

**The Psychology of Language**  
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**Lecture No. – 14**  
**Discourse – I**

Hello friends, welcome back to this lecture number 14 on discourse on the psychology of language. Now, the topic of today that we are going to discuss is about discourse and discourse is the highest level of language. So, let me first introduce a little bit about discourse, then we will take a journey back on to what we did up till now, and then from there on, once we finish the journey, we will start today's lecture and start discussing things about discourse. As I said, discourse is the highest form of language.

We all have been in situations where we are riding elevators with people we do not know and still we have to make conversation with them. As children we have been taught not to talk to strangers, but among friends we do a lot of talking. And this form of talking where we share ideas between people, they basically comprise of what is called discourse. Now, discourse as I said is the highest form of any language where you not only put your phonemes and morphemes and words and sentences together.

But these sentences are then exchanged between people. Now, the discourse that we talked about is generally in two forms. We have something called the narratives in which one person speaks and other person listens to them. And the other form of discourse is called conversation where there are a number of interlocutors which basically means that a number of people speak among each other, taking turns for the speech.

So, basically, then speech is using language to exchange ideas, whether it is exchanging ideas in scientific conferences, or it could be normal chit chat that we do in everyday life. Discourse is the key to all form of human communication. And so, what we will be doing today is we will be looking at what is discourse. We will be evaluating its various features and this lecture then will very well meld into another lecture which election number 15.

We will try and cover the whole of discourse. And basically we are interested in the psychological aspects of discourse. Now, before we start today's lecture and start looking at

what discourse is in its basic form, let us take a look back into where we started off this whole series of psychology of language. We started out by looking at the very basic of language.

We were interested in finding out what is the very basic form of language. So, there we focused a little bit on animal communication system which is a very basic form of language and we started evaluating this animal communication system. Why do animals communicate? We studied various reasons of why animals communicate and what is the form of this communication and what kind of ideas can be exchanged is what we focused on.

Now, once we looked at the animal communication system in a little bit detail and the characteristics of such a system, we moved on to looking at how the human language is made up of, and we started studying the basics of the human language system, a little bit into the human language system. We did that in order to make the distinction between any animal communication system which is the basic form of communication and how does it differ from the animal communication system.

So, we looked at how the phonemes meld into morphemes, to word, to sentences, to discourse, and how this whole situation moves right from ground up from the speech sound to using words to form symbols, and using these symbols into sentences and exchanging ideas. We also went down the path of looking at how language evolved right from the very beginning. So, we looked at the evolution of language and we studied various possible ideas which predict how language actually evolved.

So, we looked at the idea how it evolved and how it would have evolved from the proto-humans, from the great great grandfathers that we have and how the possibility of language would have developed or how language developed. We also looked at two theories, the rapid and the non-rapid theory of language evolution. One theory says that language evolved very rapidly. The theory says that language evolution was a much slower process, and so through a slow process of evolution from one stage to the other stage language would have evolved.

And the last thing that we did was we looked at some evidences, the fact that language would have evolved from our ancestors. And so, some of the evidences that we focused on is the idea of the proto-language which were used by our ancestors and the idea of pidgin which

basically suggests that language would have evolved from the very basic ideas or very basic concepts or very basic systems.

Now, once we were sure of how language would have evolved and we went down the memory lane looking at the history of language, human language systems, we move into understanding how research in language is done, that is the science of language. And so, there we looked at what is the scientific method, what does scientific method composed of. We looked at how theories are built, how hypotheses are said, observations collected, and these observations tested.

So, basically using both induction and reduction method, how do we do research in in any behavioral sciences in general and language for specific. We looked at what kind of experimental designs can be used in language studies and we discuss the basic of experimental designs, both within subject and between subject designs. We focused on to something called the various behavioral techniques which are used for measuring or experimenting with language.

We looked at what kind of dependent variables, what kind of effect variables we can use in language studies. And we focused primarily on latency which is the reaction time and the accuracy which is how correct somebody produces a particular sentence or word or, for that matter, anything, the correctness of any event and these two as the basic idea of how language research is done, what is measured in language research.

And lastly, we focused on some of the facts, how language and brain are related. So, we looked at those areas of the brain, especially focused on the Broca and the Wernicke area of the brain and how they are related. And we also looked into some of the newer techniques of studying language using the brain measurement, for example, the EEG and MRI. Now, once we had some idea of what language is all about and how research in languages done, the next phase was looking at what is the basic unit of language.

And so, the basic unit of language is the sound, the sound wave. And so, the next interest, of course, was how these sound waves are captured and processed and another interesting thing was how they are produced. So, because the sound waves are what is analysed by humans, and the sound waves are what is processed and meaning generated out of it. So the whole

idea of language is build around the sound waves and so we were interested in looking at how and what are the various features of the sound waves.

So, we started looking, in the third section, into what is auditory perception. So, we looked at the basic of sound waves, how the fundamental frequency, the overtones, the amplitude and frequencies, and what they mean for the perceiver or for the person who is hearing the sound wave. We also looked at the construction of the human ear which basically hears the sound waves and how meaning is extracted out of it or the change in the sound waves are extracted and interpreted in the brain.

Then we looked at what the speech stream is consisting of. So, once we have the sound wave, once we make speech, what does it composed of? So, we looked at the typical example of a spectrogram. And from the spectrum we looked at what the spectrogram reveals. So, we looked at things like how the plosives, the fricatives, these are basic speech patterns which human beings produced in terms of the basic speech sound that they produce.

So, how these are produced and how they are interpreted and that was of interest to us. And lastly, we looked at the development of speech perception. So, how did speech perception actually developed in human beings, that was of next interest to us. And so, we looked at things like several models of speech perception, development, and what these models were, about how baby talk and how learning in the womb, how these things suggest how infants learn to perceive speech.

The idea of a baby talk, the idea of other narrowing down or speech or this kind of evidences provide how the infants actually learn to perceive speech. And lastly, we looked at some theories of speech perception. So, basic interest for us was in the motor theory of speech perception, the idea of the general auditory framework of speech perception, and lastly, the idea of direct realism which explains how speech is perceived or theories which explain how perception of speech takes place.

Now, once we had this idea about how speech is perceived, we moved on to looking at how speech is produced because that is the most logical thing to look at next. So, we looked at the idea of how the vocal tract is composed of and how it makes sound. Then, we were

interested in looking at speech areas of the brain. So, what are the different areas of the brain which produces speech?

The most interesting area was the interaction between the Wernicke area and the Broca area and we looked at the models of Geschwind Wernicke model which explains how speech is produced. We looked at how consonants and vowels and other basic speech sounds are produced by the human vocal tract and human vocal system. Then, we got interested in looking at what are the various models of speech production.

And the models that we looked into detail were the feedforward and feedback control model, the auditory suppression model, and we looked at the dual stream model, and the DIVA. DIVA is a more computation model. So, we looked at these four models in detail which basically tells us how our speech are produce or gives us an idea of speech production. And lastly, we looked at how the development of speech happens in children.

So, we looked at evidences from babbling, the frame and content model, and social aspects of babbling, speech delays and disorders as evidences of how development of speech happens in smaller children. Now, once we had this idea of how speech is not only produced but also perceived, the next important thing was looking at when these p sounds are comprised together, the basic phones that we are talking about, what do they make? And the answer to this is the mixed words.

So, the next obvious idea was looking at what are words and what do they mean? So, how words are used and what is the meaning of word? Now, since word is a wave station between higher order cognitive processing in language and lower order basic cognitive processes, so we dedicated on three basic sections or three basic lectures into studying words. The first thing that we did was we looked at the anatomy of a word.

What are words and what do they mean? And so, we looked at what does words symbolize. The various forms of word, for example, the content word and the functional word. We looked at some forms of word which are shapeshifters and we also looked at how the phonology of the word really works, for example, how are syllables divided into the onset and the rhyme, and the rhyme basically then divided into the nucleus and coda.

So, we looked at how the word means various symbols, so in detail, what does it mean or symbolism of word. Then, we looked at how words are learned, because that is one of the thing, and so we found out that there are various theories suggesting that words are learned either on a curve which basically means that initially you learn slowly and there is a growth spurt in word learning and then this drops off at some point of time.

We also looked at the fast and slow method or slow proposals of word learning and how other words within the neighborhood of words actually help us in learning words. The next obvious thing to look at was how words are stored, and there we looked at the word storage problem. So, we looked at the storage of word in terms of the phonological form and in terms of the pronunciation of the word and in the meaning form.

So, we looked at how the mental lexicon is arranged and how this mental lexicon and the cortical arrangement of this mental lexicon stores different words into the human brain. And lastly, we were interested in looking at once stored how these words are retrieved. So, we looked at the various methods of spoken word recognition, spoken word production, and models like the Levelt, forward model, and the Dell interactive model.

They suggests how the words are either retrieved back in terms of a feedback, feedforward connection, or in terms of interactive connection. Once the words are there, or we understood what words are, the next obvious thing was how these words are joined together to form sentences and what is the meaning of sentences, what are the use of sentences. So, we started looking at the sentence structure, what is sentence and what is the sentence structure look like?

We looked at how the thematic roles are given to various parts of a sentence, for example, the agents and the patients, and how the subject-verb-object, the SVO format is used by the English language for explaining different words, how clauses and phrases are made and how these clauses and phrases provide the syntactic structure of any sentence. We also looked at how complexity is added into the syntactic structures of sentences.

Next we were interested in looking at how sentences are comprehended. And so we looked at the idea of the garden-path sentence which gives us some mechanisms of how the sentences would have been comprehended. We looked at several heuristics which are used

by people to comprehend sentences. For example, the late closure theories, the minimal attachment theories, and the priming and anticipation as heuristics for understanding or comprehending sentences.

Next, we focused onto producing sentences, of how the vertical and horizontal flow of information helps us in producing different sentences. We looked at the parallel and interactive model of sentence productions and scope and visual attention, the role of these two factors into production of sentences. And lastly, we were interested in learning the syntactic structures of sentences.

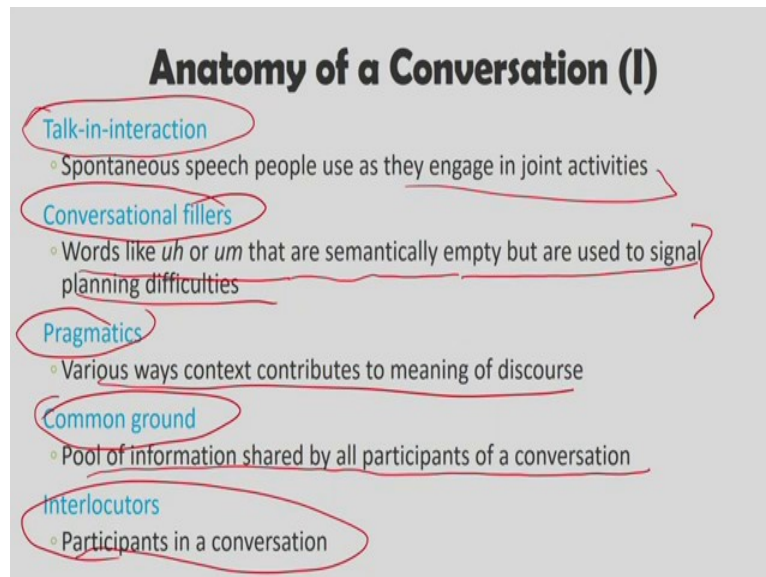
So, we looked at how children crack the code of understanding the syntax, how they learn the syntax of a sentence, and how this syntax learning helps them in generating meaning from sentences. And now, we come to this present lecture where we are looking at what are discourse. And as I explained discourse is the highest form of language. It is basically talking among people, exchanging ideas among people.

So, if you look at figure skaters around the world and when they skate they are in perfect synchronisation. Similarly, when people talk, they are in perfect synchronisation with each other which means that when I speak something the other person who is speaking back to me we are both in the sync. The moment we get out of sync the conversation cannot take place.

And so for any conversation to take place whether it is a conversation where many people take turns and speaking among themselves or it could be a narrative in which one person is speaking and the other person is listening and waiting for his turn to may be speak or waiting for the conversation ball to drop, so in both these cases you see that there is a perfect synchronisation.

So, how does the synchronisation takes place or how the synchronisation is achieved. That is a wonder to be looked at, because if you look at figure skaters the synchronisation that they actually do in figure skating it takes hundreds and thousands of hours of practice before the synchronisation happens. But for us as human beings talking amongst each other and making synchronisation is the easiest thing to do. So, an interesting thing will be looking at how the synchronisation really works.

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And for doing that, let us start by looking at the anatomy of a conversation. Let us break the conversation down and look at how the anatomy of a conversation is. So, conversation is what language is all about. As I said, most conversations are the basics of any language. Now talk-in-interactions or the spontaneous speech people use as they engage in joint activities is the main function of any language.

So, basically talk-in-interaction is the main use of any language. And what is this talk-in-interaction? It is the people talking among each other or the speech that people share among each other when they are doing any joint activities. You would know that conversations are more than sentence production because alternate people need to speak. So, just sentence production is one part of conversation.

The other part of conversation is also hearing this sentence. So, production and reproduction, basically, hearing somebody else and reproducing the correct answer is what conversations are all about. Now, most conversations are in incomplete and ill-filled utterances as a norm. So, conversations have ill-defined sentences, ill-formed sentences, or incomplete sentences. Now, this happens because we never plan.

When we are conversing we never plan ahead. We never plan actually what we are going to talk, and so we often experience processing delays during which we buy time for talking or what next segment should come or what next idea should be floated. And so, this time that we take in any conversation, the break that we take in at any conversation is filled up with something called conversation fillers.



And so what are conversation fillers, these are words like um, ah, and so on and so forth that are semantically empty but are used to signal planning difficulties. Basically that is what it is. Now, although these words they seem to disrupt syntactic structures, conversational fillers are actually beneficial to both the speakers and the listener. So, how are conversation fillers actually beneficial for both the speakers and the listeners.

The idea is that it gives the speakers time, it provides the speaker enough time to think about what has to be said and it also gives the listeners some time to anticipate what is coming next. And so, it is actually beneficial for both the parties in a conversation. Now, ill-formed utterances in conversation also result from planning as we have put here. Often speakers would simply drop a structure, a sentence structure, in mid sentence and start a new sentence.

And other times the speakers will proceed with an errant sentence attempting to steer it back to the intended message by taking on additional phrases and clause. This kind of interactions that we have is the hallmark of any conversation. Now, most of the meaning of a conversation does not reside on the semantics. When we are conversing, we are not actually looking for meaning in conversations.

In general conversation we generally do not dig too much for meaning and sometimes we have ill-meaning sentences or ill-meaning empty sentences also in conversations. So, what is then the main aim of a conversation? The most beneficial or the most desired part of a conversation resides in the pragmatics of the situation in which the conversation actually is taking place. So, semantics is not actually very important in our conversation.

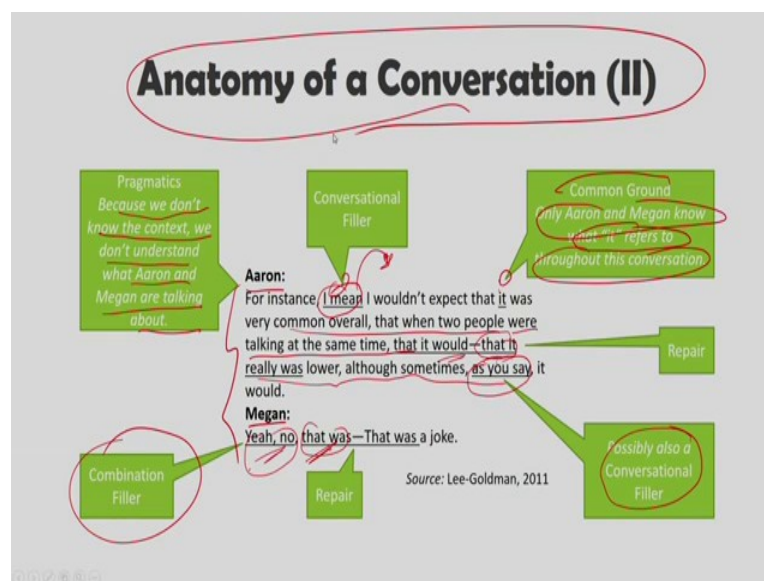
What is important in the conversation is the pragmatics of it. And so, what this pragmatics? The pragmatics are the various ways context contribute to meaning the basic discourse, right? And so, many of the content words in a conversation serves as indices to entities and events that the participant knows about. When we are conversing basically what we are doing is we are conversing, and so this conversation stands on something called common ground and what is common ground?

Common ground is the pool of information shared by participants on the conversation. So, most conversations actually use something called common ground. Why is this common

ground necessary? It is necessary, because of this common ground the interlocutors which are the speakers in the conversation or the participants in a conversation can be brief and vague in their references.

Now, interlocutors or participant in a conversation can be both brief and vague, why they can do that is because they have some kind of a common ground. They have some kind of background knowledge of what is being talked about, and so empty oh, yeah, or that kind of filler conversations can also be used. Not all conversations should have the semantics.

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Now, when we are conversing any hallmark, so I have an example of a conversation here and you can see two people Aaron and Megan are talking. For instance, I mean I would not expect that it was very common overall, that two people were talking at the same time, that it would – that it really was lower, as if people are gone. Now, if you look into it, this is the common ground. Only Aaron and Megan know what it refers to throughout the whole conversation.

If I present this conversation to people, this written text of a conversation to people, it is very difficult to understand what is happening. Now this meaning of it is only shared by these two people. Also, the use of I mean here is actually a conversational filler. So, this will give you an idea of what conversational fillers are and pragmatics is basically, because we do not know the context we do not understand what Aaron and Megan are actually talking about.

And so, that is why pragmatics is actually more important. So, what the words are saying is not important, the semantics is not important, the pragmatics is important. Also we have something called combination fillers. Here, for example, yeah, no, that was, all these are actually fillers that are used, and so, when I said no I do a repair of that using that was. Also possibly a conversation filler, as you say here is a conversation filler.

And here is the repair because I am trying to repair a sentence that is it really was lower. So, part of a conversation has happened and I am trying to repair it and that is what it is. As you can see the anatomy of a conversation, this is what the conversation is all about. When we converse people are interlocutors they talk to each other and this is how they actually converse.

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### Turn Construction

- Turn-constructual unit**
  - Syntactic structure, ranging from single word to sentence
  - Makes up a turn in a conversation
- Transition relevance place**
  - Point in conversation where listener can expect current speaker to end turn
  - New speaker might start turn, but current speaker might continue

The hallmark of any conversation is the seamless transition from one person interlocutor to another as people take turn in conversing. Now, how is this turn decided or how is this turn constructed? Now, listeners predict when the current speaker will end in his or her turn and begin planning the response before the speaker's turn ends. Now, in any conversation most listeners actually have to do this predicted job of when the person who is conversing or who is speaking will stop and what kind of responses should be made.

And so this is called the turn construction. Now, conversations are composed of something called the turn conversational unit or turn conversational segment. Now, turn conversational unit is generally a syntactic structure ranging from single word to a sentence, and what it can

do, it can make up a turn in a conversation. So, it will tell you where the conversation breaks or how is the response.

So, when somebody stops in a conversation, what kind of responses has to be done. So, turn conversational unit is that particular thing, it is the syntactic structure which could be one word or sentence which actually tells you that a turn in a conversation has actually approached. Now, turn can consist of more than one turn construction unit but turn transitions generally occur between and not during them.

So, it can have one or more than one turn construction unit but this turn happens in between. Now, the end of each turn conversational unit consists of something called a transition relevance place. In a turn in a conversation, if this is my turn, the end of this turn conversational phrase, this phrase marks the end of my conversation, let us say, now after this it consists of something called the transition relevance place.

Now, what are transitional relevance place? The end of each turn construction unit it consists of a transitional relevance place. So, at this point I have something called the transition relevance place. This point is called actually the transition relevance place. So, what is it? Transition relevance place is basically a point in the conversation where the listener can expect the current speaker to end the turn.

So, it is that point in a conversation which is marked by something called a turn construction unit. And this place marks the end of a sentence and now next speaker should start. So, point in conversations where the listener can expect current speakers to actually end their turn. New speakers might start turn but current speakers might also continue. So, syntax, semantics, and prosody, all signal approaching transitional relevance places as the current sentences come to a meaningful conclusion and the speaker's intonation falls.

So, basically, the falling of an intonation of a speaker marks this turn relevance place, but that is not the only thing. Both the syntax, the semantics, and the prosody all of them give some kind of a signal of when this ending in transition is actually happening.

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## Turn Transition

**Principle of no gaps/no overlaps**

- General rule in turn transition:
- Don't leave noticeable silence between turns
- Don't begin new turn before current turn is finished

**Backchannels**

- Signals like *mmhmm* and *uhhuh* from listener
- Indicate engagement, encourage speaker to continue

**Overlaps**

- Instances when multiple interlocutors speak at same time
- Competition among interlocutors → Negative interpretation
- Solidarity among interlocutors → Positive interpretation

Long gaps  
awkwardness  
RR

Another interesting fact of a conversation is something called turn transition. And so, what is turn transition? Turn transition from one speaker to another, how one speaker and when one speaker stops and the other speaker takes over, this turn transition from one speaker to the next generally follows the principle of no gaps or no overlaps. And what does it mean? It refers to the tendency to avoid leaving a noticeable silence between turns of conversation and the beginning of a new turn before the current turn is fixed.

So, basically, what is this no gap rule? It says that the tendency to avoid leaving a noticeable silence between turn of a conversation and the beginning of a new turn before the current turn is finished. So, principles of no gap or no overlaps is the general rule in turn transition and what it says is do not leave noticeable gaps between turns, also do not begin new turns before the current turn is actually finished.

And so, this is the rule that is actually being used. Now, longer gaps are perceived as silences and they can be interpreted as a hesitancy or awkwardness on the part of a speaker. So, if you have long gaps in conversation, these can be interpreted as awkwardness, sometimes awkwardness on the part of a speaker. There are also situations when an overlap can happen. So, the overlaps can be interpreted as aggressive and an attempt to dominate the conversation.

So, longer gaps between two speakers or more than two speakers are perceived as awkwardness on the part of the speaker. But if many speakers start or two or more speakers start speaking at the same time or you start speaking over someone else, this is interpreted as an aggressiveness or an attempt to dominate the conversation. Now, the overlaps are not

always considered rude. Now, this kind of overlap, two speakers talking at the same time, this is not always negative.

It is not always rude to start speaking at the same time as another person is speaking. Now during a speaker's turn it is common for the listeners to make noises or nod the head to indicate understanding or agreement. Now, these backchannels are signals like mmhmm or uhuh from the listener that indicate the engagement and encouragement of a speaker to continue. So, what are these backchannels? These are signals from the people who are listening to the speaker to continue the speech or to go on with the speech.

So, what are these backchannels? These are signals like mmhmm or uhuh. Now, the listener indicates the engagement and encouragement of a speaker to actually continue. Now, in face-to-face conversations speakers may even turn their gaze towards the listener looking for visual cues of understanding if no vocal backchannel is forthcoming. Now, overlaps are instances when multiple interlocutors or people speak at the same time.

They are interpreted negatively or positively depending on the context. So, these overlaps when many people start speaking at the same time they can be perceived positively or negatively depending on the context in which it is actually happening. So, instances when multiple interlocutors speak at the same time, competition among interlocutors, negative interpretations when people are competing with each other and they start speaking at the same time, this is taken as negative.

But solidarity among interlocutors it is taken as positive interpretations. Now, interlocutors may use a number of visual and vocal cues to signal their interest in taking or maintaining a turn and they monitor these in partners as they constantly adjust their stance towards approaching or withdrawing from a possible turn. So, these are some of the factors which actually explain how the turn transitions happen in conversations.

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## Turn-Taking Rules (Sacks et al., 1974)

1. Current speaker selects next speaker
  - Transition relevance place → current speaker explicitly passes turn to next speaker
  - For example, by asking a direct question
2. Listener selects self
  - Current speaker doesn't select next speaker → any listener may take a turn
  - Multiple listeners attempt a turn → all but one quickly drop out
3. Current speaker selects self
  - No listener starts turn → current speaker may take new turn
  - Cycle between steps 2 and 3 until someone takes a turn

Now, there are certain turn taking rules that has been proposed in many conversations and these rules were proposed by Sacks and others in 1974. Now, what did they do? They proposed a simple model of turn allocation. This model has since received considerable empirical support and is now generally accepted as a standard model of conversational turn taking.

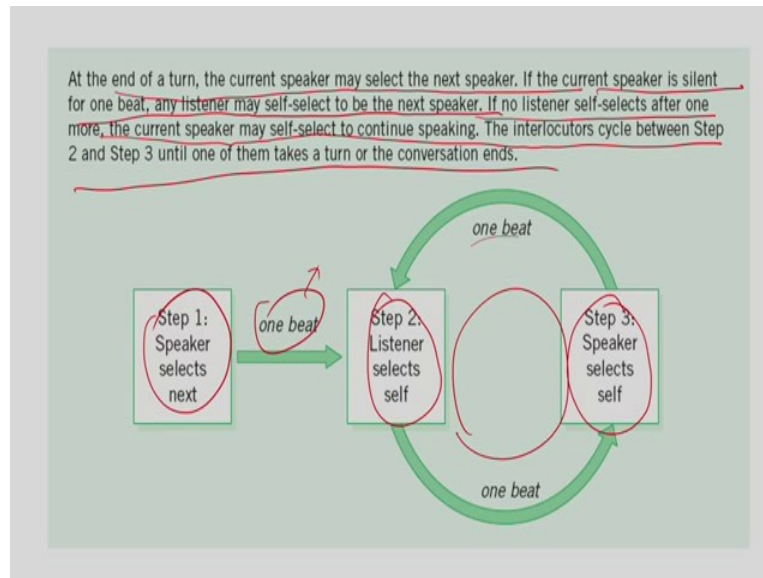
And so, what is this model? The model consists of three simple rules that are applied in strict sequential order. And so, what are these rules? The first rule is called the current speaker selects the next speaker. Now, in this case, what happens is the transition relevance place, current speaker explicitly passes turn to the next speaker, for example, by asking a direct question.

In the transition relevance place the current speaker explicitly passes the turn to the listener, and this can happen in terms of asking a question. The next step or the next rule that we use is called listener selects the self. Now, if the current speaker does not select next speaker, any listener may take up the turn, multiple listeners attempt a turn but all but one will actually stay and others will drop out.

Now, if the current speaker does not select any speaker, any listener may take up the turn. Now, this does raise the possibility of overlapping turns, but usually all but one will remain and all other people speaking will drop out. The third rule is called the current speaker select self and in this what happens is if no listener starts the turn, the current speaker may take up a new turn.

Now, if the speaker chooses not to take a turn, the process or cycle from step 2 to 3 until someone takes a turn is actually repeated. And so, these are the basic turn taking rules. So, either the current speaker selects a new speaker, that could happen, or a listener selects himself saying that I will take the turn, and if nothing happens, then the current speaker selects the self as the speaker. And if that does not happen, then 2 and 3 step is actually continued.

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And so, this gives you an actual idea of what is happening. So, you are step 1 where speaker selects the next, one beat. One beat is exactly kind of one fourth of a second, the time it takes for you to take the decision. Now, step 2, listener selects self or speaker selects self, and if nothing happens, then you keep on revolving between one and two. As you can see, at the end of the turn, the current speaker may select the next speaker. If the current speaker is silent for one beat, any listener may self-select the next speaker.

And if no listener self-selects after one more, the current speaker may self-select to continue speaking. The interlocutors cycle between step 2 and 3 until one of them actually takes the conversation.

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## Synchronizing Turn Taking

### Beat

- Average time it takes to produce a syllable
- As set by speaking rate of last turn
- Timing of steps in turn taking

### Entrainment

- Synchronization of rhythmic behavior in social interactions
- Interlocutors sway bodies in unison, match breathing rate, pitch, rhythm, loudness

### Endogenous oscillators

- Neural circuits that fire at regular intervals
- Serve as internal timekeepers for the brain

Now, how does we synchronize this turn. Now, it is important to understand that these steps in this process are played in real time with each cycle extending the length of silence which basically means that each step takes up a certain interval of time which is known as a beat. So, what is beat? The beat is the average time it takes to produce a particular syllable, now, as set by the speaking rate of the last turn and timing of the steps in taking turn.

Now, this beat is generally thought to be the average time it takes to produce a syllable as set by speaking rate of the last turn. So, how does the synchronization happen? Participants in a conversation they synchronize their behavior at a number of levels. First, they tend to sway their bodies in unison and listeners match their beating rate to that of the speaker especially in transition relevant places. Alternatively, speakers can also tend to match the other in terms of the pitch, in terms of the rhythm, and in terms of the loudness.

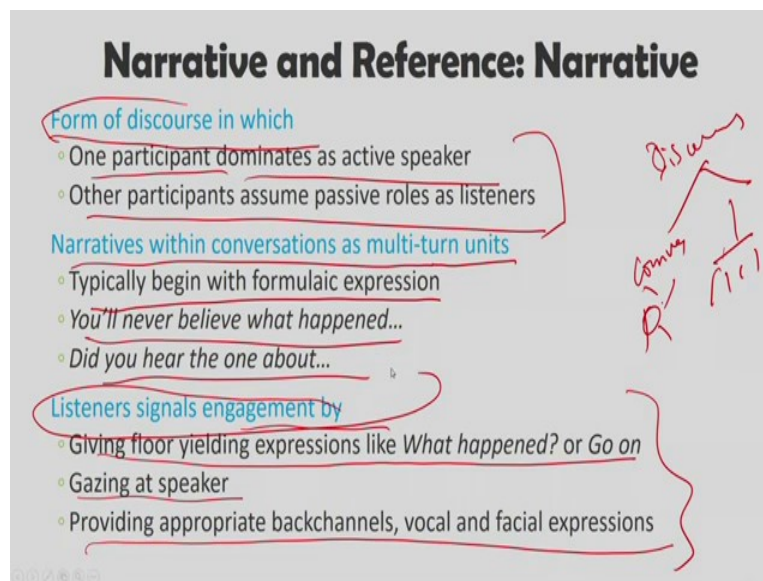
The synchronisation of rhythmic behavior in social interactions are known as something called entrainment. So what are entrainments? Entrainments are synchronisation or rhythmic behavior and social interactions and interlocutors sway bodies in unison, match breathing rate, pitch, rhythm, and loudness. Why it is done? So that the speaker and the listener they maintain some kind of synchronicity, they make some kind of a unison among themselves so that everybody is on the same page kind of a think, they synchronize.

Now, how does this synchronisation happens? It is believed that entrainment results from the activation of something called the endogenous oscillators in the brain of the interlocutor. Now, endogenous oscillators are neural circuits that fire at regular interval and thus serve as

internal timekeepers of the brain. So, what are these endogenous oscillators? They actually help in maintaining this entrainment. So, these are neural circuits that fire at regular intervals and they serve as internal timekeepers for the brain.

Now, entrainment occurs when the firing rate of endogenous oscillators in the listener's brain match to that of the speaker's as communicated through various visual signs that vocal signs. So, that is when the entrainment actually happens.

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So, this is the little bit about how conversations actually work, or what is that rules are taking conversations. Now, let us take a look at what are narratives and how narratives and references actually work. Now, a conversation is a form of a discourse in which all participants contribute to its ongoing construction. So, everybody is taking part in the conversation and everybody is constructing the conversation.

Now, in contrast to that, we have something called a narrative, which is a form of discourse in which one participant actually dominates as the active speaker, while the other participant they assume the passive role as a listener. That is what narratives are mostly about. The most extreme example of a narrative would be a speech or a lecture where the audience is sitting quietly while the speaker is talking.

So, let us now look at the various forms and the various variables which affect narratives and then let us look at the nature of narratives to start with. Now we can think of narratives within conversations as multi-turn unit. Now this would be a narrator typically indicates the

beginning of a narrative with a formulaic expression such as you will never believe what happened to me this morning, or did you hear the one about.

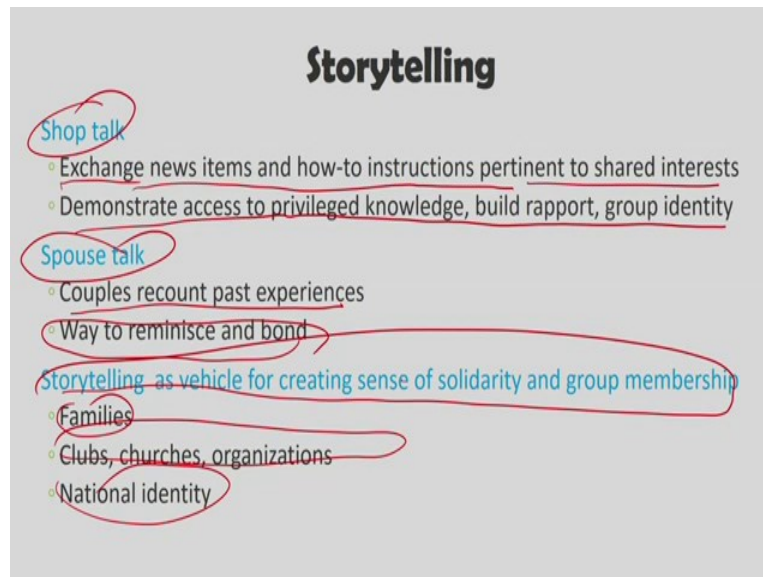
Now, in response, the other interlocutors show their willingness to yield the floor perhaps with an expression like what actually happened, and so this is how the narratives tend to actually floor. Now, what is narrative, it is a form of discourse in which one participant dominates as active speaker and other participants assume the passive roles. As we said, most discourse are of two types. We have something called a conversation where everybody is participating and a narrative when one person is speaking and others are listening.

So, what are narrative within conversations? Inside the conversation the narratives are multi-turn units, typically beginning with formulaic expression, for example, you will never believe what has happened or did you hear the one about something something and this is what it is. And in response to interlocutor show their willingness to basically yielding the floor to the person who is creating the narrative.

Now, as the narrative progresses, the listeners take a more active role. They provide vocal and facial expressions such as gasps and winces, adding an emotional layer to the story's content. Now, listeners will also interject briefly comments like yeeks, yikes, and oh no at appropriate places in the narrative, and they make even supply words or phrases when it appears that the speaker is actually struggling to further the narrative. This way, the listeners are active collaborators in building the narratives.

So, listeners signal engagement by giving floor yielding expressions like what has happened or go on gazing at the speaker and providing appropriate backchannel vocal and facial expressions in most narratives.

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Now conversation partners will often exchange narratives taking turns as storytellers. Most conversation partners they involve this kind of narratives and they keep on taking this turn. Now, shop talk is actually a good example of this particular phenomena. What is the shop talk? When people exchange in shop talk, they exchange new ideas and how to instructions pertaining to the shared profession or mutual interest.

So, in a shop talk people exchange new items and how to instructions pertaining to shared interest. They demonstrate access to privileged knowledge, build rapport and good identity. Shop talk is more than just an exchange of expertise information. It is also a way for participants to demonstrate that they have access to privileged knowledge. Also shop talk helps the participants build rapport and create a good identity.

Another form of narrative in storytelling is called spouse talk, and so what is it? Some narratives do not involve the exchange of any new ideas. An example is the spouse talk and what is this spouse talk? In this what happens is the couples recount the past experiences together as ways to reminiscent and to bond. So, couples recount past experiences together as ways to reminisce and to bond.

So, couples recount past experiences and this is basically a way to reminisce and actually bond. Storytelling is another form this kind of a narrative. So, storytelling is a cognitively demanding task. Storytelling is when one person says a story and the other person is actually hearing the story. Now, more storytelling is actually a very demanding task unlike a lot of talk-in-interactions. Storytelling requires something called decontextualization.

Now, in talk-in-interactions you can actually leave sentences halfway and have sentences meaning nothing, but in storytelling it is a little bit difficult because you tend to require something called decontextualization. And so, what is decontextualization? The distancing of thoughts, languages, and behavior from the current situation. So, you have to distance yourself from current situation, your thoughts from the current situation, and behavior from the current situation, and then only you can do this storytelling.

Now to tell a story you need to be able to relate events in the correct order and suppress unrelated thoughts while detaching yourself from the present moment. So, you not only have to think about ideas which are not pertaining to the present situation, you also need to present ideas in the correct sequence in the correct order, and also you have to detach yourself from the present moment and then come up with a story.

Now telling a story taps into the executive functions of people, for example, memory allocation, planning, inhibition, and other cognitive processes necessary for guiding the intentional behavior. Now, storytelling is a vehicle for creating sense of solidarity among group membership. We have families, clubs, churches, and organizations and national identity and storytelling is basically a vehicle for creating a sense of solidarity.

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### Cognitive Demands of Storytelling

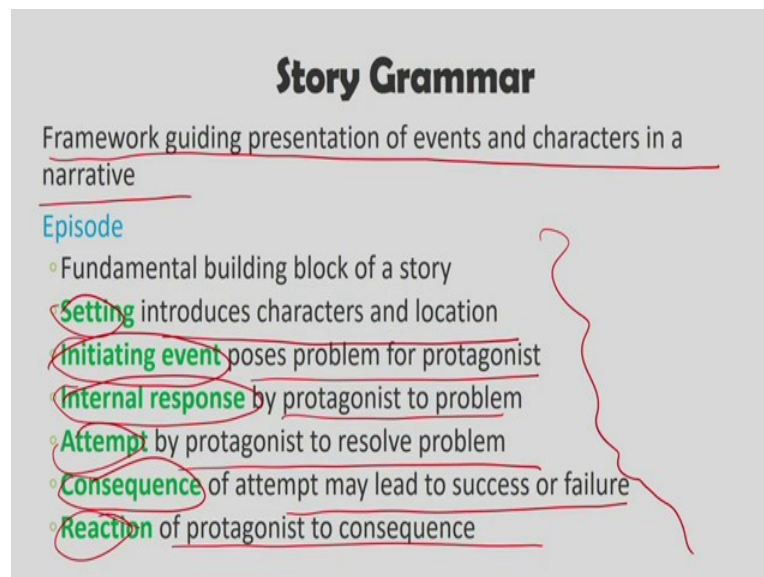
- Decontextualization**
  - Distancing of thought, language, and behavior from current situation
- Talk-in-interaction gains support from context, but storytelling does not
- Telling and understanding stories requires**
  - Detaching from present moment, suppressing unrelated thoughts
  - Memory resources for remembering actors and events in correct order
- Executive functions**
  - Memory allocation, planning, inhibition, and other cognitive processes for intentional behavior
- Prefrontal cortex**
  - Most forward area of brain, responsible for executive functioning

Cognitive demands of storytelling as we saw is called decontextualization, distancing our thoughts, language, and behavior from the current situation. Talk-in-interactions gain support from context, but storytelling does not. Now, telling and understanding story requires

detaching from the present moments, suppressing unrelated thoughts, memory resources for remembering actors and events in correct order.

And executing functions, memory allocation, planning, inhibition and other cognitive processes for intentional behavior. The prefrontal cortex is the most forward area of the brain responsible for executive functioning, and so prefrontal cortex is a major area in storytelling.

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Now, storytelling requires a grammar of its own. And that is called story grammar. So, storytelling may be a highly demanding task, but we can perform it with such seeming ease, why, because narratives are tightly structured. Now, when we tell a story we relate a sequence of events in a temporal logical order. Events have to be fitted into a conversational framework.

That includes a setup and provide background information followed by a sequence of events that lead to that dramatic or amusing resolution of a problem. Now, the framework guiding the presentation of events and characters in a narrative is known as a story grammar. So, what is story grammar? This is the framework which guides the presentation of events and characters in a story. Now, the fundamental building block of each story is called episode. And so, what is episode? It is the fundamental building block of a story.

An episode generally begins with something called a setting which introduces the characters and location. It has something called an initiating event which poses problem for the protagonist. It has internal response by a protagonist to the problem, attempt by protagonist

to resolve the problem, then a consequence of attempting will lead to success and failure, and the reaction of protagonists to the consequences.

So, then, the story begins with an episode and the story grammar explains how an episode is actually structured. As the episode begins with a setting, which is an introduction of the main character and the location where the episode is taking place, this is followed by an initiating event which is the problem or challenge the protagonist actually faces. The protagonist then attempts to solve the problem, and at this point, the internal thought processes of the protagonists are often revealed well.

As a consequence of this attempt, the protagonist will actually either succeed or fail and whatever the outcome, the protagonist will have reaction or consequences. Now, story grammars are related to the more general concept of the schema. We have the schema. If you look at my previous lectures on cognitive psychology or human behavior, we talked about what schemas are.

So, schemas are kind of a framework in which any event can be defined. Now a schema is a mental framework for organising or understanding how some aspects of the world actually work.

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So, talk-in-interaction, the spontaneous use of speech as people engage in joint activities is the main function of any language.

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## Situation Models

Schema

- Mental framework for organizing understanding of how some aspect of the world works

Situation model

- Mental representation of entities and events in a story and how they are related
- "Imagery in your head" as you listen to a story
- Draw on schemas for generating expectations about characters and events

"A priest, a minister, and a rabbi walk into a bar...."

- Calls on schemas about priests, ministers, rabbis
- Also calls on schemas about bar jokes

So, we have something called situation model or references. As a speaker it relates a story, the listener must make sense of it by building a situational model. So, once the listener is actually telling a story to someone, the other person must be able to relate to that story. And how does he do that? By making use of something called a situation model. What is a situation model?

A situation model is a mental representation of all the entities and events in a story and how they are related. So, generally in storytelling you have to have something called a schema, which is the mental framework for organizing and understanding how some aspects of the world works. And what is situation model? It is the mental representation of the entities and events in a story and how they are related, imagining in your head as you listen to the story.

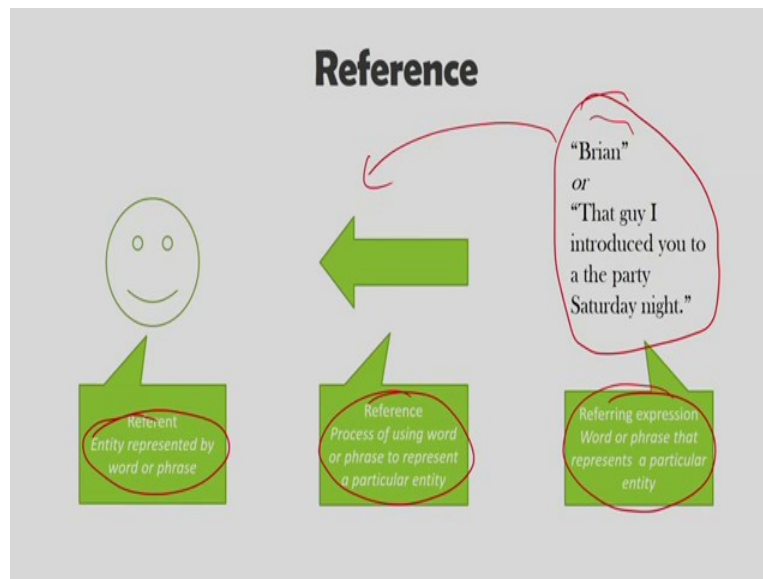
Situation model is the imagery that one creates in the head. Also, situational models are more than just imagery as they draw upon the schemas already stored in the long-term memory. Draw on the schemas for generating expectations about long-term memory. Suppose your friend begins a joke with the line, a priest, a minister in a rabbi walk into the bar, you immediately call up the schema about the priest, the minister, and rabbi which includes information about how these people look and actually behave.

You also activate something called the bar joke schema which suggests that the bartender may have played a role in the punch line. All this information goes into the situation and model you construct and you listen to the story, oh, yes, as per the punch line. The bartender looks at them and says, what is this, a joke? So, basically a priest, a minister, and rabbi walks



into the bar, you recall on the schema of the priest, minister, and the rabbi, and also calls on the schemas about bar jokes and that will actually tell you how do you listen to this.

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So, this is about references. Now, the speaker also has a situational model and use it to construct the narrative. Thus, the purpose of a narrative is to transfer the situational model from one mind of the speaker to the mind of the listener. Now, to do this, to transfer the model of the story from the speaker to the listener, the speaker needs to choose the words very carefully.

Words and phrases stand for or refer to the entities and events in the world, which is either real or imagined, but any particular event or entity can be referred to by many different words. Now, a word or phrase that is used to represent a particular entity or event is actually known as a referring expression. So, Brian or that guy I introduce you to that particular party, this is basically a reference.

What is referencing is basically how we share expression. Now, a word or phrase that is used to represent a particular event or entity is known as a referring expression. The entity that is represented by a particular word or phrase is called the referent and the process of using a word or phrase to represent an entity is actually known as referencing. So, referent entity represented by word or phrase, reference is process of using the word or phrase to represent a particular entity, and referring expression word or phrases that represents a particular entity.

When speakers select referring expressions they consider what is called the common ground, that is knowledge they share with the listener, and the privileged ground that is the information that one interlocutor knows but the other does not know.

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## Relevance

- Common ground**
  - Information shared by all interlocutors
  - However, both speakers and listeners often overestimate common ground
- Privileged ground**
  - Information one interlocutor knows but the others do not
- Relevance theory**
  - Crafting referring expressions → strive for balance between too much and too little information
  - **Optimal relevance**—neither too precise nor too vague

So, we use something called relevance in a story. So, referencing is not the only thing, we also use something called relevance in storytelling. And so, in storytelling when people are sharing ideas among each other we use something called the referring expressions, and they consist of what is known as a common ground and the privileged ground. So, what is common ground?

The information that is shared by all interlocutors in telling story that has to be part of the story that everybody shares and this has to be part of the story that only the speaker shares, because then only the story would move in a direction. So, information which is shared by everyone is called the common ground. Information shared by all interlocutors. However, both speakers and listeners often overestimate the common ground. We have something also called the privileged ground.

This is the information one interlocutor knows but the others do not know. And so, we have something called the relevance theory also. So, how speakers distinguish what is common ground versus privileged ground is a matter of some debate. Some researchers argue the speakers make inferences about listener's mental states, but others researchers they maintain that speakers rely mainly on the memories of something called shared experiences with the listener to gauge the common ground.

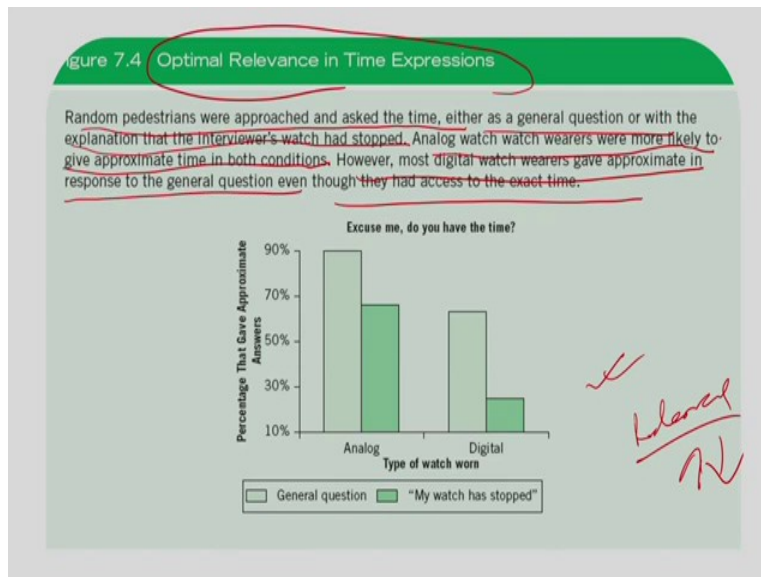
Now, there is another fact which is used in storytelling and that is called the relevance theory. And what is the relevance theory? It is proposed that speakers try for a balance between providing too much and too little information in choosing a reference expression. Providing more than enough information especially when an entity is first introduced into a narrative may help the listener identify the referent faster although overly specific referring expression later in the narrative can actually hinder comprehension.

The speakers they tend to aim for a happy medium that minimizes the production of effort on their part while maximizing the comprehension effort on the part of the listener. Where the happy medium lies depends on the particular situation. So, what is relevance theory? It is crafting referring expressions that is striving for balance between too much and too little information.

We generally focus on something called the optimal level which is called the minimal level. So, optimal reference level is neither too precise nor too vague. To test the hypothesis that speakers aim for optimal relevance, neither too precise nor too vague in crafting expression gave birth in 2008. They approach people and ask for time. They noted that persons were wearing digital or analog watch, and in some cases they also explained that their watch had stopped, thus implying that the exact time was actually needed.

Now, analog watch wearers were more likely to give rounded answers such as about quarter till two, whereas digital watch wearers in both groups were more likely to give exact answers when the experimenter said that his watch was actually stopped.

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And so, this is what the optimal relevance time expression experiment was. Random pedestrians were approached and asked for time, either as a general question or with the explanation that the interviewer's watch had stopped. Analog watch wearers were more likely to give approximate time in both the conditions. However, most digital wearers gave approximate in response to general questions even though they had access to the exact time.

And so, this talks about something called the relevance theory of how much information should we share between people.

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## Negotiating Referring Expressions

Resolving referring expressions

- Listeners use common ground, situational cues, speaker's eye gaze

Over time, interlocutors negotiate economical referring expressions

Building common ground

- Implicit learning from subtle social cues more important than explicit memory
- Patients with amygdala damage (impacting implicit memory) have difficulty building common ground
- Patients with hippocampus damage (impacting explicit memory) have no such difficulty

And so, we then need to negotiate referring expressions, resolving referring expressions. We strive for optimal relevance in response. Now, in resolving referring expression that is in deciding what it means, listeners also have a tendency to be egocentric. So, resolving

referring expression, how do we resolve this referring expression, listeners use something called common ground situational cues and speaker's eye gaze.

Over time interlocutors negotiate economical referring expressions. We do this by using something called building ground, implicit learning from subtle social cues more important than explicit memory. Patients with amygdala damage have been shown to have difficulty in building common ground and patient with hippocampus damage have no such difficulty. So, listeners do make use of common ground in identifying reference and they also make use of situational cues such as in speaker's eye gaze.

There was a work by Hannah in Tanhouse in 2004. They examine how listeners resolve references by actually engaging research participants in joint activity in which they made a cake together with the experimenter. Now, at a critical point in the task the experimenter asked hand me the cake mix. There were two cake mix boxes on the table, one nearer the experimenter and the other in the participant.

Now, when the experimenter's hand were full, the participants more often pick the box nearer the experimenter. But, otherwise, they often picked up the box nearer to themselves. Over time, speakers and listeners they work together to horn referring expression. Thus, when grandma says to grandpa, get me thimang bing from the watchmi lacleech, grandpa exactly knows what the grandma means.

Implicit learning from subtle social cues play an important role in the building of common ground and that are sort of explicit memory that impacts the way the speakers craft expressions as well as the ways in resolving them. So, what we did in today's lecture is we looked at what is discourse. As I said, discourse is the highest form of conversation and the highest form of language and this discourse has two parts, one is called the conversation and the other is called the narrative.

So, conversation is where a number of interlocutors are talking and exchanging ideas and narratives is the form in which one person is speaking and the other is listening and they wait for their turn to come. Further to that, we also looked at what is the anatomy of a conversation. We looked at taking turn, references, and all those things actually come in how people shift between turns.

And the second part we looked at is narratives, what are narratives and how narratives and storytelling is a part of a narrative and what are the factors which affects storytelling and how referencing is done in storytelling. And we looked at examples of narratives and several explanations of narratives. This provides us some base on to what discourses are and what two divisions of discourse are.

When we meet next we will continue from here and further on our discussion on discourse. So, until we do that in the next lecture, it is goodbye and thank you from here.