

THE BIOLOGICAL SYSTEMS AND PERCEPTION VERBS

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ABSTRACT. THIS PAPER ADDRESSES THE PERCEPTUAL PHENOMENON AND THE ELEMENTS ALLOWING ITS EXISTENCE. WE WILL CLOSELY EXAMINE THE FIVE TYPES OF PERCEPTION I.E. VISUAL, AUDITORY, TACTILE, OLFACTORY AND GUSTATORY PERCEPTION AND REFER TO THE FACT THAT IN OUR CULTURE THESE FIVE SENSES ARE NOT ENVISAGED AT THE SAME LEVEL. THE FINAL PART OF OUR STUDY ATTEMPTS TO PROVE THAT THIS HIERARCHY OF SENSORY MODALITIES ALSO SEEMS TO BE REFLECTED IN THE SYNTACTIC AND SEMANTIC BEHAVIOR OF PERCEPTION VERBS

KEY WORDS: SENSORY MODALITIES, HIERARCHY, SYNTAX, SEMANTICS, PERCEPTION VERBS.

We can talk of the existence of perception provided that at least three main elements are present: the perceiver or perceptor as the person involved in this process, who carries out the perception, the object – animate or inanimate – being perceived and the act of perception itself. According to Martin Joos (1968), the perceptual phenomenon can be represented by an axis of visual, auditory, olfactory, gustatory or tactile perception, defined by two extremities: the perceiver and perceived object. He imagines it under the following form:

Perceiver	Perceived object
The eye of the beholder	object seen
The ear of the listener	object heard
The nose of the perceiver	object smelt
The tongue of the perceiver	object tasted
The hands of the perceiver	object touched

The idea that the perceptual phenomenon mainly consists of a direct and immediate interaction of a subject and object is the one allowing Martin Joos (1968) to state that in some cases we cannot talk about a perceptual event. Usually, this process presupposes both an operation of the subject and duration of this operation. Nevertheless, when some perception verbs are used in the progressive form or with a semantic value different from their core meaning, they receive another interpretation:

(1) He is seeing her girlfriend tonight.

I am so worried, I hope to be hearing from him soon.

I see it clearly now.

His gesture touched us.

Here, these verbs, to which we shall further devote an entire section, have a different meaning that cannot be related to pure perception.

Sekuler and Blake (1994) envisage the phenomenon of perception as a biological process wherein the brain obtains descriptions of objects and events, using information collected by the senses. Therefore, the five classical senses namely vision, hearing, touch, smell and taste have been considered as channels providing information about the world and “different modalities for conveying information about the physical world” (Classen, 1993: 4). Both definitions highlight the important status of the term information and imply a certain difference in that each sense has a particular manner to perceive, analyse and comprehend it. Biological and cultural constraints are the causes of these differences. According to Ibarretxe-Antunano (1999: 132) “biologically, each sense has its own receptors – eyes, ears, skin, nose, mouth – and its own pathways to the brain. Each sense receptor responds to different stimuli: light, sound waves, mechanical disturbances, volatile substances, and soluble substances.”

As we already know, the way in which every sense provides information on the external world is very different. Each sensory modality is connected to a specific receptor organ transforming stimuli into a subjective experience. The differentiating properties are: the nature of the stimulus, the distance and contact between the stimulus and perceiver, the location and contact between the duration of perception, the identification and modification of the stimulus by the perceiver.

Visual perception is assured by the eyes which are the main component of the visual system. Eyes capture the light – the prototypical stimulus of visual perception – and generate messages about it. Perception is successful provided that the light is strong enough and reflects the spatial configuration of the perceived object. Vision provides us with information regarding the form, dimension, orientation, colour and distance to the object.

It is considered to be a distant sense in that human beings do not need to have a direct contact with what their eyes see. Thus, even though it does not appear to be an internal sense but rather external, the physical stimulus for vision – light – must come into contact with the eyes in order to be transformed into neural elements and make this process possible.

Sweetser (1986: 531) identifies three reasons supporting the idea of a connection of vision to intellectual activity: “(i) Vision is our primary source of objective data about the world. It gives us more information than any of the other senses, and it appears that children rely most heavily on visual features in their early categorisation. (ii) The focusing ability of vision that enables us to pick up one stimulus at will from many, to differentiate fine features. (iii) Vision is identical for different people who can take the same viewpoint. Therefore, it seems to provide a basis for shared public knowledge.

In **auditory perception**, the sound waves captured by the ears represent the prototypical stimuli of hearing. This sense is the equivalent of the physiological process of these sound waves coming inside our ears. Similarly to visual perception, the sounds are registered in the neocortex, where the main part of the intellectual skills and the language faculty are situated. “These sound waves are then transformed into neural events by the hair cells and analysed by neurones specialised for frequency and sound location. In hearing, as in vision, it is possible to locate the

source and direction of stimulus, where sounds are coming from, even if the object that emits the sound is far away from us, and even if we cannot perceive with our eyes, we can still hear it” (Ibarretxe-Antunano, 1999: 210).

According to the same linguist (1999: 64), hearing is the sensory modality denoting linguistic communication in which two elements are involved namely the hearer and the speaker. The presence of the speaker be it a person or an object is always compulsory.

It has been observed that the ability to manipulate - that is to say open, close and direct the eyes - is not valid for the receptor organs of auditory perception - the ears. The mechanism of auditory perception being constantly open, it cannot be physically controlled. Consequently, in the case of hearing, the perceiver has less control over the act of perception compared to vision. In other words, within active visual perception, the perceiver physically and mentally controls the act of perception, while the control is only mental for the hearer.

Tactile perception occurs following the contact between the skin and an external entity such as a different object when mechanical disturbances produce nerve impulses. The difference with the other senses results from the fact that the sensations are due to stimulation anywhere on the entire body. Nevertheless, the organ most subject to stimulation remains the hand. Data obtained via this type of perception is superficial, sometimes not very objective. The perceiver is able to receive information about the surface, shape, size and temperature of a perceived object.

Touch provides people with the possibility to learn, interact with the others and even protect themselves from unpleasant or dangerous situations. Positive touch is very important in the life and harmonious development of each individual especially in the case of infants. Even though touch has attracted very little attention from researchers, recently, interest has been shown to how this sense functions and how a simple touch can influence a person’s health and behaviour.

Compared to the other sensory modalities, a connection between touch and the field of emotions has always been established. For instance, the frequent use of English expressions such as *‘I’m deeply touched’* or *‘touching words’* is proof in this regard of the metaphorical extension of this verb. Almost a century ago, Kurath (1921: 39) classified sense perception in respect of emotions and stated how “the kinaesthetic, the visceral, and the tactual perceptions have a relatively stronger tone than those of hearing and especially of sight, the taste-smell perceptions taking a middle ground”. He explained this transfer of meaning from sense perception to emotion on the basis of the similarity of feeling that both domains share. The other senses develop metaphorical extensions as well, aspect that will be investigated more in detail in our following chapters.

The stimuli for **olfactory perception** are volatile molecules or odours that reach the olfactory cavity either through the nostrils or through the mouth. Although these molecules are in contact with our noses, it is considered that the sense of smell does not require contact. In fact, the sense of smell has been classified – together with hearing – as a non-contact sense, because it “often signal[s] the presence of something at a distance from the perceiver” (Viberg, 1984: 148). The information obtained is projected into the limbic region of the brain, also called the emotional brain. Thus, odours receive an immediate, positive or negative valorisation. The perceiver’s age or gender, the distance between him and the source of the odour, the concentration level of odorous molecules are all factors that make this perception different from

odour to odour. We can talk of stronger odour sensitivity in the case where the perceiver is closer to the object emitting the odour so detection becomes an easier process.

We must recognize that, from all senses, sight is the one that is by far the most commonly used to objectively describe what one perceives. The smell, which is the sense the least developed in humans, cannot be interpreted similarly to the stimulus for vision or hearing. When its meaning is that of *‘perceiving an odour’*, the term *‘smell’* very often gets as a complement words such as *‘perfume’*, *‘odour’*.

The olfactory sense is very close to the affect. While vision provides a staged representation, olfaction creates the ambience and atmosphere. If visual perception is possible only in the presence of the object, the smell subsists, as the affect, in its absence. The smell becomes the index, the sign of the object. The possibility to maintain the sensation in the absence of the object allows the symbolic displacement, gives the smell the power to evoke what goes beyond the precise memory of the object. In other words, the smell is subject to displacements and condensation.

Gustatory perception is, similarly to smell, also a perception of a chemical nature, caused by the stimulation of the taste buds localized in the tongue and mouth. Gustatory perception takes place if there is a contact between the mouth and the perceived object, therefore it is a voluntary act resulting from the perceiver’s will to interact with the object containing these substances. “The physical sense of taste is generally linked to personal likes and dislikes in the mental world. Perhaps the reason why this happens lies in the fact that the sense of taste is most closely associated with fine discrimination. Among Hindus there are six principal varieties of taste with sixty-three possible mixtures and among Greeks six, including the four fundamental ones: ‘sweet’, ‘bitter’, ‘acid’ and ‘salt’. This makes the sense of taste very accurate from a descriptive point of view as it allows us to express ourselves very precisely when we want to describe a taste” (Ibarretxe-Antunano, 1999: 82).

With regard to this last sense, what would it be without vision, memory, smell and touch? When speaking about taste, we do not always think of all sensations allowing us to identify what we eat. The aspect, odour, flavour, aroma, texture are all parameters involved in the assessment of an alimentary product. All our senses determine the tastes we perceive and send our brain a multitude of messages in order to make us recognize what is good.

Summarising, the individual hears noises from a few miles distance, his sight covers distances even wider, but in order for tactile and gustatory perceptions to occur, the stimulus must be in direct contact with the perceiver. Smell is situated between two extremes: on the one hand, the stimulus must be close enough to the perceiver, on the other hand, the contact is not required.

Since the identification via the three last senses is more imprecise, the odours, tastes and physical contacts do not have the objectivity of what one sees or hears. The perception processes do not modify the stimuli, except in the case of gustatory perception: the perceiver is able to taste the stimulus provided that he changes its internal constitution. The following table (Enghels, 2005: 26) summarises the main properties of the five sensory modalities:

	Vision	Hearing	Touch	Smell	Taste
Nature of the stimulus	Light	sound waves	palpations of the skin	odours	stimulation of taste buds
Distance	± large	± large	minimum	proximity	minimum
Contact	No	No	yes	no	yes
Location	External	internal	external	internal	internal
Duration	instantaneous ± prolonged	instantaneous	instantaneous	slow	slow
Identification	Precise	precise	± vague	± vague	± vague
Modification	No	no	No	no	yes

In our culture these five senses are not envisaged at the same level. The philosophical, psychological and linguistic traditions mainly concentrate on visual and auditory perception and to a lesser extent on the others. Smell, taste and touch are considered to be secondary sensory modalities. This idea is also expressed by Ibarretxe-Antunano (1999: 210): “culturally, human beings rely more on some senses than on others. For Western societies, vision is the most reliable sense. This supremacy of sight over the other senses finds its origin at the Enlightenment, when philosophers such as Locke and Descartes regarded sight as the sense of science. However, in earlier periods of Western history, as well as in other contemporary cultures, senses such as smell, touch, and hearing are considered important in making sense of the world.”

Viberg (1984: 136) advances a hierarchy relevant for the importance given to each of the five senses in the Western culture. Vision and hearing are the highest on this scale:

- Important			+ Important
Taste/smell	< touch	< hearing	< sight

Vision and audition represent by far the senses that the researchers in this field have found the most interesting to study. The dominance of vision is explained by the fact that it is our first objective source of information on the external world: 60% of all the data that our brain receives is collected due to our eyes. In addition, the evidence visually obtained is considered as the most reliable: “[...] it was noted that the visual modality is probably the most important among the sensory modalities for obtaining useful information from the environment in our species, whereas the modalities of taste and smell in particular serve a primarily hedonic function” (Cooper, 1974b: 11).

The explanation of the superior position attributed to vision and audition is threefold. Firstly, both modalities allow the perceiver to overcome a greater distance than our other senses. Distance is understood as objective and intellectual, while proximity is rather associated with subjectivity. Secondly, they focalise the stimuli: “[...] because of the focusing ability of our visual sense – the ability to pick out one stimulus at will from many is a salient characteristic of vision and of thought but certainly not characteristic of any of the other physical senses except

hearing.” (Sweetser, 1990: 30). Finally, vision and audition allow a detailed analysis of the stimuli and the exchange of intellectual, cognitive and linguistic information. The metaphor ‘*thinking is seeing*’ is illustrative of the close connection between vision and cognition.

The hierarchy of sensory modalities also seems to be reflected in the syntactic and semantic behaviour of perception verbs. Firstly, in most languages, the visual and auditory modalities have particular verbs: see/voir/a vedea, look at/regarder/a se uita, hear/entendre/a auzi, *listen to/écouter/a asculta*. In the case of the other senses, some equivalents are missing or a single verb covers several meanings, like, for example, the French ‘*sentir*’. Furthermore, visual and auditory verbs admit a greater number of complements than other modalities. Cooper concludes that visual referents are syntactically more flexible than the referents of the other modalities. Further evidence of this flexibility, regarding the English language, is that they can appear in constructions of the type verb followed by a particle (look over, look up, look out), the compatibility with the imperative, with the second person as an object (look at you, listen to you vs. *taste you, *smell you), they can be expressed by copulative verbs (she looks sick, he sounds foreign).

Later, Cooper (1974) adds that the referents of visual perception are also semantically more flexible. Verbs of visual perception generate a lot more concrete and metaphorical semantic extensions than verbs of other senses. Indeed, Viberg’s (1984) hierarchy implies that the dominant modalities admit more non-central meanings than the inferior modalities; vision and hearing trigger semantic extensions that cover the area of other modalities.

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