1 What You See Might Be Different from What Actually Happens

▶Keywords

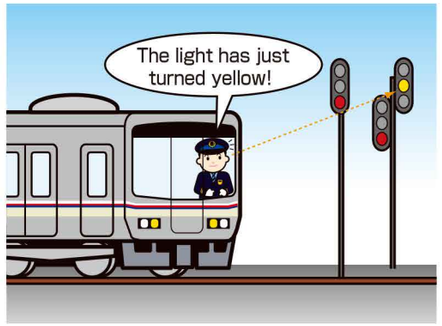
Illusion **Prediction** **Expectation**

Examples

1.An illusion of movement

When the train pulled into station B, the driver, whose name is A, didn't notice that the train on the adjacent line started moving. The motion of the other train made him think he was slowing down as usual until he found that his train was approaching the stopping position faster than usual. He hurriedly applied the additional brake.

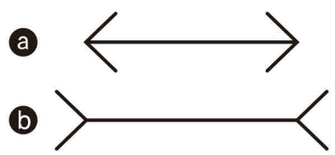
2.A psychological illusion



Before the train pulled into D station, the driver, whose name is C, stopped the train because the home signal was red. At this station, when the trains are slightly behind schedule, usually the home signal is red, and when the preceding train starts, the signal immediately changes to yellow. Driver C was used to this situation and was thinking about other things. When he looked up, he found the signal had changed to yellow, and he put the train in motion. This resulted in The Automatic Train Stop (ATS) being activated, and the train made an emergency stop. Subsequently it was confirmed that he mistook the signal of the adjacent line for that of his train.

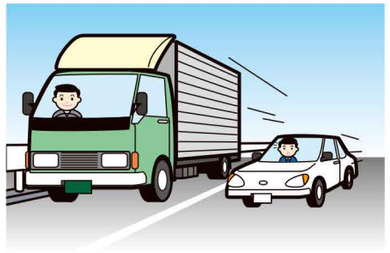
Explanations

Please look at the right picture.
Which line is longer, a or b?



Although line b looks longer, the lengths of the two lines are equal. This is an example of an illusion, i.e., you sometimes see or hear something different from that which exists in reality.

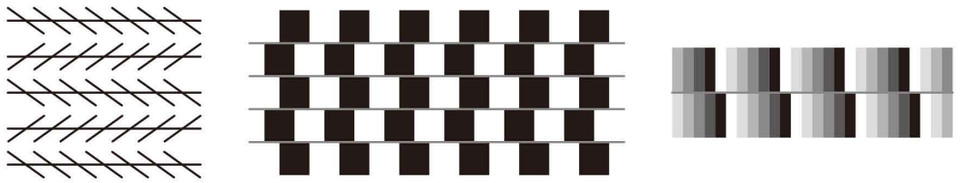
You might have experienced a case such as the one in Example 1 even if you're not a train driver. For example, when you're driving in the passing lane of an expressway running parallel to a truck, you might find yourself speeding up without realizing it.



The situation in Example 2 happened because of the driver's prediction; "this is the same situation as usual, and the light will soon turn yellow" and expectation; "I want to keep the train on schedule. I hope the light will soon turn yellow." The combination of these factors resulted in an illusion. When the signal of the adjacent line turned yellow, the driver mistakenly believed that the signal of his line had turned yellow.

This type of illusion is caused not only by external factors but also by the psychological condition of a person. A person tends to perceive things in a way that is convenient to him/her. It is difficult to prevent illusions because they are caused by the normal functions of our perceptions and thoughts.

Look at the pictures below. All the horizontal lines are parallel to each other. Do you think they are parallel?



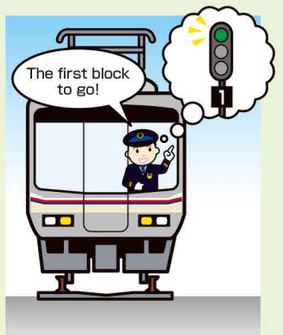
※Please confirm this using a ruler.

(adapted from http://www.psy.ritsumei.ac.jp/~akitaoka/catalog.html)

Solutions

Firstly, we should recognize that human beings create illusions. Secondly, it is important to steadily conduct "pointing and calling"(☞page 76) to prevent a mistake in vision, and confirm what the other person has said to prevent mishearing. It is also important to design equipment that does not lead to the creation of illusions.

The belief that we won't make mistakes might be the biggest illusion.



References Haga, Shigeru. Mechanisms of Mistakes: From Leaving Something Behind to Major Accidents. Japan Publication Service, 2000 (in Japanese). /Railway Technical Research Institute (supervision). Key Points of Safety: Preventing Human Errors. Japan Train Operation Association, 1989 (in Japanese). /Kitaoka, Akiyoshi. A Catalog of Optical Illusions (in Japanese). http://www.psy.ritsumei.ac.jp/~akitaoka/catalog.html