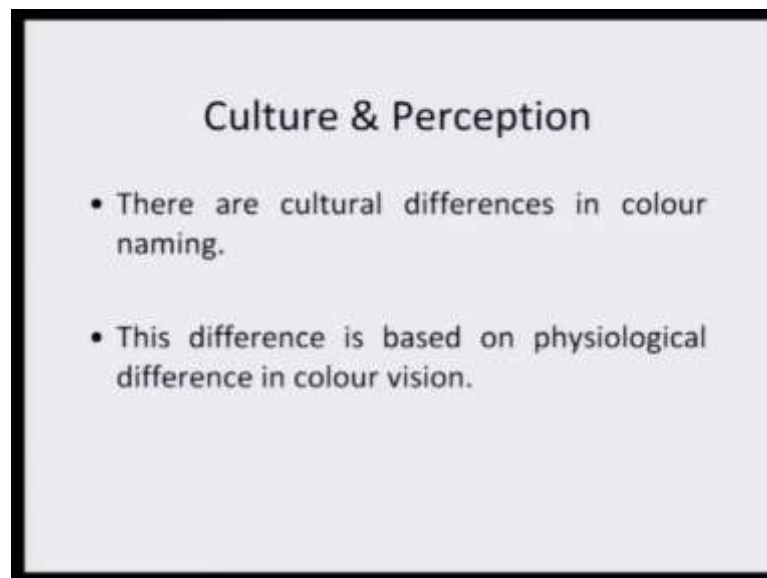


**Introduction to Psychology**  
**Prof. Braj Bhushan**  
**Department of Humanities and Social Sciences**  
**Indian Institute of Technology, Kanpur**

**Lecture - 10**  
**Perception Role of Culture in Perception**

Till now we have been talking more with the respect to the external environment. We have not yet known gone to the cultural aspect. So, now, let us talk about the role of culture in perception.

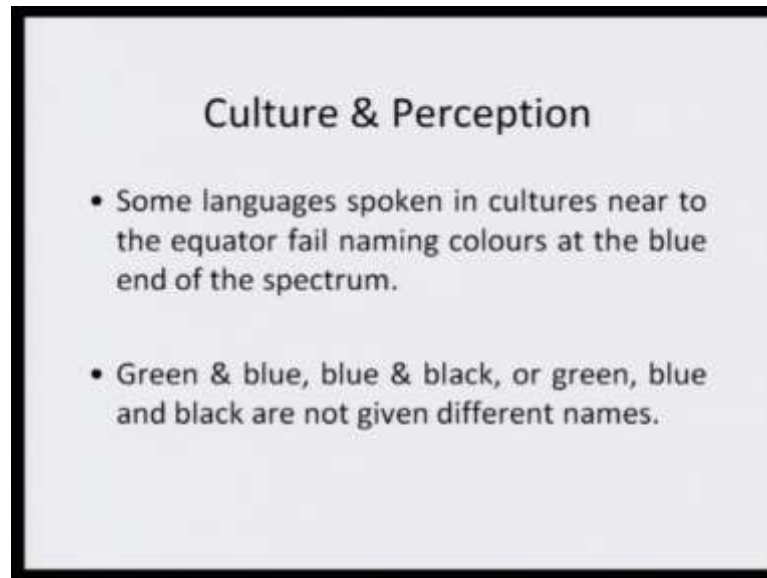
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So, we would be now factoring in the cultural factors, very interestingly you would realize that there are cultural differences even in terms of giving name to certain colors, and this difference is based on the physiological difference in terms of color vision.

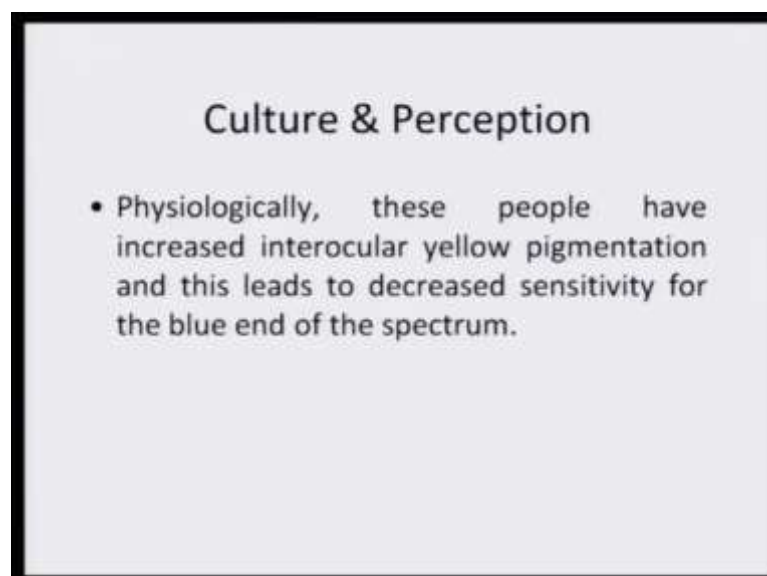
Now, look at the visual spectrum, you are looking at the visual spectrum, you can clearly see the blue and the red ends of this spectrum, but this is not true for every culture.

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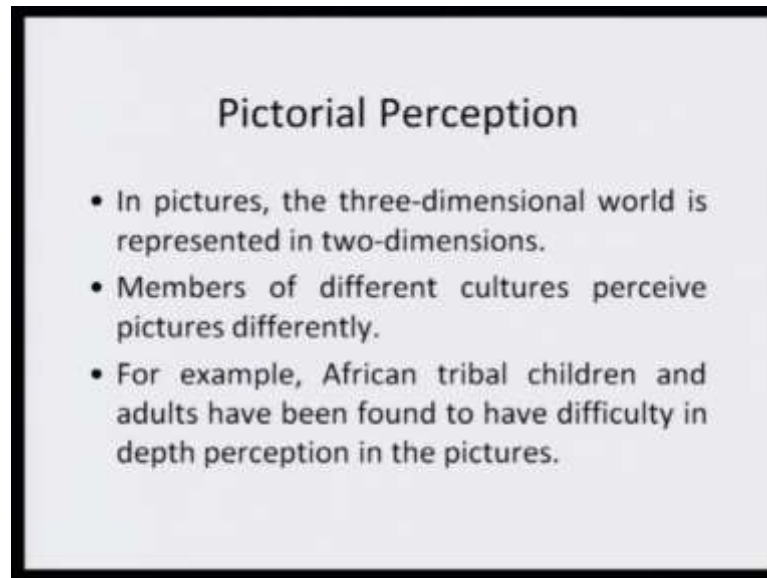


Be surprised to know that some languages which are spoken in culture near to the equator, they fail naming colors at the blue end of the spectrum, the green and blue, blue and black or green blue and black, usually they are not given different names in culture near to the equator and this is an interesting dimension no? So, depending on where exactly you are placed on the globe and the cultural context to which you belong to the perception changes. Now physiologically these people they have increased inter ocular yellow pigmentation and this leads to decreased sensitivity for the blue end of the spectrum, reason is physiological here.

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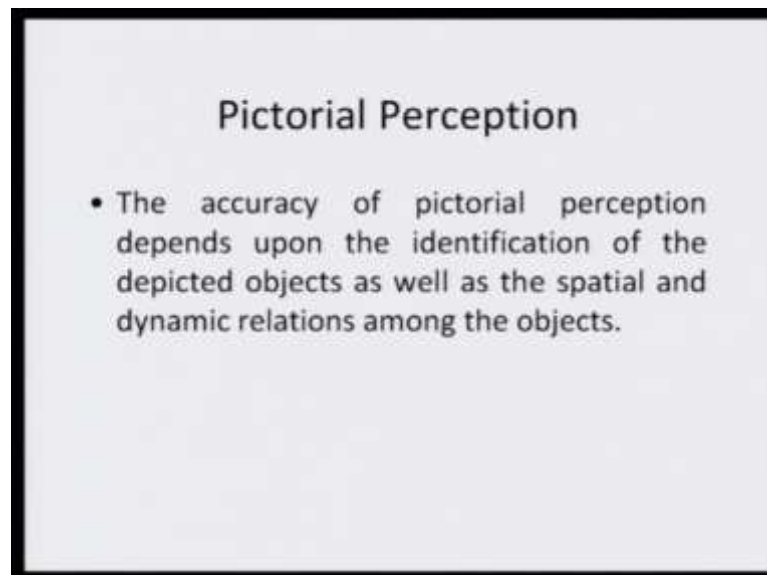


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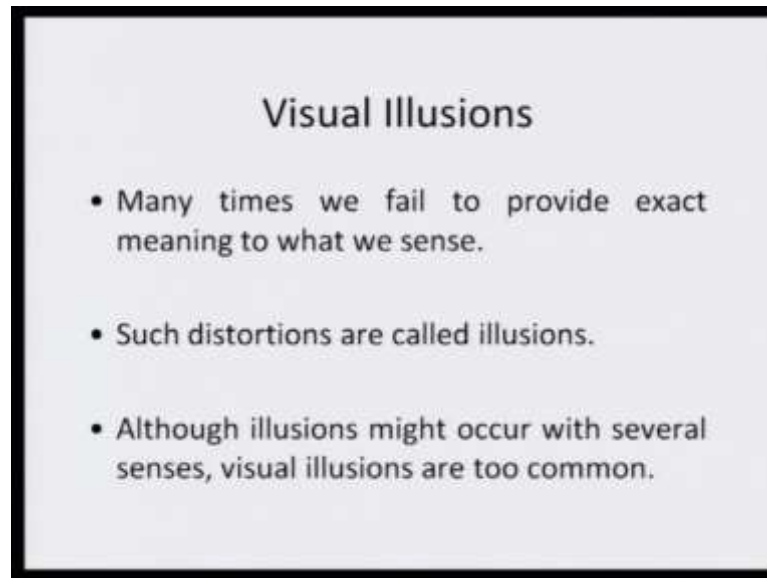
Now, in pictures, the 3 dimensional worlds is represented in 2 dimensions. Now members of different culture they perceive pictures differently, for instance African tribal children and adults have been found to have difficulty in depth perception in pictures.

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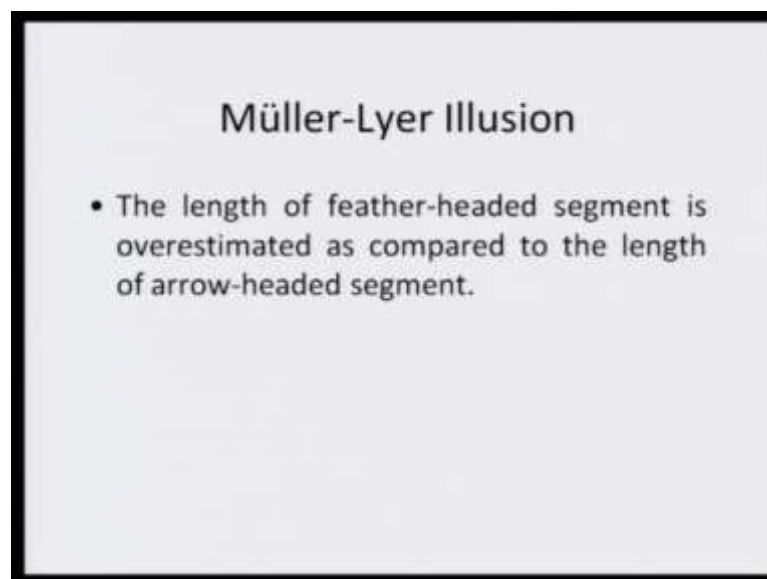
The accuracy of pictorial perception depends on the identification of the depicted object as well as the spatial and dynamic relation among the objects. Many a times, we fail to provide exact meaning to what we sense, and such distortions are called illusions.

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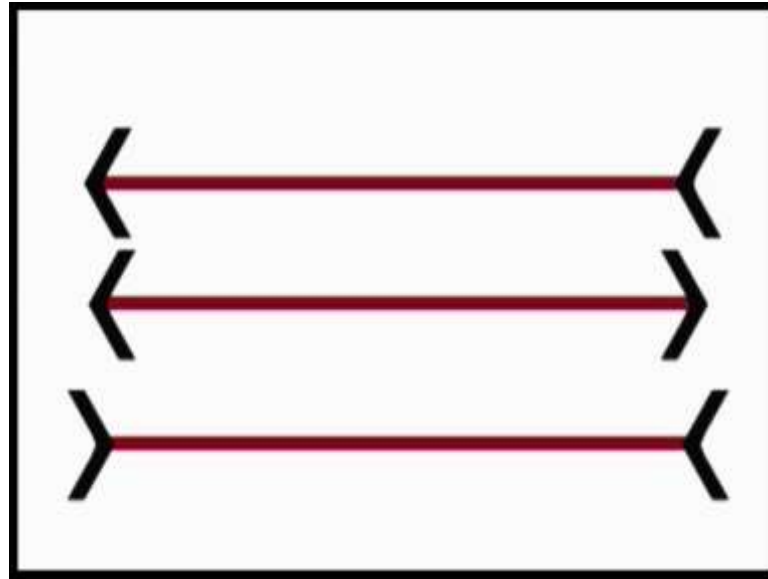
In case of perception, sensation is complete, we assign appropriate meaning and then we say that because the meaning is appropriate therefore it is perception, if we commit error in that sense then it is called illusion.

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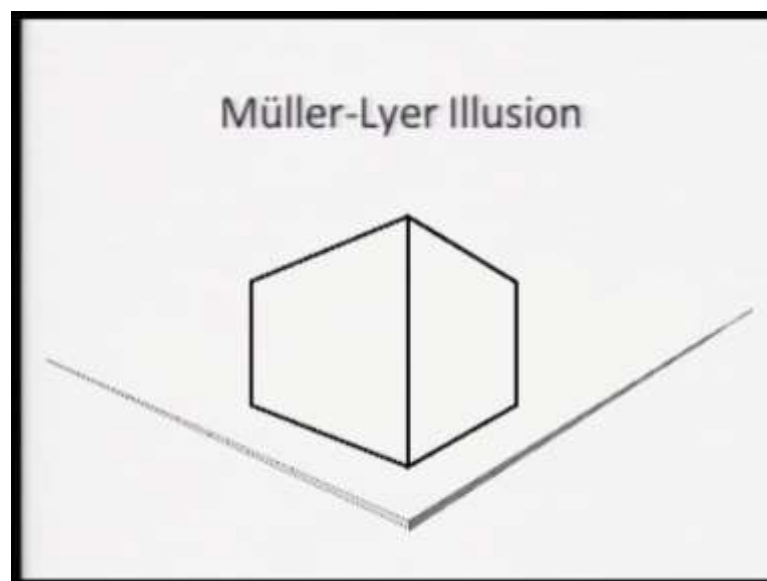
Now although illusions might occur with several senses, visual illusions are most common and the most common of the illusion is what is called as Muller Lyer Illusion. Here the length of feather headed segment is overestimated as compared to the length of the arrow headed segment.

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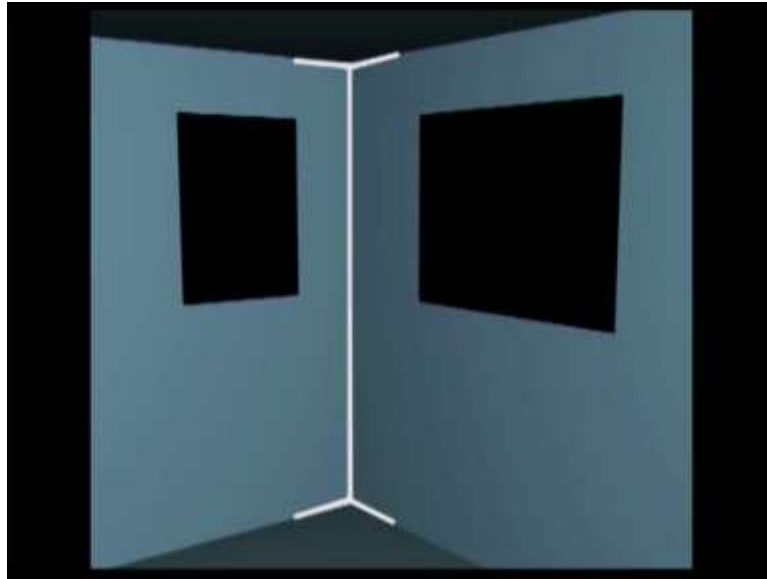
Look at this straight line the left side of the line has now become arrow headed where as the right side has become feather headed, are they equal? Let us look at it little differently this is an arrow headed line, another line drops down from it and becomes double arrow headed line, now a third line drops down and become a feather headed line are they equal? You know that the answer is yes, but when you look at them the third line which is feather headed line seems bigger, the arrow headed line on the top looks smaller compared to this feather headed line and this is called Muller Lyer Illusion.

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Now, where do we actually have Muller Lyer Illusion in our real life? Imagine you are walking on the pavement you are crossing straight, you take a turn the building that you see on the corner you see a building on the corner here. Now you can very easily see this Muller Lyer Illusion. So, some part of the building looks to you as if it has an arrow headed line.

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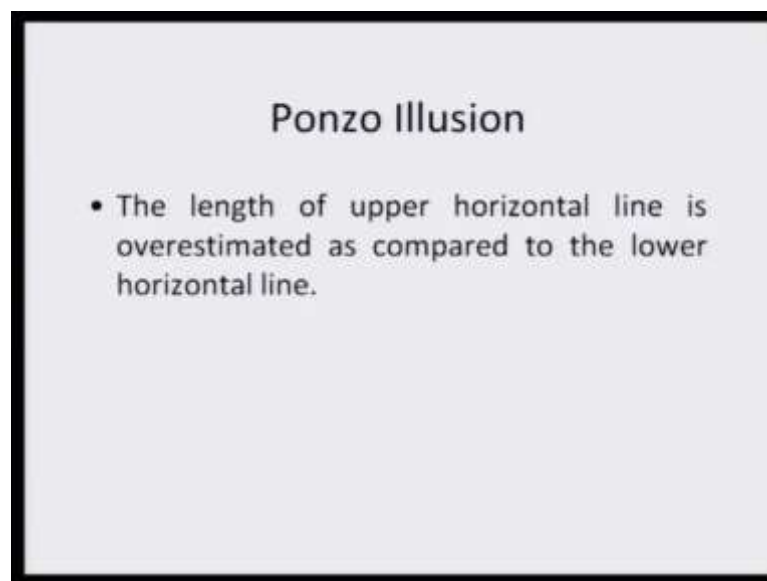
Have a look at this; you now see the arrow headed line. Now if you just try to move in, what will happen? Let us have a look at it. Now, you are inside the room and what you are actually looking at is, as an arrow headed line now seems as a feather headed line and this is known; Muller Lyer Illusion. We all know that the size of the 2 walls are the same, but then depending on from which side you are looking at that affects once you have the you feel it this is taller and other case you considered this is smaller and in all the cases you know always have this Muller Lyer Illusion.

Now, that we have understood now that the length of the arrow headed line and the length of the feather headed line, they are not perceived equal, what has been realized is that the magnitude of Muller Lyer Illusion it decreases with age, studies show that a comparison among Eastern, Western and Southern African, Philippines and United states, when people from we are taken from these areas the studies shows at Muller Lyer Illusion was greater for children and it was not greater for adults.

Now, cultural difference with the respect to susceptibility of illusion is very interesting. One of the study show that the magnitude of Muller Lyer Illusion in the residence of Papua and Great Britain and what they found as that although both groups had illusion the magnitude of Muller Lyer Illusion was higher among the British subject. So, people who are exposed to them urban modern lifestyle they had more of this Muller Lyer Illusion. The earlier comparison among Eastern, Western and Southern African Philippines and United States that we had seen right now, showed that the Muller Lyer Illusion was higher in American and South African Europeans as compared to the non western participants in this very study. This was the study by Segal and his collaborators.

Another type of illusion is Ponzo illusion. Ponzo illusion is a case where, the length of the upper horizontal line is over estimated as compared to the lower horizontal line. We saw the example of railway track not at with the respect to perspective.

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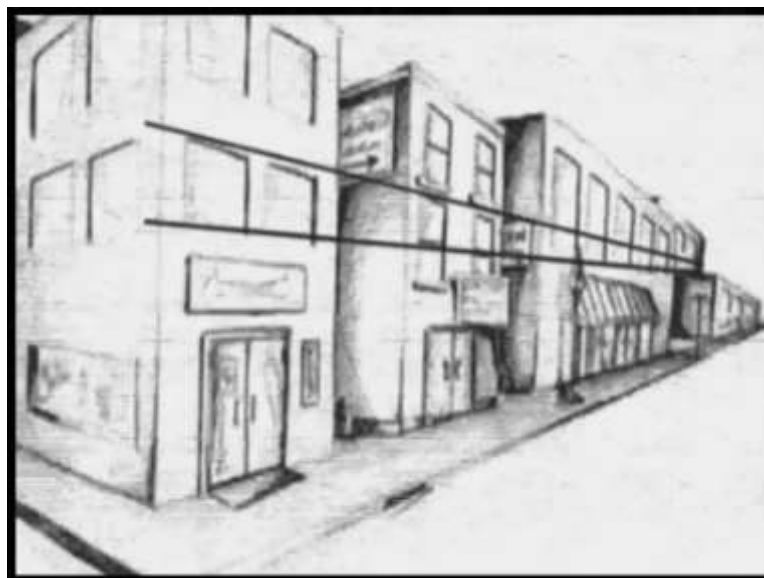
Right now we are trying to understand it in terms of Ponzo illusion. Let us take example of Ponzo illusion, now in case of Ponzo illusion the length of the upper horizontal line is overestimated when one compares it with the lower horizontal line, we have taking the example of the railway track in the past.

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So, when you look at the slippers that connects the 2 tracks you realized that the slippers which are nearer to you and the slippers that are at a distance they are not considered as having the same length.

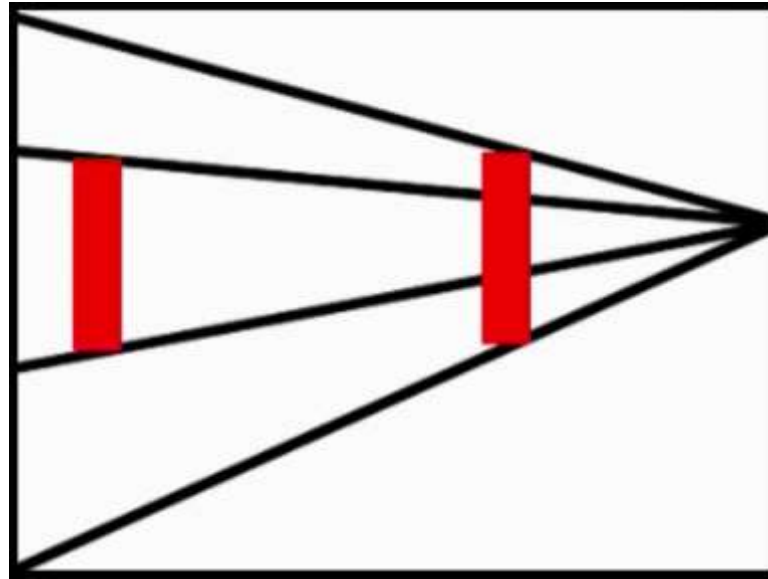
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When you look at the parallel line stretching across the buildings here it seems that it is wider in the beginning and gradually it becomes narrow.



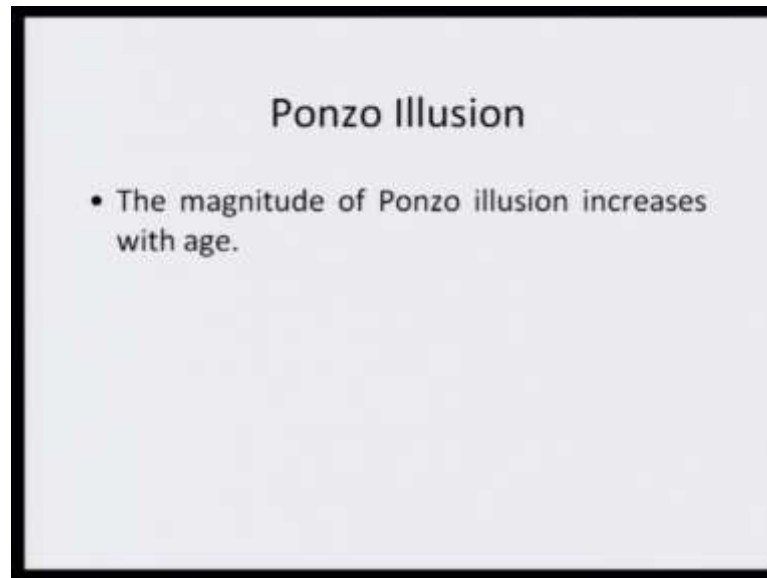
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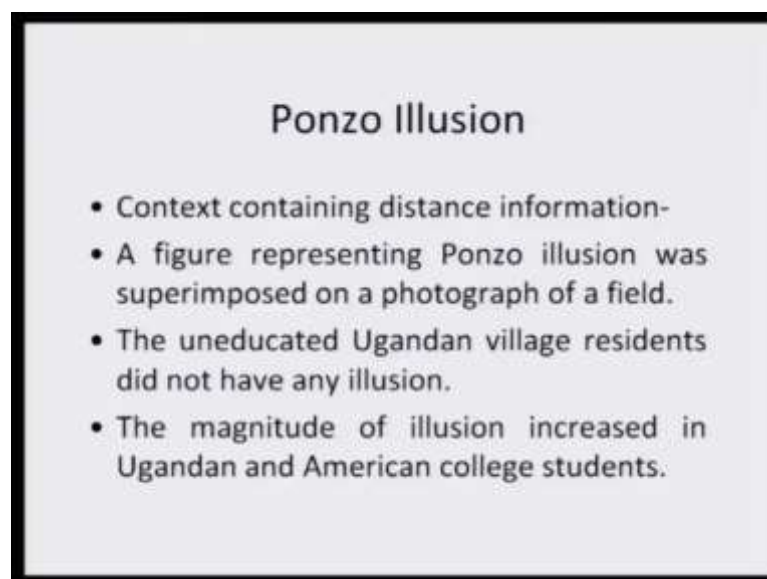
Let us take another example, you see a bold red line here, another line same size comes out of it, but when you look at them after the black lines have been drawn the red line on the right seems bigger than the one on the left. If you consider yourself standing at the point where all the black lines originates, then the red bar nearer to you will look bigger as compared to the one which is at a distance.

Look at another example here if you replace the lines with human beings you will still perceive the same here you see that the 2 human figures are actually replica and hence are of the same size, but the moment context is added one becomes bigger compared to the other one. Now with the respect to the magnitude of Ponzo illusion it has been realized that with increase in age the magnitude of Ponzo illusion also increases.

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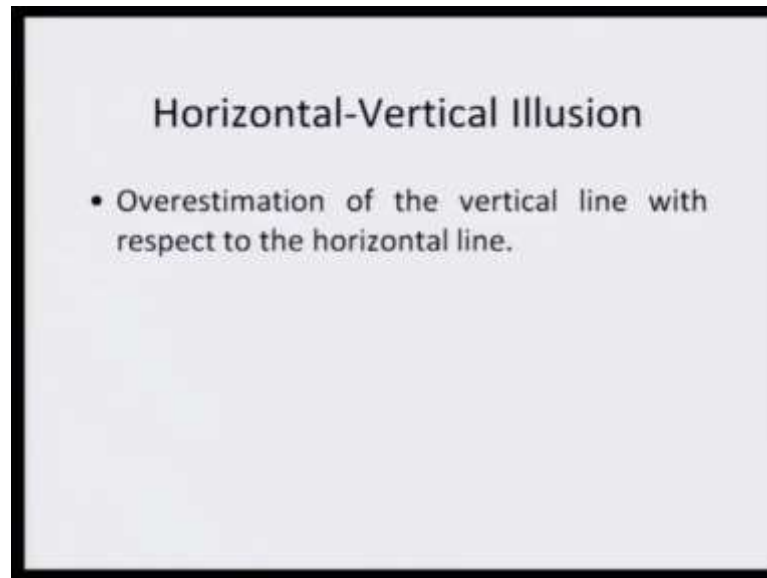
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Now, context that contains the distance information is of importance, a figure representing Ponzo illusion was superimposed by one of the researcher on a photograph of a field.

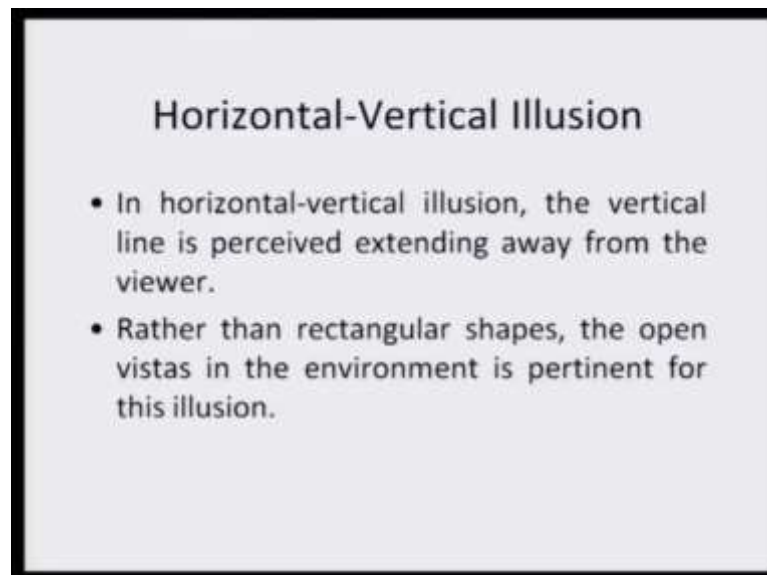
Now, the uneducated Ugandan village residence they did not have any illusion, that horizontal vertical illusion where as the magnitude of the illusion increased in the Ugandan and American college going students.

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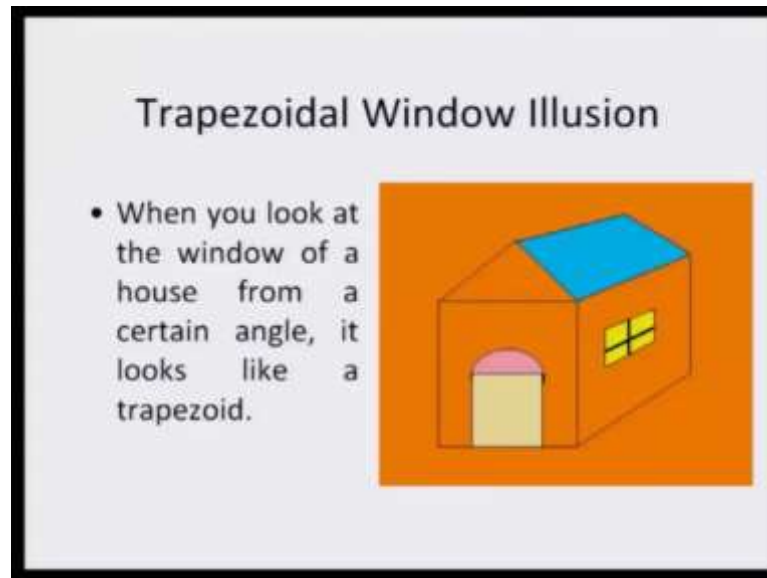
Now this basically means that the cultural context in which you have been living that affects the degree of illusion that one would experience. Now horizontal vertical illusion if you look at there is always the overestimation of the vertical line with the respect to the horizontal line.

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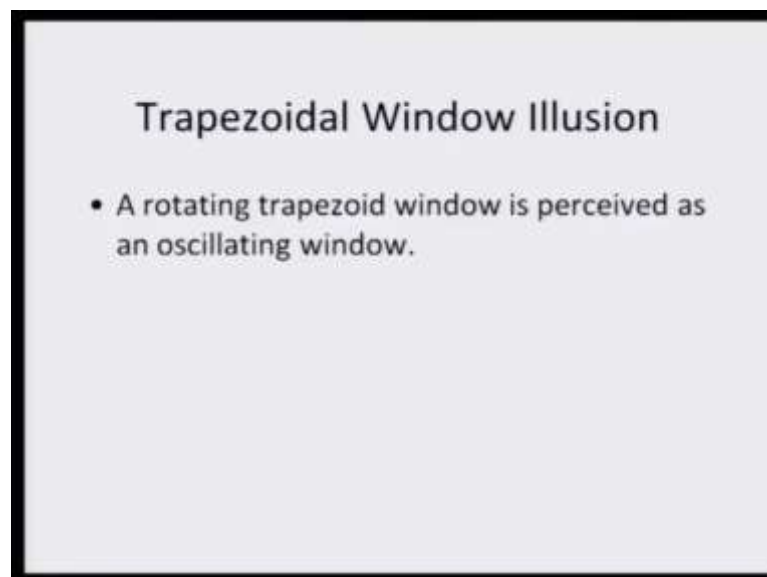
In horizontal-vertical illusion, the vertical line is perceived extending away from the viewer rather than rectangular shapes, the open vistas in the environment are pertinent for this illusion the horizontal vertical illusion.

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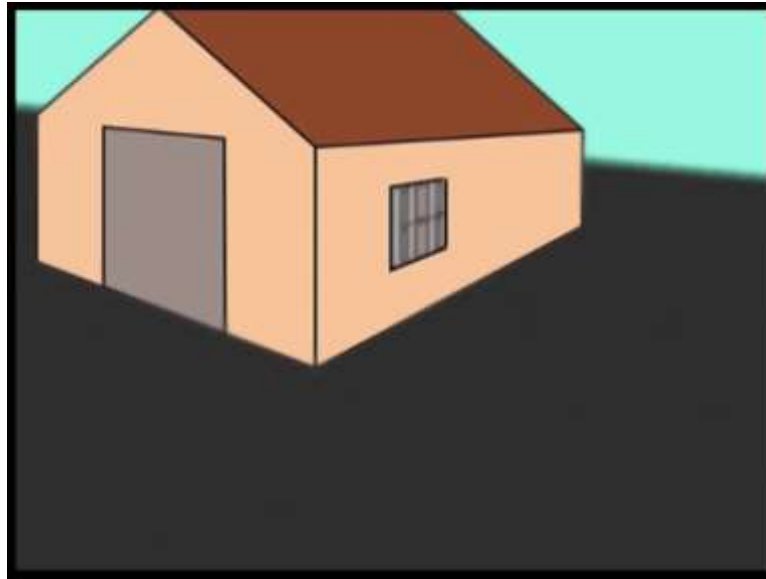


Now, take this very example of trapezoidal window when you look at the window of a house from a certain angle it is specifically looks like a trapezoid.

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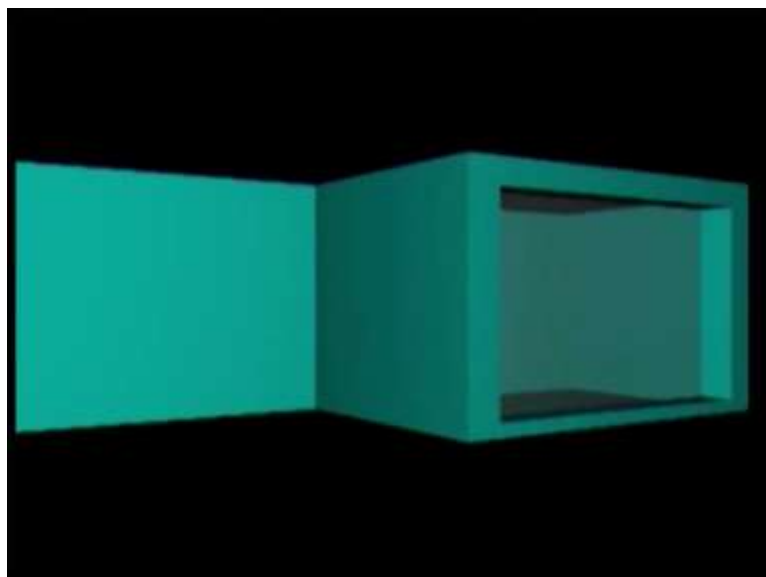


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Now, a rotating trapezoid window is perceived as if it is oscillating. So, the window looks like oscillating window. Right now you saw a house and then you had a just rectangular window there, to give you sense that fine, from particular orientation when you look at the house, look at the walls of it, the window that it has which is actually rectangular you precede that it is trapezoid. Now look at this very animation.

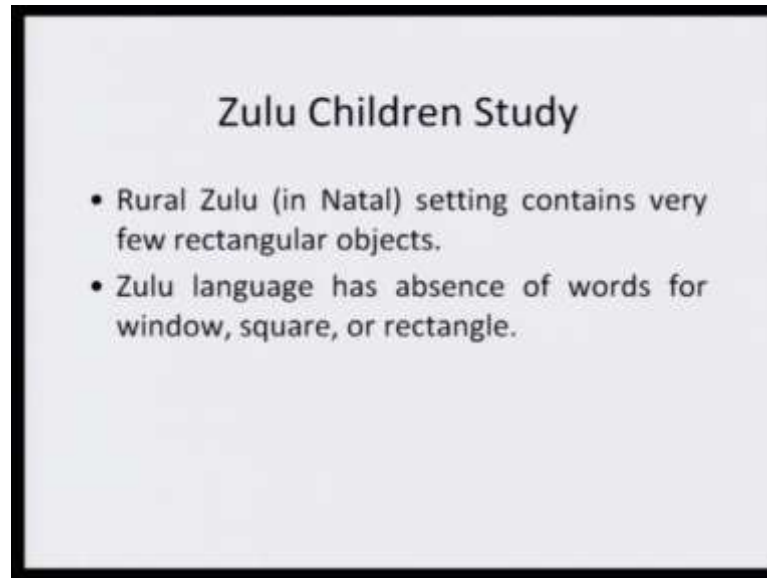
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Now, instead of rotating window that you saw in the previous animation see the animation here it is of course, full window only that gets projected here and then you

have a rotating window. The interesting part in trapezoidal window illusion is that the moment you start focusing on this rotating trapezoid, it actually starts giving a feel that it is oscillating.

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This is now called at trapezoidal window illusion. It is very interesting to know perhaps that the rural Zulu setup; they contain very few rectangular objects. So, their environment does not have too many rectangular objects and therefore, if you look at the Zulu language also, it has absence of words for windows squares or rectangles these words are not there.

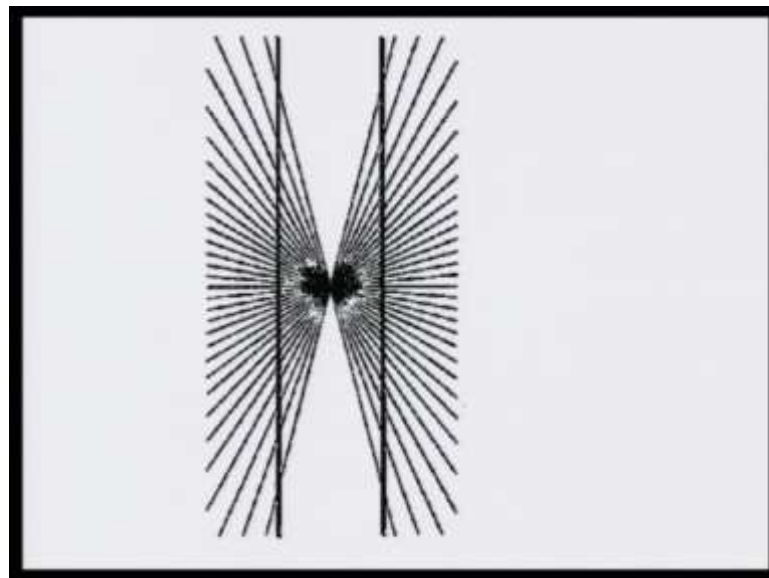
Now, in an interesting study, a comparison was done of rural and the urban Zulu children. The rural Zulu children had less illusion compared to their urban counterparts to the level of 60 percent know and most rural Zulu children did not report any illusion. Now if you do not have rectangular objects in your environment, if you do not have words representing them, you also do not have the degree of illusion. So, that is an interesting what you call effect of culture on illusions.

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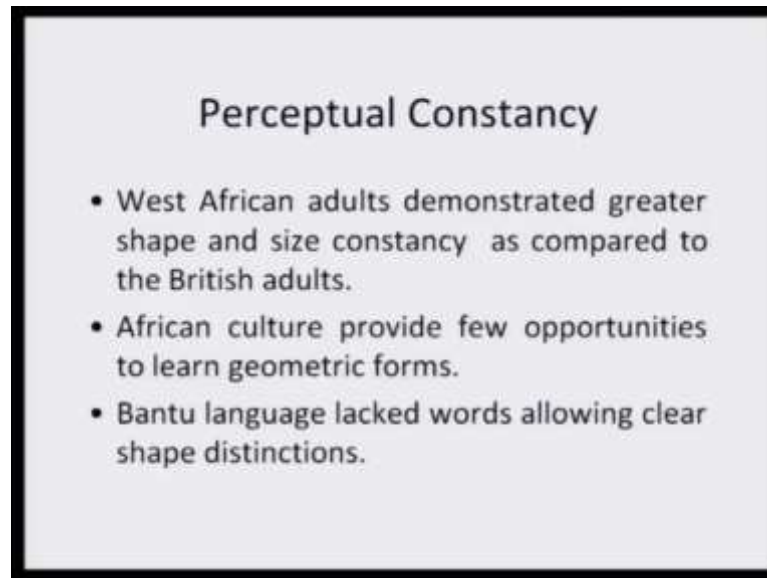
Now, look at these very lines, all these lines look as if they are very straight lines and they are parallel to each other the moment you insert colored circles here

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now the line does not look as if it is straight now it looks as if it is bent between 2 black spots. Similarly two vertical lines and the moment you had the lines starting at a common originate, you realized that the two verticals lines it seems as if they are not straight but they are rather bent at the center. So, these are very typical type of visual illusions that we all experienced.

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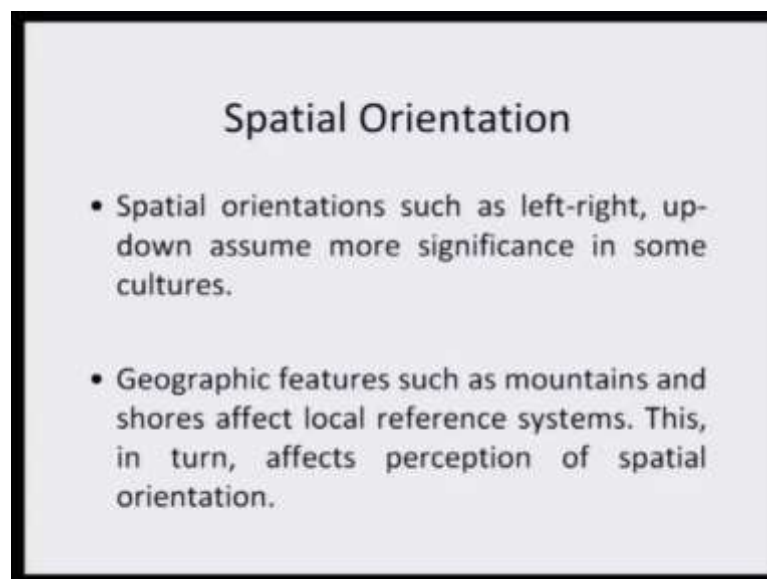


**Perceptual Constancy**

- West African adults demonstrated greater shape and size constancy as compared to the British adults.
- African culture provide few opportunities to learn geometric forms.
- Bantu language lacked words allowing clear shape distinctions.

Now, West African adults they demonstrated greater shape and size constancy in one of the studies as compared to the British adults and African culture basically provide few opportunities to learn the geometric forms. The bantu language one of the language spoken in that very area of the world, lacked words allowing clear shape distinctions and that is considered as one of the important factors that influences visual perception especially optical illusion, when it comes to defining the meaning of the external word and then you realize that the cultural factors they play extremely important role there.

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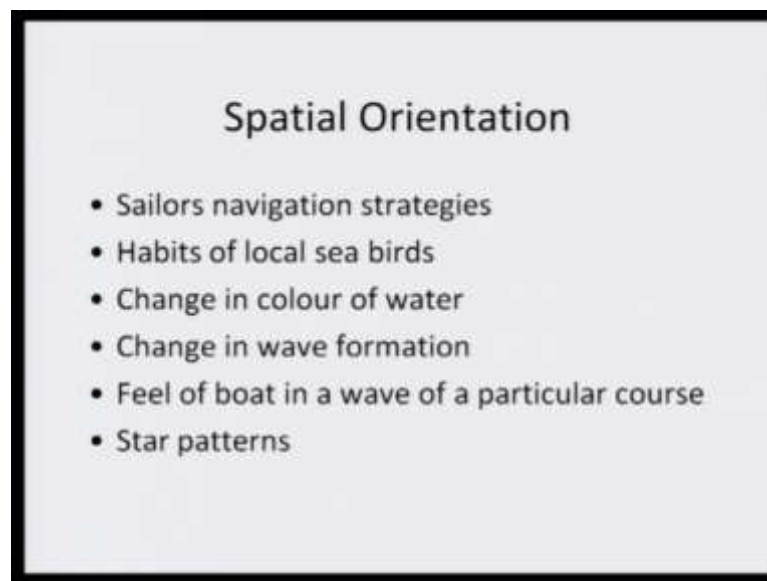
**Spatial Orientation**

- Spatial orientations such as left-right, up-down assume more significance in some cultures.
- Geographic features such as mountains and shores affect local reference systems. This, in turn, affects perception of spatial orientation.



Now, having talked about these many issues in perception now that we are know towards the end of our discussion on perception, let us talk about the importance of spatial orientation. Now spatial orientation, such as left right or up down ha has it is own importance in certain cultures. So, for instance there are certain type of rituals which are supposed to be performed only by the right hand, certain type of rituals which are supposed to you performed only with the left hand in certain cases know you are suppose to be on the left side in this face in some cases you are supposed to be on the right side of this face. So, it has it is own cultural importance.

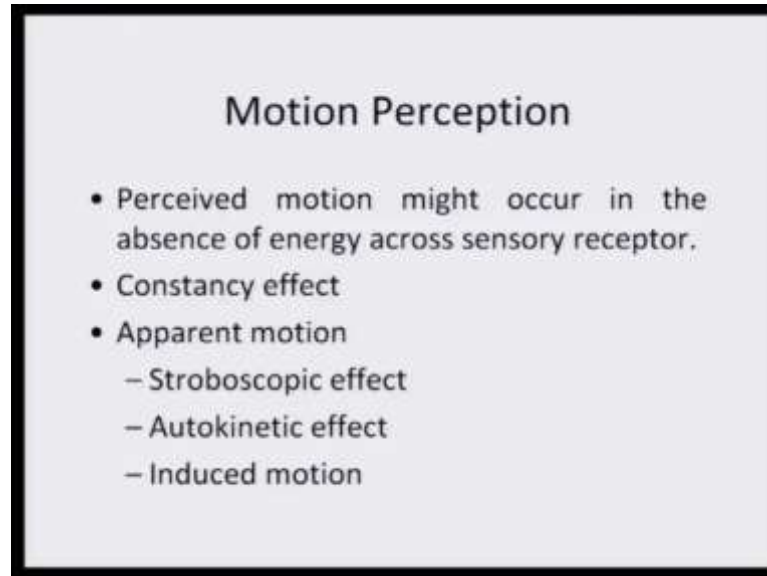
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Interestingly the geographic features now such as, mountains and shores they also affect our local reference system and this in turns affect our spatial orientation. Now importance of spatial orientation can be seen in especially in the sailors who are in the ocean and all they see on all their sides is only the blue water, nothing more than that. Now many of these sailors they uses specific navigation strategies for instance in certain locality in the oceans they look at the habit of the local seabirds, certain type of birds they are habits and it tells them where actually they are in the ocean. Many of the season sailors will also tell you that they look at the change in the color of the water and depending on the color of the water, they can very easily make out which ocean they are in especially when, they are supposed to move from one to the other .Many of them, the experts can even look at the pattern of the wave formation and looking at the wave they

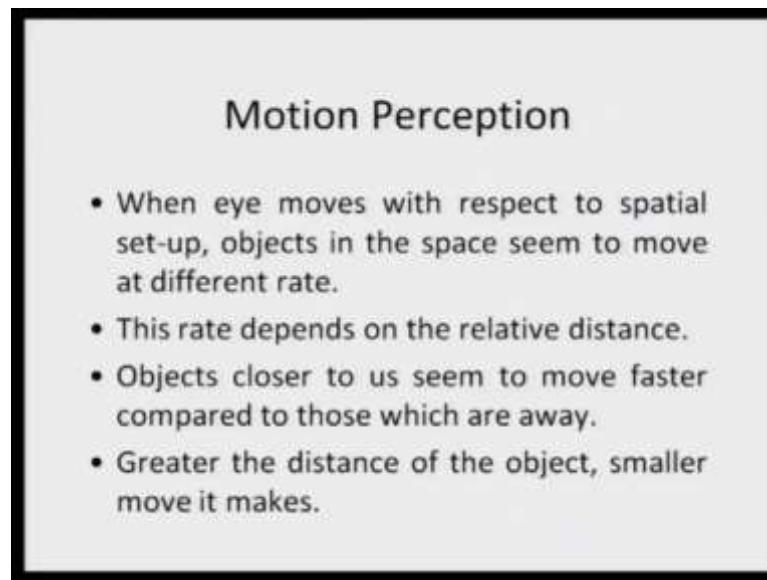
can tell you that fine they are in this very ocean, Indian ocean or they are in pacific and so forth.

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Now, we come to the perception of motion now perceived motions it might occur in the absence of energy across the sensory receptor and remember one thing that the constancy effect works here also. But in case of motion perception one is of course, you are moving the external world is releases static the other is when you are a static the external world is moving, but what is for more important and very, very interesting is the apparent motion. Three types of apparent motions we would be talking about the stroboscopic effect, the auto kinetic effect and the induced motion.

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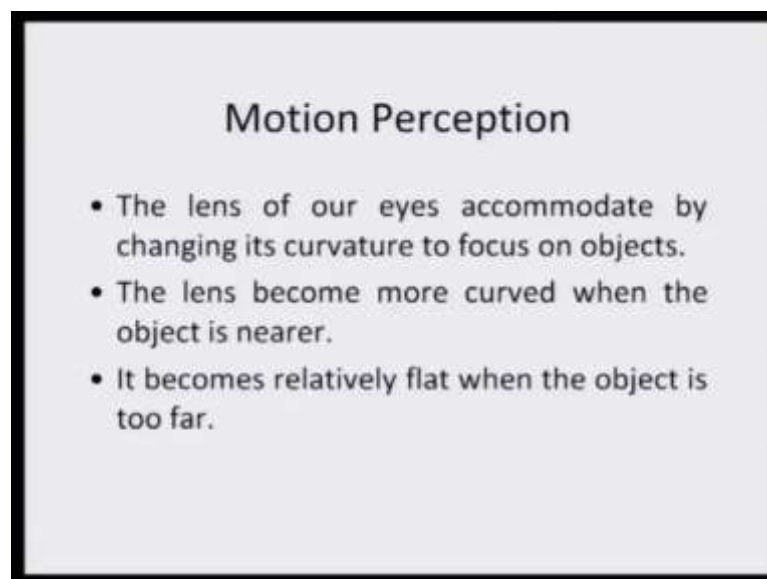


**Motion Perception**

- When eye moves with respect to spatial set-up, objects in the space seem to move at different rate.
- This rate depends on the relative distance.
- Objects closer to us seem to move faster compared to those which are away.
- Greater the distance of the object, smaller move it makes.

Now, when eye moves with the respect to spatial setup objects in the space they seem to move at different rate and this rate depends on the relative distance objects which are closer to us they seem to move faster compared to objects which are away from us.

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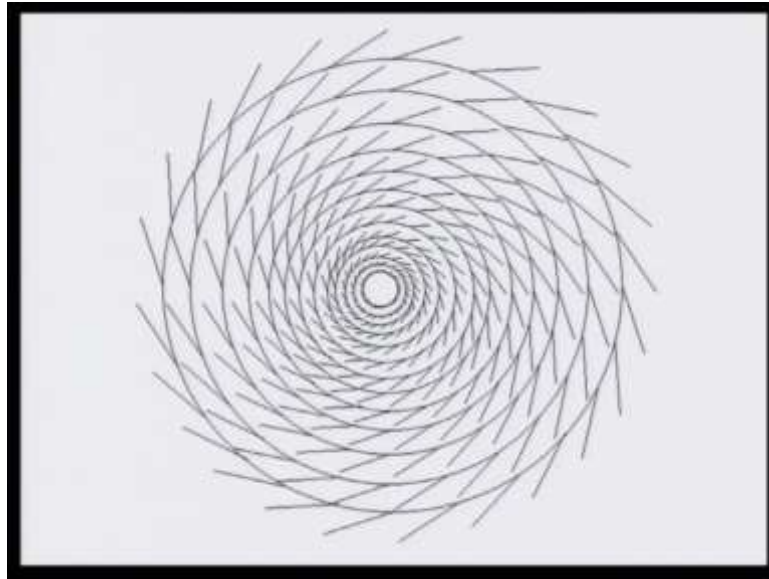


**Motion Perception**

- The lens of our eyes accommodate by changing its curvature to focus on objects.
- The lens become more curved when the object is nearer.
- It becomes relatively flat when the object is too far.

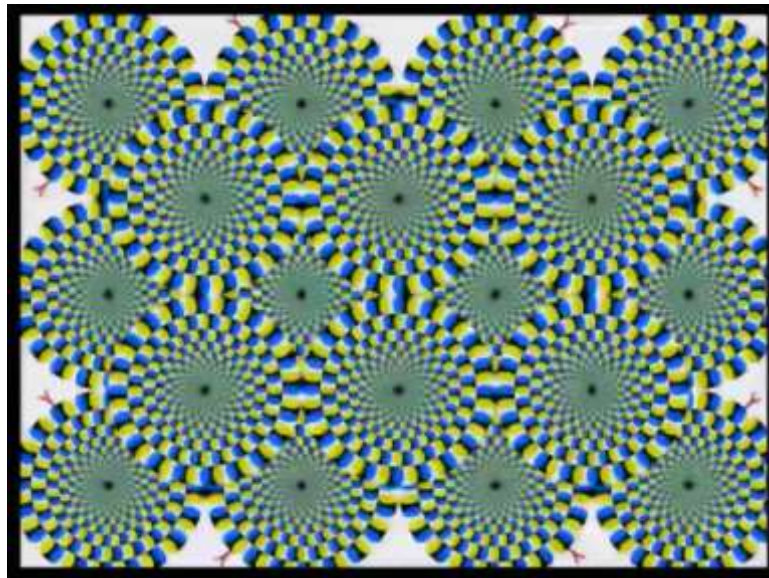
Greater the distance of the object smaller the movement, it makes the lens of our eyes they accommodate by changing it is curvature to focus on objects the lens become more curved when the object is nearer it becomes relatively flat when the object is too far.

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Now look at this very image the fact that you have in dependent circles and then there are small straight lines which is put all across these circles you sense as if something is starts at the center and there it is expanding in a circular order it is expanding and the diameter looks as if it is increasing.

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Look at your screen now, when look at these a static images it does not look a static to you, if you feel as if they are making clockwise movement and the movement you sense that it is making a clockwise movement you might get a feel that the colored disc on the

apparent perhaps make an anticlockwise movement although the screen is static, the image is a static the movement you focus at it you get a feel as if it is moving.

Let us come to a stroboscopic effect. Stroboscopic effect basically means that you perceive a running or a static sensation in a given type of a situation.

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Look at this very video. When you look at this fan, you know that now the fan is rotating, but this movement is not perceived, you feel as if it is static.

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### Motion Perception

- Autokinetic effect: If one fixates at a spot of light in a dark room, the spot appear to be moving.

Now the other type of apparent motion is what is called as auto kinetic effect. Now if you fix it at a spot in dark room you suddenly realize as if the spot is moving. So, room is absolutely dark you are looking at spot of lights you fixate at it and the movement you fix it, appears as if that light is moving on the right side look at this very video.

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If you fixate at a spot of light in dark room, that spot appears to move. You have a dark background now. You have a spot of light here. Now, it is actually static, but if I ask you to know focus on it is a dark room just focus on it you start getting a feel as if this now white dot is gradually moving this is now called auto kinetic effect it is of course, an animation to help you understand of course, the light want appear to move so fast and of course, it won't have so many trails left behind, but then this is actually what happens you focus on it and then you feel as if it is now moving gradually of course, not at the rate at which you see here on the screen right now. But you can try it out know in your own house.

Another aspect in apparent motion is induced motion now static objects they are perceived to move when the frame or the background moves. So, it is like say I remain static and the background against which you are looking at that starts moving the movement you see there you realize as if there is a sense of movement. Look at this very animation.

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Now look at this animation now you know that this man is not now cycling here he had just now his puts on the pedal the background is moving, but when you see that the background is moving the impression that you get is that find this man is cycling fast. This is actually induced motion.

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### Set & Perception

- The readiness of an individual for certain kind of stimuli.
- In such condition one does not consider all possible contingencies; instead, only a narrow range of possibilities are considered.
- Example: a mother towards the baby cry

. And now at the end we come to the importance of set in perception set basically means your readiness to certain kind of is stimuli. You remember in the beginning we did talk about the properties know of the stimuli the strength of the signal and then, we also said



that it is the user especially if you remember we were talking when we were looking at the radar warning system that it is the readiness of the operator to look at the signal and he has to make a distinction between the appearance the presence of the signal absence of the signal and whether it is and so forth. Now in reality, what actually you want to see what is your degree you preparedness, what is your preference. That is considered as set. So, set basically represents your readiness to look for certain kind of a stimuli and that is considered to be one of the important factors when it comes to perception.

Now, in such conditions where you have a preference to look at certain kind of a stimuli one does not consider all possible contingencies rather only narrow range of possibilities are considered.

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Look at this very example, what do you see here ? There are 2 possibilities possibility one where you look at an old lady, this is the side profile of an old lady and look at the change close to the hairs you see the protruding nose and the eyelash and that gives you a sense that you are looking at the fear the side profile of a baby, a young baby versus an old lady. This is the distinction it is basically change in this very region that makes you realize whether you would basically we perceiving an old women in this very image or you would we looking at a young baby.

So, this is considered the importance of your readiness, your degree of preparedness, what actually you are keen looking at and with this what we have done till now is that we



have tried to understand that fine, there is mechanism biological mechanism that we all are end out with which helps us use our sense modalities to receive signal from the external world these signals are sent to the brain, the brain assigns accurate meaning to these sensations, if we are successful assigning meaning to it this is called perception.

Perception will depend on the strength of the signal perception will depend on the preparedness, the willingness, the mental set of the respondent the individual then there are certain conditions such as constancies that we talked about certain apparent type of things that happens that gets induced in us and there could be possibility when we do not succeed assigning accurate meaning to what we have sensed. If we fail assigning accurate meaning this is what is called as illusion. So, with this we complete our discussion on perceptual processes.

Now, that I have seen things in the external world, how do I learn it? So the next segment would be a series of lectures on learning.