

Sense Perception (p. 115)

Sense Perception is one of the four ways of knowing:

- **Sense Perception**
- Language
- Emotion
- Reason
- Imagination
- Faith
- Intuition
- Memory

Sense Perception can be defined awareness of the world through our five senses – sight, sound, touch, taste and smell. These are ‘the gates and windows’ of the mind: channels of communication between the outside world and ourselves.

While our ‘five senses’ is taken as a given, some people claim that we have as few as three types of senses: mechanical (touch and hearing), chemical (tastes and sounds) and light (vision). Others say we have much more than five senses and they include such things as:

- Equilibroception – sense of balance
- Thermoception – awareness of temperature

Question: If for some reason you had to sacrifice one of your senses, which sense would you be most willing to lose and which would you be least willing to lose?

Humans are very visually oriented, e.g.:

- ‘Seeing is believing.’ (Not: ‘Smelling is believing.’)
- ‘I see what you mean.’ (Not: ‘I smell what you mean.’)
- ‘He has insight.’ (Not: ‘He has insmell.’)

Our sense of smell has a more direct route to the brain than the other senses. It can stimulate emotional and/or sexual response, memories, etc. (The perfume industry cashes in on this.)

Let’s see how visually oriented you really are.

Play the selective attention test followed by the Monkey business illusion

Selective Attention Test

<https://www.youtube.com/watch?v=vJG698U2Mvo>

Integrated Senses: synaesthesia

Synaesthesia is an unusual condition in which two or more of the senses we normally experience separately are experienced together. For example, a synaesthete might see sounds, or smell sights. The most common form of synaesthesia is perceiving letters and numbers as inherently coloured. This condition is thought to be the result of crosswiring of the brain and it is often associated with ‘creative

types' such as artists, novelists, poets and composers. Well known artistic synaesthetes include the painter Vassily Kandinsky, the novelist Vladimir Nabokov and the jazz musician Miles Davis.

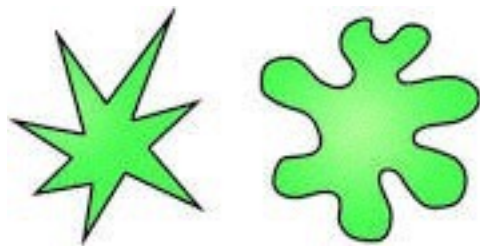
Introduction to synaesthesia – 3 minute clip

<https://www.youtube.com/watch?v=rkRbebvoYqI>

Ted clip on Daniel Tammet - http://www.ted.com/talks/daniel_tammet_different_ways_of_knowing?language=en - 10 minute clip

Daniel Tammet has linguistic, numerical and visual synesthesia — meaning that his perception of words, numbers and colors are woven together into a new way of perceiving and understanding the world. The author of "Born on a Blue Day," Tammet shares his art and his passion for languages in this glimpse into his beautiful mind.

Bouba- kiki Test



Question: which shape represents the word kiki and which shape represents bouba?

Take the National Geographic Survey

<http://theplate.nationalgeographic.com/2015/06/26/kiki-or-bouba-whats-the-shape-of-your-taste/>

Philosophical views of the basis of knowledge

Empiricism (p.116)

All knowledge is ultimately based on perceptual experience. This may be too extreme, but sense perception clearly plays a role in almost all subject areas ranging from the sciences through history to the arts. Think, for example, of the role played by observation in biology, or eyewitness accounts in history or the ability to see things with new eyes in the visual arts.

Phenomenalism (p.135)

This is a more extreme extension of empiricism; Matter is the permanent possibility of sensation. It makes no sense to say that the world exists independently of our experience of it.

Irish philosopher **George Berkeley** (1685–1753) is considered the father of Phenomenalism. His famous quote is 'To be is to be perceived.' It does **not** mean that if something is not perceived it does not exist. It is just that if we do not perceive it, it **may** not exist. For example, does your home still exist when you cannot see it?

Common-sense realism (p.134)

According to this position, sense perception is passive and relatively straightforward process, which gives us an accurate picture of reality. Colours, sounds and smells exist 'out there' and the act of

observation does not affect what is observed. This view of the relation between sense perception and the world is probably adequate for dealing with the demand of everyday life for if our senses were not reliable we would not have survived as a species.

Scientific realism (p.135)

The world exists as an independent reality very different from the way we perceive it. Our world has sound, smell, etc. When we look at a table from a scientific perspective, our familiar, comfortable, sensuous world of our everyday experience vanishes and is replaced by a colourless, soundless, odourless realm of atoms whizzing around in empty space.

Perceptual illusions (pp. 121)

Despite the ease with which we perceive the world, sense perception is a complex process in which many things are going on 'under the bonnet' of conscious awareness. It can be thought of as consisting of two distinct elements:

- Sensation, which is provided by the world, and
- Interpretation, which is provided by our minds

External stimulus → sense cells stimulated → brain unconsciously filters incoming information → subjective interpretation → personal version of reality

Type of visual illusion	Problem
Context can influence interpretation	The way we see something depends partly on the context in which we see it. Relative position of things results in different judgements, e.g. perspective.
Figure and ground	When we look at something, we tend to highlight certain aspects of what we see (figure) and treat other parts of it as background (ground). For example, when you look at a page of writing, the black parts stand out and you pay no attention to the white background. So what you see is dependent on things you assume are the main subject (figure) or background (ground).
Visual grouping	We have a natural tendency to look for meaning in what we see and to group our perceptual experiences together into shapes and patterns. The brain takes patterns and fills in missing parts to make a meaningful picture, which may not be correct, e.g. pictures in clouds/stars.
Expectations can cause perceptual error	Our expectations can also influence how we see things. If you think how difficult it is to spot your own typing errors, then you can see that this kind of perceptual error is far from uncommon.

What is the Ames Illusion?

<https://www.youtube.com/watch?v=gJhyu6nlGt8>

Perceptual illusions

Access the **PowerPoint presentation 'Perceptual illusions'** and try to explain what they see in the notes section of each slide.

Selectivity of perception (pp. 126)

Apart from visual illusions, another reason for being cautious about what our senses tell us is that sense perception is selective. A vast amount of data is constantly flooding in to our senses, and our minds would overload if we were consciously aware of everything. So we only notice some things in our perceptual field and overlook others. For example, if we are having a conversation at school, I may notice your facial expression, yet have no conscious awareness of the picture on the wall behind you; or I may hear what you are saying, yet be oblivious to the ticking of the clock, or the quiet hum of the computer.

For good evolutionary reasons, we are also sensitive to moving objects. If you work at a desk by a window, your attention may suddenly be caught by something, which makes you look up without quite knowing why – only to realise a second later that there is a distant bird passing over the trees. Since it may be moving towards you, such an object represents a potential threat and you therefore notice it.

What you see also depends on various subjective factors such as interest and mood. Your interests can be thought of as filters, which determine what shows up as you scan the world around you. If three friends go for a walk in the countryside, one may focus mainly on nature and the variety of the wildlife; a second may attend to what his friends are wearing and talking about; and a third may notice very little because her mind is on something else.

As the pattern of our interests change, so does what we perceive. It is striking that if your family buys a new car you will probably start seeing cars of the same model and colour everywhere.

Amazing colour card trick - example of how our perception is selective

https://www.youtube.com/watch?v=v3iPrBrGSJM&feature=iv&src_vid=voAntzB7EwE&annotation_id=annotation_262395

Monkey Business illusion

https://www.youtube.com/watch?v=IGQmdoK_ZfY

Role of emotions (p.127)

Our feelings and emotions also shape and colour our perceptions, and when you are in a good mood you see the world in quite a different way to when you are in a bad mood. While an optimist sees a glass as half-full, a pessimist sees the same glass as half-empty.

Love can have a particularly strong effect on our perception. When you fall in love with someone you may unconsciously project your dreams and fantasies onto them so that they seem to possess every imaginable perfection. If you later fall out of love, you may look at your 'ex' and wonder what you ever saw in him/her.

Our perception can also be distorted by fear. If you are alone on a dark and stormy night you may be frightened by sounds that you wouldn't normally notice. As a Persian proverb states, 'He who has been bitten by a snake fears a piece of string.'

Seeing and believing (pp. 129)

Beliefs can affect perception. For example:

Area of knowledge	Example
Science	Nineteenth-century astronomers thought there might be a planet (Vulcan) between Mercury and the sun. Some astronomers claimed to have seen it through their telescopes, but it did not exist.
History	30 January 1972 Bloody Sunday, Northern Ireland British and Irish Catholic eyewitnesses both claimed the other side attacked first.
Art	In the visual arts, people have a tendency to draw and paint, not what they see, but what they think is there. For example, in antiquity, some artists portrayed horses with eyelashes on the upper and lower lids of their eyes even though horses in fact have eyelashes only on their upper lids.

Eyewitness testimony (pp.130)

The fallibility of sense perception not only is of theoretical interest but also has important implications in the real world. In criminal trials, juries tend to put a great deal of faith in eyewitness testimony, and such evidence can determine whether or not a person is found guilty. However, according to psychologists, the uncorroborated evidence of a single witness should be treated with great caution. In recent years, a number of cases have come to light of people convicted of crimes on the basis of eyewitness accounts that subsequent DNA testing showed they could not have committed.

Distinguishing appearance from reality (pp. 130)

Although sense perception is an important source of knowledge, our discussion has shown that there are at least three reasons for treating it with caution.

We may:

- 1 misinterpret what we see
- 2 fail to notice something
- 3 misremember what we have seen.

However, we must not get carried away with sceptical doubts and conclude that we can never trust our senses. After all, we take some things to be illusions only relative to other things that we assume to be true.

We should not be too sceptical because:

1 **Confirmation by another sense:** One way to distinguish appearance from reality is to use a second sense to confirm the evidence of a first. If something looks like an apple and tastes like an apple, then it seems reasonable to conclude that it really is an apple. If, on the other hand, there is a conflict between two of our senses, then we may suspect that we are experiencing an illusion. For example, if a pencil is half-immersed in a beaker of water it appears bent to the eye, but if you run your hand along it you can feel that it is straight.

2 **Coherence:** A second way of distinguishing appearance from reality is in terms of coherence. If you see something that does not 'fit in' with your overall experience of the world, then the chances are that you are mistaken. If a drunk sees a pig flying over the rooftops one evening, he is unlikely to believe that what he saw when he is sober again.

3 **Independent testimony:** A final criterion for distinguishing appearance from reality is the testimony of other people. We saw above that the evidence of a single eyewitness cannot always be taken at face value; but the credibility of such evidence is greatly increased if other people confirm it. If dozens of independent witnesses claim to have seen a plane crash into a building, then, unless you are in the grip of a conspiracy theory, there is a high probability that such testimony is true.

Ultimate reality (pp. 132)

Our perceptions are filtered by the limitations of our sensory cells (also known as the 'psychology of perception'). So while our five senses give us valuable information about the world, they each have a limited range of sensitivity, and capture only certain kinds of data in their net.

Sense	Limitation
Sight	Our eyes are sensitive only to light of a certain wavelength, and we are unable to see things such things as ultraviolet and infrared which lie beyond the visible spectrum
Sound	Wavelength of sound. (Bats also have echo-location , or 'sound vision' – they are able to emit high frequency sounds and are then able to determine the shape, size and distance of surrounding objects by the echo that is reflected back to their ears)
Smell	Only certain kinds of smell stimulate sensory cells in nose.
Touch	Minimal stimulation necessary in order to fire sensory cells in skin.
Taste	Only certain chemicals stimulate sensory cells in tongue.

Conclusion

The chapter began by stressing that perception is an important way of knowing which plays a key role in most areas of knowledge. However, as the discussion progressed we have seen that there is more to perception than meets the eye, and that we cannot simply take the evidence of our senses for granted. For not only do they sometimes deceive us, but they are also selective and can be distorted by our beliefs and prejudices. In everyday life, there are ways of distinguishing between appearance and reality, and moving towards a more accurate picture of the world.

As a general rule of thumb, it probably makes sense to doubt our senses only if there are good reasons for doing so. Admittedly, sense perception cannot give us certainty but knowledge requires sometimes less than certainty. If the perceptual knowledge is consistent with other ways of knowing, such as reason and intuition, then it is probably a good enough foundation for reliable knowledge.

Interesting articles on Sense Perception

1: Article from Psychology Today about an experiment at Stanford University in wine tasting and price. Brain activity tracked. - <http://www.psychologytoday.com/blog/evolved-primate/201002/does-price-tag-have-taste>

2: How we Feel Affects What We See - <http://scienceblogs.com/neurophilosophy/2009/06/08/how-we-feel-affects-what-we-see/>

3: Scientific study about how mood affects visual perception - http://www.science20.com/news_articles/mood_and_visual_system_optimists_literally_see_better

4: Scientific study about which region of the brain is used by people of different nationalities to solve problems. - <http://www.medicalnewstoday.com/releases/93773.php>

5: TED Talk: Beau Lotto talks about how the brain processes information from light and the implications for our ability to know reality. - http://www.ted.com/talks/beau_lotto_optical_illusions_show_how_we_see

6: Discover Magazine article about how the brain creates visual images based on shortcuts that sort through a vast amount of sensory input. - <http://discovermagazine.com/1993/jun/thevisionthingma227>

7: Discussion of the relationship between taste and smell, and smell and emotional memory - <http://www.npr.org/2010/11/26/131608865/remembering-the-scent-of-a-meal?ft=1&f=5>

8: Article on how music helps with brain development. Advocates adding more music classes to schools. - <http://www.scientificamerican.com/article/hearing-the-music-honing/>

9: TED talk by physicist about what we can learn about the universe from sound (as opposed to what we learn from light). - http://www.ted.com/talks/janna_levin_the_sound_the_universe_makes

10: Article explaining the physical mechanics of taste. - <http://www.telegraph.co.uk/science/science-news/3313628/Making-sense-of-taste.html>

11: Kahneman – ‘Thinking Fast and Slow’

<http://www.scientificamerican.com/article/kahneman-excerpt-thinking-fast-and-slow/>

12: Smelling bad

<http://www.economist.com/node/12001831>