Psychology of Bilingualism and Multilingualism
Professor Ark Verma
Dept. of Cognitive Sciences
IIT Kanpur
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Hello and welcome to the course Introduction to The Psychology of Bilingualism and Multilingualism. I am Dr. Ark Verma from the Department of Cognitive Sciences at IIT Kanpur. This is the fifth week of the course and I am talking to you about language control in bilinguals and multilinguals. In the previous lecture, we saw that bilinguals actually need a system of language control to manage between the two active language subsets in order to alternate between the use of two or more different languages. We saw that some of the initial language switching studies actually talk about the fact that language switching is actually an effortful job and it incurs costs in terms of increased reaction times and more errors. Whereas continuing to produce in the same language basically is much easier and sort of automatic.

The explanations of how these language switches are sort of maintained or how these languages are actually accomplished are obviously subject to doubt and different researchers have sort of have different opinions on it. We saw that Macnamara and colleagues actually hypothesize an input switch and an output switch whereas different explanations were put forward by Soares and Grosjean and Grainger and Beauvillian. Let us sort of move into a little bit in more detail into these alternative proposals by looking into the language mode theory that has been put forward by Grosjean. As individuals interact in a variety of situations, typically if you look at how we talk in normal situations or how we interact with different individuals in different situations, you would basically notice that speakers leave the monolingual and bilingual issue aside. Speakers interact with each other in a variety of situations.

We interact with different people on different topic and in different context. Speakers in these situations are actually presented with a very interesting or albeit a slightly challenging task. The task is basically to make the choice of the language to speak in. Suppose I am, for example, I am a Hindi-English bilingual. If I have to talk about something very official, something very formal, I will need to make the choice that I probably will best express this in English.

Let me talk in English when I am talking about this particular topic. Or say for example, when I am talking to colleagues in the college, I will probably try and restrict myself to speaking in English depending upon if the conversation is formal and so on.

However, on the other hand, if I am talking about a specific topic, let's say something about my household issues to my family members, maybe I will actually use Hindi and I will construct and talk in a different manner altogether. As a bilingual, this basically becomes a very interesting decision that I have to take depending upon the communicative scenario, depending on who I am talking to, the setting, the topic and so on. Indeed, some of these factors, as I was pointing out, some of these factors that actually people have to decide upon include the context, say for example, the place and the topic of conversation, the listeners, who are we talking to? Am I talking to somebody who understands just one language or both of my languages? What is their social stature? Are they my colleagues from the workplace or are they my friends from my house, from them from my colony? Are they very high in stature, respectful people that I should certainly formally speak to them or people who are slightly younger or junior to me and I can take a bit of liberty speaking to them in an informal way.

Also the kind of topic, formal topic, informal topic, whether I have a lot of expertise in that topic, I don't have a lot of expertise in that topic. All of these factors, as well as my own proficiency in being able to express a given topic in a particular way. What language am I good at? Am I very good at English? Am I very good at Hindi? Am I good at English for certain things but not on other things? Am I good in Hindi for certain things but not for other things? All of these factors together actually take a part and basically play a very important part in formulation decisions on part of the monolingual speaker, himself or herself. But if you take this decision, and this is basically there with monolinguals and bilinguals as well, but for bilinguals the decisions are more nuanced. The choices that they have to make are slightly more nuanced.

For example, the choice of specific vocabulary and grammatical constructions etc. that are appropriate in a given context. See, for a monolingual speaker, while a bunch of these parameters will still apply, they do not have the luxury to express themselves differently in the two languages. Say for example, if I have to talk about aspects of poetry, I might choose to talk in Hindi and Urdu which is probably, would come more naturally to me. But if I am talking about slightly more boring subjects etc.

or maybe a lot of my experimental work, I might stick to English and be able to express myself in a particular way. So basically these choices and these factors, while they are important for both monolinguals and bilinguals, they actually play a more important part with bilinguals most certainly. Now, researchers have opined that these properties of the communicative context actually play a very important part in determining not only the choice of language but also the incidence of code switches and the fluency of a bilingual speech in a given scenario. For example, if I am talking about something very formal, I would probably restrict that discussion to one language, whether it will be English,

whether it will be Hindi, but I will discourage myself from using a lot of code switches. Unless say for example, being a bilingual, I cannot express that particular concept in Hindi or a particular concept in English and then I may need to necessarily switch.

 But for the most part, I will try and have not a lot of switches based on if the topic is very formal, if the context is very formal and if the context is informal, I am among friends and it is a casual conversation, I may allow a lot of switches to come in and be part of the overall conversation. Also given bilingual fluency of speech is also affected in these two scenarios. Basically, if it is a very formal scenario, if there are a bunch of these factors at play, I may be very hesitant, I may be very sketchy in speaking up and explaining something, but if it is something that is more workplace like and something that I am very good at or something like that, I would probably be much more fluent. So again, all of these factors also have a bearing on how many code switches or what frequency of code switches I will use versus my fluency in this whole scenario. Now Grotia, for instance, puts forward the concept of bilingual language modes to explain the apparently systematic linguistic behavior of a bilingual given a particular kind of a discourse   context.

 Again, while I am talking about so many factors, it is very clear that bilinguals are natural at adapting to these different things. Bilinguals are naturally very smooth in switching through their different languages based on these different factors. So the important underlying assumption in Grotia's language mode theory is that a bilinguals language system is divided into two language subsets, one for each language and the fact that these subsets can be activated or deactivated as a whole and independently from each other. So basically based on the bunch of factors that I've been discussing over the past few minutes, I can choose to activate a particular language or deactivate a particular language or let's say switch into a particular kind of language mode or switch out of a particular kind of language mode and so on. Let's look at this in a bit more detail in the next   few   slides.

 Now Grotia postulates that bilinguals typically find themselves in various points in some sort of a situational continuum. You might call it a conversational continuum or let's stick with the Grotia's original terminology of a situational continuum and depending upon these points bilingual engage in different kinds of speech or language modes. The basic idea is, let's say for example when the bilinguals are interacting with a monolingual speaker, they would inevitably restrict themselves exclusively to the language that the monolingual person understands. This has been referred to as engaging the monolingual mode. On the other hand, when bilinguals are interacting with a speaker who is proficient in both of a bilingual languages, then the bilingual would be prepared to communicate in either of their own languages and sometimes may even

flexibly switch into and out of the two   languages as and when required.

  This has been referred to as engaging the bilingual mode. These two conditions, the monolingual mode and the bilingual mode are actually considered as opposite ends of the situational continuum. On one end where there is the monolingual mode, only one of the two languages is activated which is called the base language. On the other end, both the languages are relatively equally activated and I can basically be able to communicate in both of my languages. Now let's try to cognitively understand the implication of having   these   two   kinds   of   modes.

  If you look at the monolingual mode, one could look at the monolingual mode as a situation where the language of choice is maximally activated. Say for example I know that the speaker in front of me speaks only Hindi, then Hindi will become the language of choice and it will be maximally activated and the non-target language let's say English will basically be almost fully deactivated. I am not saying fully deactivated because we have seen in the previous chapters that it is impossible to completely deactivate the other language in a bilingual. Now whereas during the bilingual mode what would happen is that there would be a situation where both languages of the bilingual are actually highly activated although to different levels which is again as I said jointly determined by the range of factors that we have discussed so far. Because both of these languages are activated, this would allow the bilinguals the luxury to choose between either of the two languages   at   will.

  Also the language thus chosen would become maximally activated for selection and production. So for example if I am having a casual conversation informally with my friends, I may switch into English and Hindi. When I am switching into English, I will deactivate Hindi to a little bit and when I am switching into Hindi, I will deactivate English to a little bit and this basically will become a very flexible sort of a scenario. The momentarily chosen language will be referred to as the base language or language A whereas the language that is I am suppressing will be known as the guest language or language B. Moving forward, the engagement of the monolingual mode would actually mean   relatively   fewer   language   switches   and   several   hesitations.

  For example in cases when the chosen language was not well suited to express a particular conceptualized method easily, on the other hand, the engagement of a bilingual mode would mean highly fluent language use, more systematic switches between the two languages of the bilingual. Now let me just unpack this for you a little bit. When I am in a monolingual mode, I have maximally activated one of my languages, almost deactivated the other language so the choices are limited. I know that the person that I am going to talk to does not understand my other language so I will not really

engage in a lot of language switches. I will probably move much more smoothly and within the same language without really inducing any kind of switches at all.

  However this comes with a caveat that if the language that I am speaking in, suppose I am talking about a very specific topic, let's say some kind of politics, some kind of chemical reaction, some kind of cognitive science etc. and Hindi, let's say which is the language of choice for example, does not have proper words to express this, I may hesitate a lot, try to find words in Hindi to express that because what I am probably doing is I am trying to find Hindi words for a topic that I have best knowledge of in English. So there you can see several hesitations will creep in and the fluency will be relatively lower. However, on the other hand, when a bilingual language mode is recruited, then basically it will amount for a highly fluent language use. There can be many more switches because I can smoothly switch into and out of the languages but more importantly there will be much fewer hesitations because if I am getting stuck with expressing a particular topic in Hindi, I will quickly switch on to English, I will start with explaining something in English, I will quickly switch on to Hindi and so on and so forth.

  Something that typically happens a lot of times in live classes where sometimes you want to explain something and you are not being able to find the best word for that expression in a given language. So this is basically how the monolingual and the bilingual language modes are sort of expressed or explained in Grosjean's language mode theory. Now moving forward, Grosjean's language mode theory also puts forward the notion that the language mode has basically two very important factors. First is the choice of the base language and its communicative repertoire depends on the setting, depends on the communicative setting, the context, the topic, the interliquiter and so on and so forth. Also the activation of the two, the state of activation of the two languages, language A or language B basically can vary between being totally active or slightly suppressed   or   equally   active   together.

  So these are the two things which are very very important and based on these two things you can see that there are three kinds of states that a speaker can actually end up in. You can see that during the monolingual language mode, one of the languages is totally activated whereas the other one is totally suppressed whereas in the bilingual language mode both languages are relatively equally active. And there is also an intermediate stage where one of the languages is totally active whereas the other one is relatively less active and so on. Depending upon the demands of a communicative context, a bilingual is supposed to move from the monolingual mode to bilingual mode and so on and so forth depending upon the dynamics that are evolving online. Now I'll sort of just explain this   again   that   there   are   three   states   across   this   situational   continuum.

In all of these, language A is the base language which is activated the most. You can look at it and the states typically differ in the activation levels of the language B which is the guest language. So language A is my native language, suppose it's my contextually appropriate language, it will be most active but language B's activation I can sort of move up and down depending upon the task at hand. So for instance, as I say the guest language is most deactivated at the monolingual language mode whereas it is almost comparably activated or equally activated at the other end when the bilingual language mode is engaged. Another interesting point of note in this discussion is that the bilingual language of choice or the base language and their position in the so-called situational continuum often does not really involve a deliberate or conscious thought process.

You do not decide that I have to switch into monolingual mode or I have to switch into bilingual mode. This is something that almost automatically emerges and comes out given the demands of a specific conversational context. Especially in the light of the factors that we have discussed in the earlier slides. So this unintentional and automatic switches and flexible language use is most similar to and more ecological behaviour as opposed to what has been implicated in the original language switching experiments.

Now let's move further and see. The language mode theory of Grosjeans also follows the assumption as follows. For example, it assumes that the base language is actually chosen prior to the conversation begins. For example, when I am entering into a room, when I am going to meet a particular person, I already know what should be my language of choice, what should be the contextually most appropriate language. And in that sense, I choose the base language or language A already before I am entering in the conversation. And this basically determines the activation settings of my two languages. Ok?

So this follows the assumption of proactive control, which I was talking about earlier in the language control system of the bilinguals. However, it is interesting to note that language choices are not very rigidly specified at all times and they can actually fluctuate or flex and bilinguals can flexibly adapt to the demands of the communicative setting and hence the control is also not exclusively proactive. Secondly, a very important aspect of the language mode theory is that it actually assumes a global level of control. Specifically, the idea is that the engaged mode would influence the level of activation in all elements of the target language. Say for example, if I am trying to activate the language B fully, I have activated all the elements of language B at once and if I am suppressing language B, I will have suppressed all the elements of language B at once.

Moving further, the language mode theory assumes both external and internal sources of control as both the intention to speak as well as the type of linguistic input that I am receiving will be able to determine or help me exercise the activation level of the two language systems. Finally, as per the language mode theory, the system of language control exerts its effect on all of the entities stored within the language system proper and not just on the output. So it's not really talking about reactive control by suppressing the kind of output that is coming throughout the language system but it is talking more in terms of preparing and getting ready in the way the proactive control theory actually talks about. Now, All in all, the language mode theory can certainly account for the situational dependency of the number of code switches in and the fluency of bilingual speech etc. It however does not really provide a lot of clarity about how the relative activation   of the two language subsystems is related to the speech data.

Let's look at this in a bit more detail. There is a bit of a circularity that DeGroot has pointed out. More specifically, it has been proposed that the bilingual in adherence to the demands of the communicative context would be able to adopt a monolingual or bilingual language mode. The mode will then govern the particular speech pattern and the level of activation. Similarly, it is the same speech pattern of activation that will lead to the conclusion as to what mode the speaker is actually in. You can see that it is probably   circular   and   it   is   sort   of   under   specified.

Now let's try to look at some of these assumptions in a bit more detail and some evidence in favour or against this particular hypothesis. Grosjean obviously in order to sort of test some of the assumptions he laid out in the theory created an experiment which was closely mimicking the circumstances of natural communication. He presented French-English bilinguals who were fluent in both languages with stories in French and asked them to summarize the same in spoken French. The stories have to be summarized in French only. Now a very important variable was who are they summarizing   these   stories   for.

So there were three conditions. In one condition which was the French condition, the participants were actually told that they are actually addressing a person who has just arrived in the United States, speaks only French at home although they could read and write in English but they are not very good at speaking it. The second condition is of bilingual A and the participants are actually told that this person that they have to address has lived in the US for seven years, works for a French government agency and speaks only French at home. The third condition which is bilingual B, the participants were actually informed that they had to actually address an individual who had been living in the US for seven years, who has been working in a local American company and had both French and American friends and spoke both languages at home. So you

can see that there are three very different profiles of these individuals, the French condition, the bilingual A condition and the bilingual B condition. On the other hand, the topics of these stories was also very interesting.

Say for example, the topics of these stories were either situations you know back home in France or typical American activities. Alright. Now you can see that while situations in France probably can best be described using French and maybe some of the activities, American activities may need these people to sort of resort to some English even though the stories have to be delivered exclusively in French, which is the instruction. So the stories in the latter condition, as I am saying the stories about American activities have actually therefore been referred to as bilingual stories and they actually contain a number of code switches into American English at places where codes which might actually occur. Now the thing is the story is constructed in that way that it contains a number of switches and so on and these have to be summarized by these French participants or French English bilingual participants in French, in spoken French.

Alright. Now the dependent variables were basically the number of French and English syllables that would turn up in the summaries that are provided by the participants and also the number of hesitations that they contained. Now let's look at the results. From the results, it was apparent that the participants were indeed able to adjust themselves to their disease profile provided by the experimenter. When they were to address the French interlocutor, more French and fewer English syllables were uttered, more hesitations were encountered than when they were actually addressing the bilingual B. Now remember as I was saying, if I am trying to explain a story which basically contains a lot of English bilingual stories and I am trying to summarize it in only spoken French, I may need to look for French words that can best express these things and therefore there will be a bunch of these hesitations.

And also there will be a mixing of syllables as well. So when I am speaking exclusively to the French interlocutor, I will try and reduce the number of English syllables, although when I am speaking to the bilingual B who is equally fluent in both English and French, I may not sort of exercise this restriction. These data were actually taken to imply that the instructions had actually influenced the participants' beliefs about these three addresses. The beliefs were, I mean, probably that the French interlocutor was not really yet fluent enough in English and that maybe did not like a lot of switches and basically when I am talking about bilingual A was probably fluent in English because they could read and write in English but did not appreciate a lot of language switching. Finally the bilingual B was fluent in English and French both and did not mind any of these language switches.

So the different profiles were actually made and understood by these bilingual participants. Now to adapt to the communicative demands of the different addresses, the participants indeed have adapted their speech to match the bilingual profile of these addresses. Now these differences in their linguistic outputs could also be used to explain the variations in the number of hesitations across the three different conditions. As I have been saying, for instance, given the profile of the French address and that of bilingual A, the participants attempted to express even the English expressions in French and therefore there is a lot of hesitation that would come in because they will be searching for words and so on. However, it will not be the case when they are actually talking to the bilingual B who is apparently comfortable in both the languages.

Also it was observed that the participants actually used a large number of French syllables in the French idiocy condition and a little less in bilingual A and the least with bilingual B. So they are adapting to however the language profile of the address is. Now with respect to the language mode continuum or the situational continuum that Grosjean talks about, the observed data actually suggests that when these participants were talking to the French address and the bilingual B, they were actually at the opposite ends of the situational continuum engaging the monolingual and the bilingual modes respectively. However, when interacting with bilingual A, they were somewhere in the middle, as we have seen in the figure, they were somewhere in the intermediate stage of this continuum. The topic of these stories also played a part wherein the bilinguals actually produced 10 times more English syllables when they were talking to bilingual B and when they were sort of paraphrasing the bilingual stories as opposed to when they were talking to the French addressee and basically summarizing the stories about the French   situations.

So just to summarize, certainly there is evidence that suggests that bilingual speakers can adapt themselves flexibly to the communicative demands of a given scenario and that the same is moderated by a range of dynamic variables in natural settings. The system of language control thereby allows these participants to shift swiftly between the languages and almost automatically to meet the demands of the communicative settings. So you can see here that how the system of language control as described by Grosjean in his language mode theory follows this whole proactive control setting and allows these participants to actually modify their behavior online in order to express themselves best in a given communicative scenario. That's all that I had to talk to you about in this lecture. I'll meet you with the final lecture of the language control chapter in the next one. Thank you so much. .