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Concepts, Perception, and Wittgenstein's Theory: a conversation with the sciences

Resumen: *En el presente artículo son presentados resultados de experimentos de la psicología experimental y de la neurociencia sobre los efectos de los conceptos en nuestra percepción. Al traer estos resultados a la filosofía, se busca aproximar la utilización de los conceptos y sus efectos en nuestra percepción según el punto de vista de Wittgenstein. De acuerdo con psicólogos y neurocientistas, la utilización de conceptos puede auxiliar en el reconocimiento de sonidos, como reconocer más fácilmente el sonido de una juguera tras escuchar el susurro de las hojas. De esta manera, los conceptos, como Wittgenstein argumenta, son habilidades de agentes cognitivos, cuya utilización aprenden de forma colectiva.*

Palabras clave: *Conceptos, Percepción, Wittgenstein, Psicología experimental, Neurociencia.*

Abstract: *This article presents results from experiments of the experimental psychology and Neurosciences about the effects of concepts in perceptions. By bringing these results to philosophy, its aim is to relate the effects of the concepts in perceptions with Wittgenstein's theory about the subject. According to psychologists and neuroscientists, the use of concepts may guide the acknowledgment of sounds, such as recognizing more easily the sound of a blender after hearing the rustle of leaves. Therefore concepts, following Wittgenstein, are skills of cognitive agents, who learn them from a collective use of language.*

Keywords: *Concepts, Perception, Wittgenstein, Experimental Psychology, Neuroscience.*

1. Introduction

This article presents an analysis of experimental psychology research about the influence of concepts on perceptions and, by bringing Wittgenstein to the debate, tries to understand how the philosopher would understand such results and if his theory would have something to say on the subject. The aim, therefore, is to bring Wittgenstein closer to the psychological sciences to understand how his theory behaves with contemporary discoveries about the influence of concepts on our perception.

According to Barsalou et al. (2003), conceptual systems are constructed from modality-specific systems. Conceptual systems are the basis of knowledge, responsible for supporting all cognitive activities and experiments demonstrate that perceptual variations alter conceptual processing such as, for example, recognizing the sound of a blender faster after hearing the rustle of leaves. (Barsalou et al., 2003, 86). As claimed by Barsalou et al (2003, 87), fMRI tests confirm the representations of specific modalities in the conceptual system as conceptualizing forms of objects activates the cerebral zone responsible for perceiving forms.

Concerning Wittgenstein's theory of perception and concepts, there is a divergence among commentators. Some claim that Wittgenstein does have a theory about perceptions

as O'sullivan (2015) points out by claiming that "throughout his career, Wittgenstein was concerned with matters of the philosophy of perception". There are also those who claim that the philosopher never dealt with the subject, as Good (2006, 5) states that although in his book he deals with Wittgenstein's theories and theories of perception, the philosopher never worked on a theory of perception, only with the conceptual sense of sight: "he never had a theory of perception and was never interested in having one".

Thus, by making explicit the contemporary findings of psychologies and neurosciences on the influence of concepts in our perception, some commentators' points of view will be made explicit about Wittgenstein's theory of perception and, finally, an attempt will be made to approximate the explanations in order to look for some point of common agreement between the philosopher's theory and the discoveries of the sciences on perception and the use of concepts.

2. Experimental psychology and the influence of concepts on perception

From empirical experiments, such as brain imaging, Psychologists demonstrate that the representation and use of conceptual knowledge depend on modality-specific systems. (Barsalou et al., 2003). The human conceptual system develops the knowledge that sustains cognitive activities, viz., memory, language, thought. Researchers, using examples such as behavioral experiments and neuroimaging experiments, argue that state re-enactments in modality-specific systems ground the processing of concepts:

> Theoretical research shows how modality-specific re-enactments could produce basic conceptual functions, such as the type-token distinction, categorical inference, productivity, propositions, and abstract concepts. Together these empirical results and theoretical analyses implicate modality-specific systems in the representation and use of conceptual knowledge. (Barsalou et al.., 2003, 84)

According to psychology, concepts are knowledge about particular categories, such as 'bird'. Thus, concepts such as 'body', 'wings', 'feathers', 'behavior' represent the knowledge we acquire in analyzing the category of birds. About cognitive activities, knowledge plays an important role, such as assisting perception, inference, categorization and, in abstract processes, assists in the reconstruction of memories and provides mental representations.

Barsalou et al. (2003) present an alternative view. That is, there are proponents of the proposal about conceptual representations being structured in a modal form. However, there are also currents which base the conceptual representations in amodal form. In this way, there is a distinction between the approaches of amodality and modality, namely, between transduction and re-enactment. Regarding the distinction between the modal approach and the amodal approach on the acquisition of knowledge, in the case of the former, each specific characteristic of a stimulus that excites a given modality is stored in the memory system. That is, when listening to a song, sound characteristics are stored in memory systems close to the cerebral modality responsible for the sound representations, for instance. Neurons near the area help in the storage of information and, in the absence of the stimulus, help in the partial reconstruction of mental representation. On the other hand, the amodal approach in knowledge acquisition refers to sensory-motor representations converted into amodal representations, such as the visualization of a tree or the sound of the fall of an apple on the ground being converted into a non-perceptual representational format, such as a semantic system or a list of characteristics, for example. (Barsalou et al., 2003, 85).

According to Damasio (1989), there is evidence that corroborates the re-enactment process by proposing another way of perceiving the process of obtaining knowledge, such as the convergence zone theory developed by the neuroscientist. According to this theory, hierarchical sets of associative areas integrate information of specific modalities between the perceptual modalities. In his article "Time-locked multiregional retroactivation: A systems-level proposal

for the neural substrates of recall and recognition," the neuroscientist presents his theory for understanding the neural basis of memory and consciousness. The construction of mental representations occurs within space-time and through sequences and consequences between amodal and modal forms of functioning. That is, stimuli excite neurons located in diverse and separated regions of sensory-motor association cortices, which have a motor function, therefore, in amodal form, and the neurons responsible for specific modal areas (called by the neuroscientist of zones of convergence) connect to the neurons previously described and record amodal information from the combined organization of feature fragments which occurred in synchrony during the experience of entities or events in multiple and separate regions. Thus, as Damasio concludes:

> This proposal rejects a single anatomical site for the integration of memory and motor processes and a single store for the meaning of entities of events. Meaning is reached by time-locked multiregional retroactivation of widespread fragment records. Only the latter records can become contents of consciousness. (Damasio, 1989, 26)

Thus, multiple activations of the brain are required simultaneously for the perceptual experience to occur and during the use of mental representation, as in the case of memory recall, the process of the multiple regions occurs near the stimulated sensory channels. Therefore, the term retroactivation indicates that the experiences evoked depend on a reactivation close to the perceptual channels where the input of stimuli and the output of perceptual responses occur. Thus, there is no unique and specific location for the stimuli in a cortical region. As Damasio continues, meaning occurs by the activation of many regions through fragmented information from stimuli, depending only on the location of their storage in correspondence with the corresponding perceptual area:

> A display of the meaning of an entity does not exist in permanent fashion. It is recreated for each new instantiation. The same stimulus does not produce the same evocations at every instantiation, though many of the same or similar sets of records will be evoked in relation to the same or comparable stimuli. The records that pertain to a given entity are distributed in the telencephalon both in the sense that they are inscribed over sizable synaptic populations and in the sense that they are to be found in multiple loci of the cerebral cortex and subcortical nuclei. (Damasio, 1989, 28)

Such an idea, that is, that realizing encompasses multiple parts of the brain is corroborated by other researchers who have discovered multiplicities of subsidiary functional regions that demonstrate global sensory modal functioning. Maunsell & Van Essen (1983), for instance, have discovered some distinct visual areas in the cerebral cortex of monkeys. Such areas are well-defined hierarchically concerning their interconnection patterns, such as motion analysis and shape and color analysis.

While the amodal approach has been studied only theoretically by addressing important conceptual functions, such as the type-token distinction, categorial inference, productivity and propositions, the modal approach has been corroborated by empirical experiments. Thus, empirical experiments demonstrate the relationship between representations of modality-specific systems and working memory, long-term memory, language and thought, as demonstrated by tests in which perceptual variations alter conceptual processing such as, for instance, recognizing the sound of a blender after listening to the rustling of leaves, and perceptual similarities affect the verification of properties such as more quickly recognizing a pony's mane after checking a horse's mane rather than a lion's mane, and by reading perceptual simulations are created, for example, when reading on a nail nailed to the wall, the reader imagines a nail in the horizontal position whereas, when reading on a nail nailed to the ground, he imagines a nail vertically. (Barsalou et al., 2003, 86). Simulations also occur in object formats, such as imagining a bird with open wings while reading text on the subject (Zwaan, Stanfield, Yaxley, 2002).

When processing concepts also occurs the change of body states, such as visualizing an object immediately activates the correct shape of the hand to handle it. (Klatzky et al., 1989). Tests of fMRI (functional magnetic resonance imaging), for example, confirm the representations of modality-specific in the conceptual system. (Barsalou et al., 2003, 87). When conceptualizing colors of objects activates the area responsible for the process of the feeling of colors while conceptualizing forms of objects activates the cerebral zone responsible in perceiving forms. Similarly, action-related categories activate the motor cortex, categories with visual properties activate the visual cortex, and social categories with emotive properties activate areas responsible for emotions. (Martin et al., 2001). Barsalou (2003) claims that concepts act in this way in our perceptions of being non-modular. That is, they are multimodal simulations, since they participate in more than one modality, and are distributed in different modality systems:

> Because the conceptual system shares mechanisms with perception and action, it is non-modular. As a result, conceptual representations are multi-modal simulations distributed across modality-specific systems. A given simulation for a concept is situated, preparing an agent for situated action with a particular instance, in a particular setting. Because a concept delivers diverse simulations that prepare agents for action in many different situations, it is dynamical. Because the conceptual system's primary purpose is to support situated action, it becomes organized around the action–environment interface. (Barsalou, 2003, 513)

3. Wittgenstein's Philosophy of Perception

About concept studies in philosophy, there is no definitive theory about the subject. In the history of philosophy, there are distinct lines, each with its definitions. The classic theories on the subject analyze the concepts in terms of necessary conditions and sufficient conditions. Neoclassical theories, on the other hand, argue that concepts have necessary conditions and deny that all concepts have individually necessary and sufficient conditions. Prototype theories categorize concepts employing a list of characteristics or in terms of paradigmatic cases. Theories - theory understand concepts as entities individualized by the functions they possess in mental theories which are immanent in the mind. Finally, atomistic theories comprise most of the concepts as primitive entities impossible to be analyzed (Earl, n.d.).

Hence, the term 'concept' is used in various forms to describe mental representations, images, words, senses, properties, mathematical functions, etc., and is analyzed in different ways between philosophers and psychologists. Fodor (1975), for example, is interested in intentional explanation and defends the existence of concepts while Quine (1960) has a skeptical position on the subject. On one hand, from the psychological point of view about mental representations, concepts are considered as types of internal representations which have individual ideas depending on their specific token, such as the word 'dog' being able to have numerous inscriptions like tokens - to be big, to have bitten me, to have four legs, etc. On the other hand, philosophers consider that such types of mental representations are not identical to concepts more than types present in natural languages, such as using the Portuguese word 'cão' or the French word 'chien' to describe the dog concept, as well as imagine a scenario representing the actual animal dog. (Guttenplan, 1994, 186).

Some philosophers, such as Wittgenstein, understand concepts as skills. That is, concepts are not mental particulars but skills of cognitive agents. Therefore, it is through skepticism about the existence and use of mental representations that concepts are understood in this way. Wittgenstein does not presuppose, in this way, the existence of a private language. For the philosopher, it is from the collective use of language that we learn its use. (Margolis & Laurence, 2019).

About perception, according to Campbell & O'Sullivan (2015), since 1930 Wittgenstein worries in his writings with the nature of the visual field and the interaction between

perception, thought and imagination, as well as with problems about the role of the body in the formation of our observational and psychological concepts. In his "Wittgenstein on Perception: An Overview", Campbell & O'Sullivan (2015) present, in a general way, the philosopher's theories about perception, beginning with the analysis of the visual field. In his early writings, more specifically in the Tractatus, Wittgenstein had in mind to criticize Russell's theories of perception in dealing with such matters as the visual field and judgment. According to Campbell & O'Sullivan (2015), Russell "developed a theory of judgment which presupposes a contrast between judgment and perception" and Wittgenstein, in criticizing this view, produces his theory in which he embraces both concepts (Campbell & O'Sullivan, 2015, 10).

After returning to philosophy in 1929, Wittgenstein, by questioning his earlier understanding of visual perception, namely, visual assimilation into logical structures, began to revise his understanding of the notion of visual field as well as the notions of sense-data, visual and perceptual impressions such as the exploration between physical world and visual space in which he claims that neither the observer nor the eyes are represented in the visual field: the essential thing is that the representation of space visual representation of an object (Campbell & O'Sullivan, 2015, 13). However, in his Big Typescript, such ideas encompass appearance, sense data, and visual space, and at this point, the philosopher treats the idiosyncrasies of visual space as facts about grammar, that is, how we describe the visual field is to report how it looks to us. In this way, the visual field is only part of the grammar of our language, according to the philosopher.

Regarding the meaning of words connected to the senses, according to Wittgenstein in his Remarks on the Philosophy of Psychology, the rhythm of a sentence influences his understanding. (Wittgenstein, 1998, 1090). That is, regardless of behavioral marks can understand what is said and this is due to the familiarity between words. In the same way, when associating images with words helps in their understanding. Although such questions relate more to the philosophy of language, they can very much cooperate with questions concerning the philosophy of perception. When we read the word 'reading' we attribute to it the word 'mold', as the philosopher describes in his Brown Book:

> Look at a written word, say "read", "It isn't just a scribble, it's 'read'", I should like to say, "it has one definite physiognomy". But what is it that I am really saying about it? What is this statement, straightened out? "The word falls", one is tempted to explain, "into a mould of my mind long prepared for it." (Wittgenstein, 1998, BB, 170)

To say that meaning is a Physiognomy, therefore, is to claim a critical Physiognomy with which Wittgenstein develops an understanding of meanings based on human physiology. It is thus through the needs of the individual that one makes the meaning: "the form of critical physiognomic judgment is one of reasoning that is circular and dynamic, grasping, intention, thoughts, and emotion in seeing the expressive movements of bodies in action" (Wack, 2014). About family resemblance, using the example of a leaf as a sample in a general way of what a leaf would be –color, shape, weight– Wittgenstein deals with the impossibility of recognizing objects exactly as they are. That is, even if the leaf has a shape or a color, what color would this be, or what format would this leaf have? For whom? Thus, the philosopher defines the Family resemblance by use of the concept. It is like using the concept in question that will be understood as familiar among other concepts used in the same way, as the concept of leaf for the object thus named, namely the green object and with a certain format since it is with such object that we interact in our language game:

> Here also belongs the idea that if you see this leaf as a sample of 'leaf shape in general' you see it differently from someone who regards it as, say, a sample of this particular shape. Now this might well be so –though it is not so– for it would only be to say that, as a matter of experience, if you see the leaf in a particular way, you use it in such-and-such a way or according to such-and-such rules. (Wittgenstein, 1998, 74)

Hence, Wittgenstein is concerned not with the recognition employing comparison between mental image and perceived object, but with recognition through the behavioral use of concepts. It is using the concepts in such a way that we will conclude that we are talking about the same thing. Language is, therefore, a game with rules that we share, and, in this way, we perceive objects in the same way, that is, through the use of language. (Mizak, 2005).

4. Philosophy, Psychology, and Neuroscience: a conceptual analysis

Once the point of view of psychology about the analysis of the effects of concepts in our perception, as well as a presentation of Wittgenstein's theory of perception, has been presented, it is finally possible to develop an analysis of the results of neuroscientific experiments and under Wittgenstein's philosophy to try to find some point of convergence. The proposal is to try to understand how Wittgenstein would respond to such experiments.

Science is said to tend to confuse concepts about terms such as 'sight', 'recall', and so many psychological attributes by relating these to the brain rather than relating them to the creature to which that brain belongs (Bennett & Hacker, 2001). Bennett & Hacker (2001), in analyzing the results of neuroscientific experiments, conclude that, regardless of the empirical results of science, it is necessary to clarify the usage of concepts by psychology: "One cannot logically ascribe psychological attributes such as perceiving and remembering to the brain but only to an animal as a whole" (Bennett & Hacker, 2001, 500). With this assertion, they claim that psychological attributes are not properties of body parts, such as the brain, but rather of a complete body, and thus seek to demystify the conceptual use in neurosciences of psychological attributes.

On the use of concepts by neuroscientists, some scientists claim that the brain can experience, believe and make interpretations about the world. Others describe neurons as being capable of gaining knowledge and being able to calculate the probability of external events related to the welfare of the animal of which it is a part. Nevertheless, neuroscientists also claim that the act of seeing functions as a continuous search for answers to the questions posed by the brain and the responses acquired by external stimuli captured by the retinas are used to construct the best hypothesis about the external world, and psychologists agree that there is something like a description in the brain about the external world (Bennett & Hacker, 2001, 510-11).

The use of concepts such as 'experiencing', 'believing', 'interpreting' sounds wrong. Such concepts are normally used as activities practiced by living beings:

> We pose questions and search for answers, using a symbolism, namely our language, in terms of which we represent things. But do we know what it is for a brain to see or hear, for a brain to have experiences to know or believe something? Do we have any conception of what it would be for a brain to make a decision? Do we grasp what it is for a brain (let alone a neuron) to reason (no matter whether inductively or deductively), to estimate probabilities, to present arguments, to interpret data and to form hypotheses on the basis of its interpretations? We can observe whether a person sees something or other –we look at his behavior and ask him questions. But what would it be to observe whether a brain sees something– as opposed to observing the brain of a person who sees something? We recognize when a person asks a question and when another answers it. But do we have any conception of what it would be for a brain to ask a question or answer one? These are all attributes of human beings. (Bennett & Hacker, 2001, 511)

Therefore, to say that the brain participates directly in events, would it be a discovery about how the brain approaches human activities, a linguistic innovation, or conceptual confusion? According to Bennett & Hacker (2001), the last option is the most viable, since the brain is not capable of practicing acts such as thinking, knowing, seeing and hearing.

Such a question is philosophical because it acts in the realm of concept understanding, and thus Wittgenstein's theory is invoked to analyze the situation, which anticipates the following claim: "only a human being and what resembles like to living human being can one say: it has sensations; it sees, is blind; hears, is deaf; is conscious or unconscious". (Wittgenstein, 1998, §281). These statements, however, are not limited to human beings being also perceived in Bonobo chimpanzees when they are taught to communicate by sign language. By using language and, therefore, by their behaviors, it can confirm such attributes, and not only by cerebral analysis. This misleading way of dealing with concepts is attributed, according to Bennett & Hacker (2001) and Bennett et al. (2007), to the Cartesian dualism by dealing with matters related to the soul and exclusively to humans. Even discarded by many neuroscientists, it determines how to explain cognitive and perceptual abilities in the brain. Thus, "only a human being and what behaves like one can intelligibly and literally be said to be blind, hear or be deaf, ask questions or refrain from asking, hypothesize or abstain from making conjectures" (Bennett & Hacker, 2001, 511).

Therefore, concepts of psychology are not able to define something clearly, for their meanings are reserved to whole beings and not to their parts, that is, the ear does not hear, but the being that has the capacity of hearing. Therefore, psychological predicates do not correctly describe parts, only beings as a whole, such as a human being, a chimpanzee, and so on. To describe a part of a body as a whole is to experience, in this way, the fallacy of mereology, that is, of the relation between the part and the whole. As Bennett & Hacker (2001) point out, even though there are cases in which we may allege that "the man is sunburnt" and "my hand is sunburnt," the cases currently analyzed are those of psychology, neuroscience, and science which have no application to parts of the body and, therefore, have no intelligible application to the brain.

We perceive sensations in other humans when describing their states, as exclaiming that they feel pain by deferring an "ouch!". That is, one understands as a state of pain because of his linguistic ability and behaviors infer descriptions related to pain. Describing something through behavior, therefore, is to describe what is visible to you, or in your field of vision, how the dog has specific behaviors by perceiving a cat in front of you. It is this behavioral evidence that is the description of psychology: it is from the behavior of the living being that its mental states, such as pain, happiness etc., are therefore presupposed. Such behaviors as psychological evidence are described by Wittgenstein, as Bennett & Hacker (2001) argue, as 'criteria' and, thus, "the application of psychological predicates to another person stands in need of behavioral criteria" (Wittgenstein, 1998, §580):

> Pain-behavior is logically good evidence for being in pain; perceptual behavior (appropriate to the object perceived and to the perceptual modality involved) is logically good evidence for the animal's perceiving. Wittgenstein called such logical, non-inductive evidence 'criteria'. (Bennett & Hacker, 2001, 514)

For instance, an actor who acts to be in pain may not necessarily be feeling such a state, merely imitating the behavior. However, it is through criteria about the person's pain, behaviors, and beliefs that they will ensure that the person is in the state described by such behaviors:

> The criterial ground for ascribing psychological predicates to another person are conceptually connected with the psychological attribute in question. They are partly constitutive of the meaning of the predicate. So the normal ascription of psychological predicates to others does not involve an inductive identification. However, given the possibility of inductive (non-logical) identification becomes available through inductive correlations of subjects of psychological predicates with other phenomena, e.g. neurophysiological events in the brain. But any inductive correlation presupposes the criterial nexus that is partly constitutive of the psychological concept in question. (Bennett & Hacker, 2001, 514).

Hence, we should not attribute pain to the brain, since it does not behave correspondingly, i.e., screaming in pain, crying. Also, we attribute the experience of eating an apple or studying a book to an individual, not to their stomach or their eyes. Neuroscientific experiments, therefore, like fMRI, only demonstrate the experiences of the thinking individual at the moment of the experiment, not the experience of the brain in question: "it presupposes the concept of thinking, as determined by the behavioral criteria that warrant ascription of thought to a living being (Bennett & Hacker, 2001, 515).

5. Psychological Experiments and Wittgenstein's Theory: finding a convergence

It was presented the findings of experimental psychology and neuroscience about concepts and their effects on our cognition. Nevertheless, after presenting a few points of Wittgenstein's theory, was presented a critique about the use of concepts by the sciences in treating the human body in a dualistic way by attributing to the brain and other sense organs capacities and characteristics that are best attributed to beings, namely, the animals and human beings possessing such organs. In spite of presenting here philosophers who criticize the way neurosciences use concepts to describe brain activities, arguments will be presented below in an attempt to bring Wittgenstein closer to the neurosciences and experimental psychology with the use of Wittgenstein's theories in philosophy of language.

We now turn to the attempt to formulate arguments that corroborate a meeting of Wittgenstein's theories of perception with the experiments made explicit throughout this work. It was presented experiments that demonstrate evidence of brain activation after stimulus attributed to a particular concept. For example, experiments in which perceptual similarity affects property verification, such as recognizing a pony's mane more quickly if the participants see a horse's mane rather than a lion's mane. In another experiment, in which there is an exchange of modalities, it is quicker to recognize the sound of the blender after having previously heard the rustling of leaves rather than experiencing the taste of cranberries. In another experiment, when reading a text in which there were orientations on positions of objects, namely, when reading the position of a nail nailed to a wall, participants imagined the nail in the horizontal position and, when they read about an object nailed to the floor, people imagined it in the upright position. Likewise, when reading about birds in flight participants process images of birds flying faster than images with birds with folded wings. (Barsalou et al., 2003).

Other examples such as experiments with the use of fMRI that present physical evidence in the brain when using concepts such as activating motor areas of the brain when using movement-related concepts and, when using color-related concepts, activating area of the brain responsible for color detection, demonstrate that concepts, under the light of experimental psychology, influence the brain directly and in a different way. According to Wittgenstein's theory, it can be seen from a more detailed analysis of the empirical examples that, to detect each example, there must be a similarity between concepts. That is, to facilitate the recognition of a pony's mane it is necessary to check previously the mane of a horse rather a lion's mane. That is, it can be said that the use of a concept is more easily detected when recognizing its linguistic use, as in the case of Wittgenstein's theory about Family resemblance: a concept is recognized by its use and similarity with others.

Thus, it concludes that such psychological experiments have a common result: they corroborate Wittgenstein's philosophical theory, which claims that when we use concepts we participate in a language game in which it includes an event, the act of speculating about the event, creating a hypothesis, a history, a reading, or acting, solving riddles, translations, what needs the use of language, that is, of concepts. (Gillette & Matar, 2018).

Philosophers use Wittgenstein's theories to criticize the sciences about their dualistic use of concepts in describing the brain. However, I believe that neuroscience presents evidence for

the correct description of Wittgenstein's use of language, such as the need to develop language games to use and learn the applicability of concepts. Those concepts most used and presented in certain language games become more easily identifiable and aid in the detection of other concepts with similar use, thus corroborating Wittgenstein's understanding of the Family Resemblance: the experiments of neuroscience and experimental psychology reveal the form as we detect concepts, that is, from their use. It is through the similarity of the use of concepts that we detect them, and it is through their use that our perceptions are influenced by them.

Conclusion

This work intends to present the interaction between philosophy and empirical experiments in experimental psychology. For that, it involved neuroscientists, psychologists, contemporary philosophers and philosophers of the history of philosophy, such as Wittgenstein. By approaching the philosopher to the contemporary debates, one tried to verify an affirmation of the theories of Wittgenstein, like the games of language and the Family resemblance on the use of the concepts. By detecting the influence of concepts on specific parts of the brain, one reflects how one can interpret such activities: the detection of one concept facilitates the perception of another, and these activate certain areas of recognition in the brain as color concepts activate the area of color recognition and, of forms, activate respective areas. With this comparison between the experiments and Wittgenstein's theory, he sought to reflect on a possible interdisciplinary approach between the history of philosophy and the studies of science. Developing this mental exercise tries to approach theories of the history of the philosophy to the contemporary debates to find similarities or divergences between theories and empirical practices. The present work is part of a Ph.D. dissertation under construction and practicing these mental exercise hypotheses contributes to a better understanding of how the concepts influence our perceptions. The next step is to bring other philosophers closer to such experiments, and by using experimental philosophy, to develop philosophy experiments about how concepts influence our perceptions.

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