechanism hypothesis, if you might call it and the general purpose learning mechanism hypothesis says something very, simple and it says that children kind of do a lot of fate and try and they kind of pick up particular words, they pick up what the linguistically, conveyed information is and they do it, in a sort of hit and trial kind of a way and gradually by using so many, words in so many ,different scenarios ,they arrive at say for example a mechanism for. Okay? This kind of words, are nouns, this kind of words are verbs, or super zoom this word is used to represent this concrete object, or this word is used to represent this particular action and then you can kind of involve information or tenses and so on and so forth. With this so, there are these two competing hypotheses, as I said in the beginning of this week, that there are two schools of thought here, one of them, the genetically guided learning one comes from the nativist school and the other one comes from the more probabilistic learning based school. Okay?

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- According to the latter approach, children remember information better, if that is conveyed by use of language.
- Going further, it has been proposed, that for purposes of word learning, children might start with the most general interpretation of the word, and eventually arrive at a more specific interpretation.
- However, it seems that children may not be doing either, instead, they seem to be biased to treat new – labels as names for basic level categories, those that are, “just right” and can be used to discriminate them from superordinate or subordinate level terms. Like *dog*, instead of *Poodle* or *animal*.

So, these are the two things, now according to the latter approach, I just elaborate on that a little bit children remember information better if information is conveyed by use of language. Okay? So, going further it has been proposed, that for purposes of word learning, children might start with as light generic interpretation of the word and then eventually arrive at a more specific representation, by using that word again and again and getting particular feedback. Okay? So, that's probably what is happening? Now however it still seems that children might not be doing either of the things that we said you know the genetically guided learning thing nor the general purpose learning they might instead we basically just, biased to use certain kinds of basic level labels. So, the assumption is they kind of start using words that seem ,”Just right”, to describe objects or events in the environment, these ,”Just right”, are refer to as basic level terms and these basic level terms are different from super ordinate level terms and subordinate level terms, I'll give you an example. So, the word dog or the word cat is just a basic level term, a more subordinate level is what breed of dog or what specific dog it is and super ordinate is like the label animal or mammal. Okay? So, basically what you will do is they are neither really aware of the animal mammal classify say for example is not really also aware of the specifics of the breed of the dog as well what they'll do is they'll start using dog and they'll kind of eventually figure out. Okay? This kind of animal is known as dog and there's so, many kinds of dogs and later, in you know when they've grown up they will probably come to the breed part. Okay? So, that is typically what is happening.

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- Children often, misunderstand the meaning of new words.
 - Sometimes, they could *extend* the word for all physically similar items, say all white furry animals could be called rabbit, or cat or dog. SO, they end up applying a known label to a category for which typically adults would use a different label, i.e. *overextension*.
 - Sometimes, the children fail to use a known category label, for other members of the same category, i.e. *Underextension*. for e.g. a child could only see the term *car* for his father's car, but all other cars were denoted by a different word.

Now this can actually be seen through some of the examples and some of these examples include what is referred to as extension. So, what is extension it has been seen, that children sometimes they could extend a particular, kind of word to include all physically similar or sometimes even distantly similar objects in the same label. So, this is referred to as over extension, say for example you make the child encounter, a small furry animal which is very nice to look at and you say that. Okay? This is a bunny. Okay? This is the first animal that the child is probably encountered and probably touched and I'll be happy about and then what happens is next day, there's no money but a cat which is a white cat, furry cat, also comes close to the house and you're showing the child, that look that is the cat it might happen another child kind of says that. Okay? No that is a bunny or similarly if the child sees a furry dog or Chelsea is a soft toy, maybe not really the software biggest chilling kind of appreciate anime see in animate versus living versus not only in, but anything that looks similar and is an animate object children might start, referring to them, by the same name bunny, this is called, 'OVEREXTENSION'. So, OVEREXTENSION is basically, when children end up applying unknown label, to a category which adults might probably differentiate between them. Okay? That is our extension; also the converse might happen sometime children might fail to generalize. So, what they might say for example, do is that they take a category label, but they apply the category label to a specific instance of that category but do not apply the category label to other instances of that same category. So, there, there was a there's a very interesting example, in track list book, which he says that there was this child and the child used to call his father's vehicle as car, maybe the father is going out of the office and the child is looking at the father's vehicle through a window and the mother told. Okay? That is father's car. Okay? What happened with this child was that the child fails to generalize, car to any other kinds of cars that are available and he would say car only to, his father's car and every other vehicle even cars were referred to as by different names. Okay? So, this kind of scenario when the child fails to generalize, stuff is called, 'UNDEREXTENSION'. So, you see two kinds of things are possible and the kind of mistakes that are happening here, tell us a little bit that children are probably trying out a lot of things and they are being corrected with feedback, with more experience with using them again and again while they are figuring out how the world works, they

reach a place in time where they realize that. Okay? This is what a word actually means? So, this is in some sense, a little bit of a summary of how a word meanings might happen,

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- However, children make use of different strategies to allow them to identify and refine word meanings.
 - **Principle of Mutual Exclusivity:** assumes that no two words in the language may have exactly the same meaning. For e.g. *gavagai* & *blicket*, may not mean the same things, even if they have been used to refer to the same object.
 - **Principle of Contrast:** assumes, that two labels should no apply to the same object, and if they do, both labels should mean slightly different things. For e.g. the words, *dog*, *mammal*, *animal*.

Moving, moving on, we can also talk a little bit about some of the strategies, that the children must be using in order to finally come in to the main target word finally arrive at a place that. Okay? This is what the target word looks like or this is the exact meaning of this particular target word. So, let us look at some of these strategies, what of these strategies? Is the strategy or the principle of mutually exclusive so, what does mutually, exclusively say it says, that no two words in the language, will have the exact same meaning, suppose the child hears me say that this is a pen and this is a stylus at the same time. Okay? The child will usually take into account, that the same object cannot be represented by two different words this cannot be a pen and the stylus at the same time. Okay? So, this kind of refers to this whole fact that the children will, find it slightly difficult to attach a one object with two word names, suppose I am calling this *gavagai* or I am calling a split or say for example something that the child is saying, is been referred to by two names that what the child reasons is that, two words may not usually mean the same thing. Okay? And if they do the two words might be applying the two might be talking about slightly different aspects of this if for example, maybe stylus is just this part on the top of the pen or it's just this nib on the top of the pen but it's not then tire pen. So, basically what the child is doing is. Okay? If you're consistently using two words, talking about the same object maybe the two words differ in their

application of this concept. So, that is one way of looking at it, the other principle that also is kind of complementary to that of mutual exclusivity is the principle of contrast. So, this principle of contrast is that the two labels should not apply to the same object, but if they two the two labels should mean slightly different things, say for example the example of the word dog and if I'm saying dog, animal mammal, all of them should carry different levels of information. So, this is also that something that the child eventually would learn to figure out. Okay? So, and eventually the child would know. Okay? Animal is something different it is a generic name for all of these living things and mammal is a particular class of these animals, which give birth to offspring's. So, in that sense as opposed to laying eggs so, in that sense the child kind of figures out, the exact meaning of some of these words and so, these strategies might help the child of each there.

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- It has been proposed, that children's perceptual systems carve the world into discrete objects and that children have intuitive notions about the way these objects should behave.
- As, object names are primarily nouns, one could expect children to be learning nouns earlier than other categories of words, such as verbs, adverbs etc., i.e. they may be expected to have a *noun bias*.
 - Indeed, it has been observed in a large range of cross – linguistic studies that nouns make up a greater chunk of infants & toddlers' vocabularies than verbs (Bornstein et al., 2004).

Now it has been proposed that children's perceptual systems. So, a part of how child not understanding words in the world, will also be dependent upon how they are looking at the world, how are they creating representation of the world in their head. So, it has been proposed that children's perceptual systems, carve the entire world into discrete objects. So, usually children dealing in objects they don't deal in things like. Okay? These are so many things all muddled up in together they are kind of looking at. Okay? This is a chair, this is a table, this is a pen, this is a camera. So, they kind of are looking at the world in with respect to these different, different discrete concrete objects and then what happens is that the child kind of goes on to or initiates the learning of words for each of these object, what is the word that denotes

object A, what is the word that denotes object B, what is the word that denotes object C in this manner what would happen here is that typically because object names are nouns as we all know children will probably shorten in C of acquiring nouns earlier, than acquiring any other class of words. And this is indeed what has been observed in a lot of cross linguistic studies people have shown that in general, for the most part across different languages and across different cultures, infants and toddlers of calories are actually made up by alerter percentage of nouns, as compared to words of the other classes.

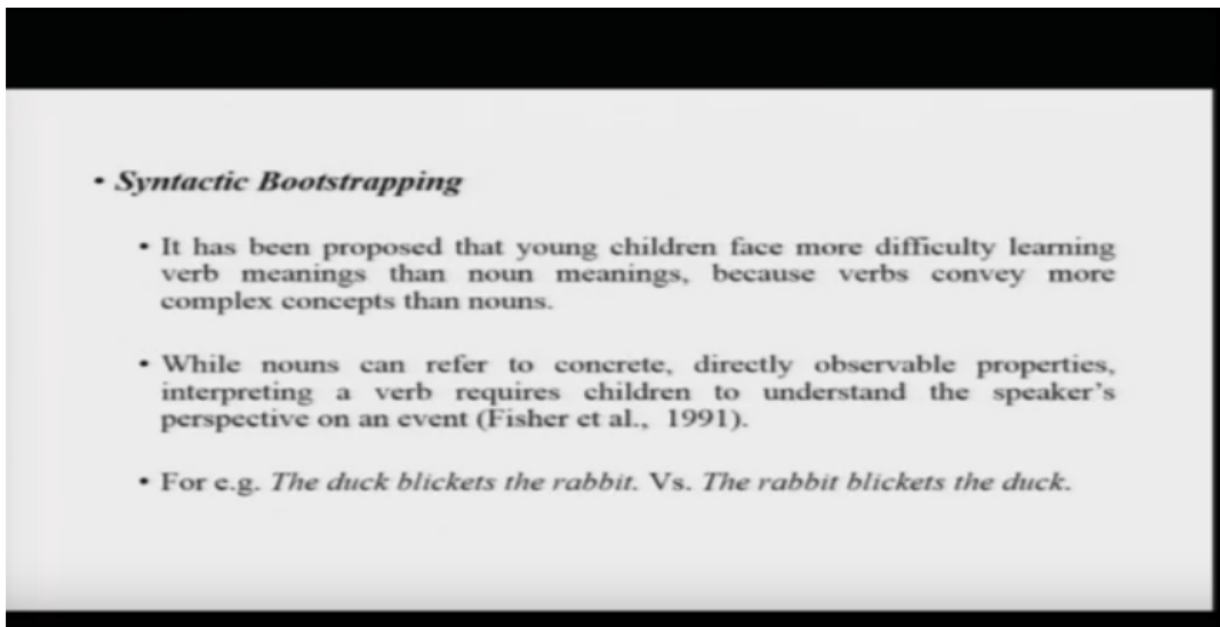
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- Finally, children also pay detailed attention to aspects of other people's mental states and abilities, and use that information – when assigning meanings to words.
- They can know, where speakers are focusing their attention, and they use that knowledge to infer what objects people are labeling when they speak.
- But, they also pay attention to speaker's general knowledge and reliability as a source of information (Birch & Bloom, 2002)
 - Some speakers may have more knowledge than others, for e.g. children are more likely to believe adults over children.
- So, it seem that children engage in sophisticated deduction, and weigh multiple factors, when acquiring new vocabulary.

So, this is the whole idea here, now also it has been shown it has been said that finally, children also paid detailed attention to aspects of other people's mental state, suppose say for example you know I am happy or I'm sad or I'm paying attention to this one while I am talking to you or I am say for example. So, the different mental states that I am going through, children are very, very responsive and very, very perceptive to that. Okay? And the kind of try and use that information also while assigning meaning towards. Okay? So, that is also something that children are to be doing, more specifically what they do is they pay attention to where speakers are focusing their attention when they're speaking something. So, if I am talking about this object or I'm looking at this again and again or I'm holding, this I'm talking about. Okay? This pen has a name and it has something at the back, a child is he or she does not have any language, at this point it's kind of making these connections, the child is knowing that. Okay? This is something that is being talked about and these are so many different words and they probably refer to different components of this pen. Okay? So, this way, what the child will be able to do is the child get a

lot of answers to their questions about, what words denote what aspects of the world around them Okay? That is also something that one should remember, also it has been seen, that you pay attention to speakers general knowledge and reliability they also have a sort of a, measure of how reliable a source of information a particular speaker is so, it has been shown it's been documented in study, is that some speakers may have more general knowledge, as compared to others say for example children are more likely to believe, information that is coming out from an adult's mouth as compared to information that is coming out, from their own siblings mouth or from their peers, who are in the same age group. So, children do have a sense of that as well they will kind of have a general theory of. Okay? This person probably knows something more, about the world as compared to this person. And so, I would probably believe this person a little bit more and I will try and build my evidence or my theory of the world, on the basis of this person's utterances and not of my peers utterance who is probably the same age as I am and may be does not, know about the world so, much as I do. Okay? So, it seems that children do engage if you look back at this, it seems that children do engage in a sophisticated deduction process, and they weigh multiple factors, the fine they are acquiring this new vocabulary. Okay? This is a little bit about the theories and the,

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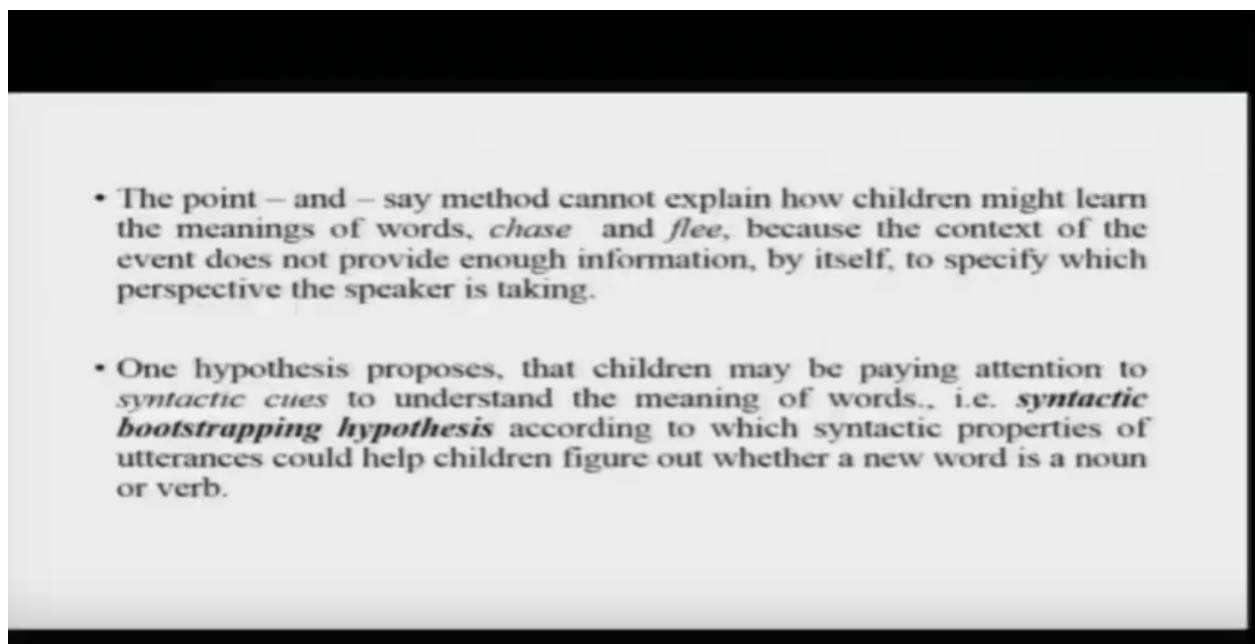
• *Syntactic Bootstrapping*

- It has been proposed that young children face more difficulty learning verb meanings than noun meanings, because verbs convey more complex concepts than nouns.
- While nouns can refer to concrete, directly observable properties, interpreting a verb requires children to understand the speaker's perspective on an event (Fisher et al., 1991).
- For e.g. *The duck blickets the rabbit. Vs. The rabbit blickets the duck.*

Strategies of how sharing are picking up words we move to a different section, where in US different kind of hypothesis is there and this hypothesis says that maybe, what children are probably doing is that they are kind of gaining information, through syntactic boot strap they are basically, gaining information through syntactical queues, what are the syntactical queues? So, it said that young children might face

more difficulty learning verb meanings, than other noun meanings and so on. And so, forth what they probably might be doing is, they might be figuring out word meanings and most effectively meanings of particular verbs, by looking at the syntactic features of the utterances. Okay? I'll elaborate on this a little bit in more detail, say for example, why nouns do refer to concrete directly observable objects, verbs as I was saying in, in the earlier section, required the child to understand the speaker's perspective orphan event if I am saying the cat is chasing the dog versus, I am saying a dog is being chased by the cat or the cat is fleeing the dog you know, there's an example that duck bleak age there a rabbit or the rabbit bleak age it's the duck, can actually be different thing the, the number of words, the, the exact identity of words in the two sentences is the same. Okay? But the duck bleak age the rabbit has a completely different meaning as compared to the rabbit bleak age the duck and the child if he or she has to figure out what bleak its mean, has to really figure out both, of the actor and the patient and the perspective with which I am saying this sentence. Okay?

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So, this is a little bit problematic, now you see and as we've discussed the point in say method cannot really explain how to you might be learning the meaning of words, chase or flee or by this something known as the passive voice kind of thing, because the context of the event does not provide enough information they are just, listening to somebody say the sentence and they're probably looking at the event happening in real time. How are they going to make this correspondence? Now one of these hypotheses is referred to as the syntactic bootstrapping, hypothesis which says that syntactic properties of utterances can help children figure out, what whether a particular word is a noun or a verb and what is that specific action that is denoted by this specific verb. Okay?

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- Syntactic characteristics of utterances can support meaning inferences in a number of different ways.
 - When children look at a still picture of someone cutting cloth with an unfamiliar tool, and they hear, *In this picture, you can see sipping*, they infer *sipping* as a verb, and that it refers to the cutting action. On the other hand, if they hear, *Can you see a sip?* Then they might infer *sip* as a noun, i.e. the scissor.
 - The syntactic properties of the utterance can provide further cues, which help to classify the specific nouns as either being in the count noun category or being in the mass noun category.

Let us look at this into a little bit more detail, now syntactic utterances it has been said may support meaning inferences in a variety of ways. Okay? For example, when children look at a straight picture, of someone cutting a cloth and the here ascendance like this can you, see this person sipping. Okay? The idea is that when you say sipping something, that's happening in the end and has ING sort of continuous sense to it the child, will make sense that. Okay? Sipping is probably this act of cutting and will make their correspondence, however they hear the somebody saying, can you see a sip in here then probably what the child will interpret a sip is probably some object and then object, there's only one object in the picture which is the scissor. So, the child is going to correspond the name sip with that scissor and then that is how the correspondence will be established, eventually say for example children also kind of 10 you syntactic cues, to figure out whether nouns in question are countable nouns or their mass nouns and so on and so, forth.

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- Children, also use syntactic properties, of verbs to figure out what verbs mean (Fisher, 2002).
 - Children pay attention to the verb *subcategorization frame*, i.e. the number and kinds of partners that verbs may have in a particular sentence. Consider the following:
 - *She blicked.*
 - *She blicked her.*
 - In the first sentence one can interpret, *blicked* as a *intransitive verb*, while in the second sentence the same word shall be interpreted as a *transitive verb*.

Should also say for example pay attention to syntactic characteristics, for example the subcategorization frame what is the sub categorization frame? For a verb the subcategorize frame basically, means the number and the kinds of partners, that the verb occurs wait. So, we know that say for example in elementary grammar you would have known, that say for example there are verbs of different kinds there are transitive verbs. So, she slept and there are intransitive verbs, she slept on a couch. So, the verbs can come with objects or without objects, never more a better example could be she cut, she could not have cut without something or so, you would say she cut by the scissor, she pound a nail using in hammer so, you see that the kind of partners that the verb is coming with now might offer you a clue as to what kind of word are we talking about and this is the proposition here, that in the first sentence you can see this example she blicked was as she blicked her, both are from Traxler so in the first intense blicked will be interpreted as an intransitive verb versus in the second example the verb blicked will be interpreted as a transitive verb and there's also some useful information for the child to pick up, in order to better understand the meaning of the verb and the kind of the work that is. Okay?

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- How do children figure out the syntactic cues?

- Fisher & colleagues (Fisher, 2002) propose that children develop an organized conceptual representation of a viewed event, and when they hear descriptions of the event, they associate the linguistic units with the elements of the non – linguistic structured conceptual representation.

So, how are children figuring out the syntactic cues, there is a proposition especially by Fisher and colleagues who've worked in this area for a long time? Fisher says that children develop organized conceptual representation of the viewed event and when they hear descriptions of the event they associate the linguistic units, of with the elements of the non linguistic unit. So, this thing is referred to as alignment and what alignment basically means, is that when children are looking at the world around them and they are hearing people's description of the world around them, what they're doing is they are building a conceptual representation of the event as it is taking place and they align the conceptual representation of the event as is taking place, with the linguistic units that they are hearing and what they do is they try and align the two they try and match, the two things and on the basis that they try and match the two things, that is how they try and infer the meaning of specific words, in that linguistic message that's precisely what is happening here.

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Take home message...

- Children use a variety of techniques to make sense of the words they hear.
- They most probably use a combination of some innate knowledge and/or general purpose learning mechanism.
- Also, they use several strategies to home in on the correct meanings of words, from a set of possible candidates.

So, that was all about words. Let us come at some of the conclusions or the take-home message, what did we learn today? We learned that, children might be using a variety of techniques, to make sense of the words they hear. They probably use sort of a mix of some innate knowledge and some learning mechanisms to kind of come into a particular target and what that particular target word means. And also that they use some helping strategies, say for example; either syntactic bootstrapping or narrow exclusivity or principle of contrast in order to finalize that. Okay? This is the target word that is in question and this is exactly, also speaking this is very close to the word, that this word means. Okay? So, that is all for today. We are left with one more lecture, wherein we will talk about, morphological and syntactic knowledge. Thank you.