

Chapter 12

Perceiving Machines: Leibniz's Teleological Approach to Perception

Evelyn Vargas

1 Introduction

In recent years, many of the debates surrounding the issue of perceptual experience have focused on its representative nature. For those who claim that our experiences are vehicles that enable us to attend to things in the world, perceptual experience has been thought to be able to contribute to our epistemic lives only on the condition that it is fundamentally representational. Those who defend the non-conceptual character of perceptual experience often appeal to the need to correctly describe the overlap between human perception and that of non-linguistic animals in order to account for the content of perceptual experience.¹

The notion of perception appears prominently in Leibniz's thought. It is not only a key concept of his theory of monads, since monads can be distinguished by the contents of their perceptual states. He also ascribes the ability to perceive to animals. However, a number of difficulties may arise as soon as we attempt to clarify the Leibnizian concept of perception. For example, if the term is not equivocal, it is unclear what the perceptions (and perceptual experiences) of humans and animals have in common. Moreover, Leibniz offers two definitions of perception throughout his writings. According to one of them, for Leibniz perception is a case of *cogitatio*, or thought that is related to an object, yet in his second characterization, perception consists in *expressio*, or representation of the many in the one. Yet insofar as the former depends on the possibility of conscious thought, it would not be possible to extend the ability of perceiving to animals. Moreover, while the former might be used to argue for the view that perception can put us in contact with physical objects or bodies, it is at least controversial whether the latter can play this epistemic role.

E. Vargas (✉)
Universidad Nacional de La Plata, La Plata, Argentina
e-mail: vargaset@yahoo.com.ar

An earlier version of this paper was presented at the LSNA Conference in Princeton in 2008. Thanks to the organizers, M. Bolton and D. Garber, and to M. Kulstad and G. Brown for their insightful comments.

¹Mainly as a response to John McDowell's views on perceptual content.

Rather than attempting to provide a complete description of Leibniz's account of perception, my aim is to focus on some texts written between the late 1670s and middle 1680s, in order to analyze whether Leibniz was able to combine the advantages of both definitions into a single view, that is, whether his mature conception could provide a univocal description of both human and animal perception, while also preserving its cognitive role.

2 *Perceptio est cogitatio*

In a list of definitions probably written between 1678 and 1679, Leibniz defines sense perception (or *sensus*) in terms of the more general concept of thought. He writes:

*Perceptio est cogitatio sui et alterius simul (...).*²
Sentire est percipere mutationem aliquam cujus causam in me non percipio (A6.4.73).³

Now, although the Latin term “perception” can be applied to both conscious thought and sense perception, we can distinguish the latter, more specifically, as a kind of thought in which the subject is aware of some change but the cause of change is perceived as different from the perceiving subject. In “perception”, or conscious thought more generally, we are simultaneously aware of ourselves and something else, so that in reflective thought the cause of change is in ourselves.⁴

More precisely, as Leibniz explains in another list of definitions, when we have a sense perception two bodies resist each other, in such a way that we perceive one as our own, the organ, and the other body as alien to us, the object:

Si duo corpora sibi resistant, et nos actionem passionemque unius percipiamus velut ad nos pertinentem, alterius velut alienam, illud corpus dicitur organon, hoc dicitur objectum; ipsa autem perceptio dicitur sensus (A6.4. N 267).⁵

On this approach, sense perception involves conscious thought and conscious thought involves an awareness of otherness as complementary to self-awareness. What distinguishes sense perception is its explicit reference to bodies, that is, to the perceived object and the body to which the mind is organically united. As regards the perceived object it is explicitly acknowledged as an external body and if we assume that sense perception involves a change in our mental state, which we perceive, then the perceived object is also the cause of change, or the cause of cognition.⁶

²“Perception is thought of oneself and other simultaneously.”

³“Sensing is perceiving some change whose cause I do not perceive in me.”

⁴In other words, reflection is perception of oneself as opposed to the perception of a variety.

⁵“If two bodies resist each other and we perceive one as pertaining to us and the other as alien to us, we call the first body an organ and the second body an object; but the perception itself is called sense.”

⁶In a later text cognition is explicitly defined as thought referred to an object (A6.4. 802).

We can find a similar view in Leibniz's commentaries on Simon Foucher's response to Malebranche where Leibniz draws a distinction between a cause and an immediate object in order to characterize concepts and sensations. Leibniz writes:

Par consequent les objets immediés de nos perceptions, ou les causes prochaines de ces différentes pensées different aussi entre elles (. . .) et la cause immediate hors de nous des pensées de l'étendue, des couleurs, etc. (s'il y en a une hors de nous) est appellée matière (A6.3.318).⁷

The cause of sensation is matter, and since we are the cause of intellectual notions, their cause coincides with their object. In other words, concepts and sensations are different kinds of ideas with different representational contents which represent their different causes:

J'appelle ces sensations des *idées* (. . .) Je les appelle encore les effets que les objets extérieurs produisent en nous par nos sens; et je dis que ces idées ne nous represent pas ces objets tels qu'il sont en eux-mêmes; mais seulement ce qu'ils produisent en nous (A6.3.323).⁸

Now sensations, such as our ideas of color, do not represent their cause accurately, since they do not represent physical objects directly but through their effects on our organs. These impressions or effects on our organs are themselves signs (A6.3.322).

Sense perception is relational, but what stands at the other side of this relationship, or the external body, is in fact our own body. Consequently, one may think that Leibniz's definition of perception in terms of thought, on the one hand, and this characterization of sensation, on the other, are slightly different, not only because the one emphasizes the activity of the mind and the other its representational content, but also because of its focus on the mediating role of the organ, insofar as our bodily impressions are signs or effects of the material object causing the perception. The second view, on the other hand, explains the recognition of otherness in terms of our awareness of two bodies reacting to each other, and so it might seem that the representational view, in which sensations are ideas, is more easily associated to skeptical doubts.

Leibniz had discussed the skeptical arguments against the existence of the external objects of perception in a letter to Foucher of 1675:

. . . or cette variété des pensées ne scauroit venir de ce qui pense, puisqu'une même chose seule, ne scauroit estre cause des changemens qui sont en elle. (. . .) puisqu'il n'y a point de raison de cette variété qui ait esté de toute éternité en nos pensées; puisqu'il n'y a rien en

⁷"Consequently, the immediate objects of our perceptions or the near causes of these different thoughts differ from each other too (. . .) and the immediate cause outside of us of our thoughts of extension, colours, etc. (if there is an "outside of us") is called matter."

⁸"I call these sensations ideas (. . .) I even call them the effects the external objects produce on us by our senses; and I say that these ideas do not represent those objects to us as they are in themselves; but only what they produce on us."

nous qui nous determine a celley plus tost qu'à une autre. Donc il y a quelque cause hors de nous de la varieté de nos pensées (A2.1.248).⁹

So, by applying the principle of sufficient reason, he can claim that the better explanation of our perceptual experience of objects is to accept that the external things are the cause of the complexity of our perceptual thoughts. Otherwise there would be a change without a reason.

In sum, Leibniz's early account of perception conceives perception as a relational act of thought, in which the self is related to something else; what is represented as other is an external body through our own reacting organs. The representational content of the perceptual experience inform us of the changes taking place in our bodies, that is, although reflection and sense perception belong to a common class of mental experiences under the term *perceptio*, it is what causes the change in their representational content that distinguishes them. The mental act approach and the representational approach can be related in terms of the cause which explains its reference to external objects. However, in order to refer the representation to an object, an awareness of the object as an object for me is required. But for this very reason only minds can perceive.

3 Cogitatio est expressio

Although Leibniz had already introduced the doctrine of expression, in April 1679 he is still uncertain as to how the mind passes from one thought to another. In other words, he seeks to explain how affections are produced in the mind. This is the aim of a series of definitions and reflections collected under the title of *De affectibus*.

First, Leibniz regards affections as the actions and passions of the mind. He then reports Descartes' classification of the actions and passions of the soul, according to which its actions consists of volitions and its passions are perceptions, whether of concepts or sensations. But Leibniz's successive attempts to offer his own definition attest to his dissatisfaction with the Cartesian sharp demarcation.

In different passages Leibniz proposes provisional definitions of affection and other related concepts. For our present purposes we are concerned with one particular issue, that is, whether Leibniz believed that external objects can give rise to new thoughts as he did according to my previous quotation. One passage seems to rule out this possibility since Leibniz writes that "... the cause of thought is another thought ... " (A6.4.1424), or a series of thought, as he adds later.

From this point of view a new thought is some change or aggregate of two contradictory states (Ibid.), and as such only an action can be its cause. But an action can also be seen as an effect of change. When these definitions are applied to the

⁹"... this variety cannot come from that which thinks, since a single thing by itself cannot be the cause of the changes in itself. (...) for we would always have to admit that there is no reason for the particular variety which would have existed in our thoughts from all eternity, since there is nothing in us to have one kind of variety rather than another. Therefore there is some cause outside of us for the variety of our thoughts." (Translated in AG 3)

mind, we can say that a judgment or belief is a thought from which an endeavor or *conatus* to act follows, but Leibniz still hesitates to consider volitions as actions or endeavors.

In another series of related definitions Leibniz acknowledges two kinds of judgments according to their origin, reason or the senses, and since cognition is now defined as true judgment or belief, and a true judgment is that which can be resolved into other judgments that we believe, but which cannot be resolved into other more basic judgments, it must be explained what justifies our perceptual belief in external objects. Although he refers to the plurality involved in our thought as the cause of a new series of thoughts, the method of resolution he introduces here cannot provide the necessary evidence. Even if Leibniz also claims that the "matter of thought," or its representational content, can lead the mind to new thoughts, an independent argument to establish that external objects are the causes of complex perceptual content seems to be required. So it is not clear from the text what Leibniz means by the claim that perception is "the affection of the mind which involves the existence of its object" (Ibid.). We can only speculate that the reason for this assertion is his belief that phenomena are ordered in a common spatio-temporal framework, and this is a sign that they refer to something outside the mind.¹⁰

Interestingly, Leibniz also appeals to final causes in his account of affections. According to one of his definitions:

A f f e c t u s est determinatio animi a cogitatione boni et mali ad quandam cogitandi progressionem (Ibid.).¹¹

However, these final causes directing the course of thoughts are the conscious purposes of the thinking subject:

Cogitatio animum duas ob causas occupat, vel quia a finis sive boni consideratione avertit, et oblivionem finis inducit, quod facit cogitatio aliqua singularis, sive multam cogitandi materiam ab aliis remotam in se continens; vel quia finem seu bonum aliquod ipsa continet. Finis autem nobis est voluptas aliqua aut quod ad eam confert (Ibid.).¹²

Now, as some scholars have pointed out, modern natural philosophers tended to limit the scope of final causation to intentional action, that is, final causes can act on the world only as instruments of rational agents.¹³ In Leibniz's definition final causes give rise to new acts of thought. In the next section we will see that only

¹⁰And this is a sign of existence that abstract or merely ideal things lack.

¹¹"Affection is the determination of the soul by the thought of good and evil to the progression to some thought."

¹²"Thought occupies the soul because of two causes, or because it diverts itself because of the consideration of an end or good and induces the oblivion of the end, which some single thought makes or contains in itself a lot of different matter of thought; or because it contains an end or good. But for us an end is some will or that which contributes to it."

¹³See Des Chene (1996) for an account of the transformation of the notion of final cause in the context of late Aristotelian and Cartesian natural philosophy.

by reintroducing substantial forms in his program for natural philosophy¹⁴ can final causes regain a wider scope of application which would include animal perception.

Despite the provisional and incomplete character of the text, some points deserve to be remarked on. First, in any of these definitions Leibnizian perceptual experiences involve an awareness of otherness to constitute the kind of experience they are. Second, perceptual content, to which he refers as the matter of thought, is now characterized in terms of its complexity alone. But then one may wonder how an act of the mind is related to its representational content. A clue to this question might be found in the following principle:

In omni actione et passione necesse est agens in patiente exprimi (A6.4. 1093)¹⁵

The relation of expression is introduced to define thought as the expression of multiple objects in one subject (Ibid.). At the same time thought requires some action by the subject and thus perception results in a case of action “on oneself.” Consequently, even if according to the principle of expression of actions and passions just cited our mental acts can be representational insofar as they can be described in terms of the actions and passions of the mind, those actions which are expressed in the thinking subject are referred to the thinking subject who perceives his own passions rather than to an external object acting on her. In addition, since perception is a case of expression only because it is a kind of thought, no room seems to be left for perception in animals. What is required is a way to apply this principle to a more general conception of cognition and the ability to represent.

4 Animal Perception

In recent decades, epistemologists of a naturalist leaning have advocated externalist accounts of perception which would explain perceptual abilities in both humans and animals. Some medical texts written between 1680 and 1682 provide us with evidence that in those years Leibniz as well believed that an adequate account of organic functions would not be complete unless it includes perceptual functions in animals. Now, even if the final goal of animal physiology is a better understanding of the human body, this aim can only be obtained by studying animal anatomy and functions if these are similar in humans.

“The body of humans, like that of any animal, is a sort of machine,” Leibniz writes in a text devoted to the physiology of living machines (Smith 2007, 150; Pasini 1996, 217). Within the framework of mechanical theory animal perception occurs when a disturbance in the sensory organ’s state of equilibrium occurs and

¹⁴As Michel Fichant has put it, “. . .la “Réforme [de la dynamique]” a contribué, conjointement avec d’autres justifications complexes, à la rehabilitation des formes substantielles, sur la voie d’un nouveau concept de substance et d’une “correction de la Philosophie première.”” (Fichant 1994, 60).

¹⁵“In every action and passion it is necessary that the agent be expressed in what is acted upon.”

the equipollence of forces must be restored by motion. The animal's body responds to the changes in its environment and the corresponding changes in its organs are ruled by the recently established dynamical principles governing motion and motive forces:

Cum vero ab externa vel interna causa aliqua facta est inaequalitas, quod fit cum sensus animalis sollicitantur tunc tota vis flatus nititur vel ad restitutionem vel (...) compensationem, ... quoniam causa motus semper praesto est ... (Ibid., 162; Ibid., 223)¹⁶

Yet, the changes in the sensory organs are not themselves perceptions, since the origin of sense is some substantial form or soul in which the force inheres:

Quoniam autem aliquando demonstrabimus, aliud longe esse vim, aliud motum, et motum quidem inesse moli extensae, vim autem motricem¹⁷ inesse alteri cuidam subjecto, quod in corporibus promiscuis formam substantialem, in viventibus Animam vocant, <in Homine Mentem> inde *sensus* quoque atque *appetitus* in Animalis origo, et motus quo vel in corpus agit Anima, vel a corpore patitur, poterit explicari, inexpectata claritate (Ibid., 164; Ibid., 223–224).¹⁸

As a mechanical and dynamical event, the motion in the perceptual organs is subject to the rules of motion which are grounded in the force intrinsic to the soul. But without a reference to mental conscious states it may seem that the attribution of perceptual abilities to both animals and humans is only an equivocal way of speaking. Nonetheless Leibniz explicitly qualifies animal perception as a case of cognition, which is defined as a certain representation or expression of external things in the individual:

Forma substantialis est principium actionis seu vis agendi primitiva. Est autem in omni forma substantiali quaedam cognitio hoc est expressio seu repraesentatio externorum in re quadam individua, secundum quam corpus est unum per se, nempe in ipsa forma substantiali, quae repraesentatio conjuncta est cum reactione seu conatu sive appetitu secundum hanc cognitionem agendi (A6.4. 1508).¹⁹

¹⁶“When to be sure a certain inequality has arisen from an external or an internal cause, which happens when an animal's senses are aroused, thereupon the entire force of the breath pushes either towards a restitution or, when it can not do this, towards an offsetting of very short duration [which, since often, on account of the structure or the present location of the parts, cannot be obtained without tremendous upheaval]. Hence at length there arises from a small cause a great *motion in the animal*, since the cause of motion is always at hand to the thing to be moved, and awaits release.” Note that I did not quote the complete paragraph. I use “[]” to indicate the omitted parts.

¹⁷Leibniz previously wrote “Vim substantiae cuidam incorp . . .” and “vim activam”.

¹⁸“Since moreover we will at length demonstrate [that] force is one thing, motion quite another, and motion indeed inheres in an extended mass, while motive force inheres in a certain other subject, which is called in common bodies the substantial form, in living bodies the Soul, in Man the Mind, whence in animals the origin of *sense* as well as *appetite*, and *the union of the soul and the body*, and the way in which either the Soul acts in the body, or is acted upon by the body, will be able to be explained with unexpected clarity.”

¹⁹“The substantial form is the principle of action or the primitive active force. But in every substantial form there is some cognition, that is, some expression or representation of the external things in an individual thing, according to which the body is *unum* per se, that is, in the substantial

Cognition is then a case of the relation of expression whose terms are external things and a certain principle of action or substantial form by which its body receives its unity.²⁰ Organisms, such as the macroscopic animals we observe, are endowed with an organic unity. As to the relation of representation, Leibniz summarizes the results of its original enunciation in *Quid sit idea*:

Repraesentare autem dicitur quod ita respondet, ut ex uno aliud cognosci possit, etsi similia non sint, dummodo certa quadam regula sive relatione omnia quae fiunt in uno referantur ad quaedam respondentia illis in alio (A6.4. N 78).²¹

The related terms are not required to be similar, but a certain rule must obtain so that every relation in one term can be referred to something in the other term of the relation. Consequently, if perception is some sort of cognition, the perceptual representation is only a sign of the perceived object.

But Leibniz goes further. In our previous quotation he also claims that in the soul this representation is united to a certain reaction to act according to this cognition. It can be argued that this follows from the fact that the soul is the principle of action of the animal.

Now this is not to say we have explained how animal perception can fulfill its informative role. On the one hand, perception, insofar as it is some action performed by the animal, involves a physiological aspect. This in turn involves a soul or substantial form, since the reaction of the sense organ is some kind of motion. Perception as a representational process, on the other hand, involves a relation between the object and its perceptual representation according to a rule.

These two approaches can converge into a single view once we appeal to the concept of organic unity. Basically, by organic unity we mean an intra-organic teleology. In things endowed with an organic unity, the particular functions can be integrated, since an organism can control and coordinate its processes in an integrated way. For Leibniz self regulation and autonomy are grounded in the principle of action of the organic being.

According to Leibniz's project for developing "the new elements of medicine",²² perception is the primary function in humans, to which all other organic functions are subordinated. But not only are functions ranked in order of priority; the account of anatomical structures is also subordinated to their physiological functions.²³

form itself, representation that is united to a reaction or *conatus* or appetite to act according to this cognition."

²⁰Compare this definition with cognition as true judgment in *De affectibus* (see Section 3 above).

²¹"But it is called representing that which so corresponds, in order to be possible one to be known from the other, although they were not similar, in such a way that by a constant rule or relation all the things which happen in one are referred to something that corresponds to them in the other."

²²*De scribendis novis Medicinae Elementis* (1680–1682)

²³For an account of the use of final causes as a methodological tool in the study of living beings see Duchesneau (1998).

More precisely, the organ is the means or requisite for the animal to perform a certain function, which is the end of the organ:

In omni Machina spectandae sunt tum functiones eius, sive finis, tum modus operandi, sive quibus mediis autor machinae suum finem sit consecutus. (. . .) Functio hominis primaria est perceptio, at secundaria (quae prioris gratia est,) perceptionis est procuratio. (. . .) Perceptionis gratia sunt organa sensuum; procurandae perceptionis sive actionis gratia sunt organa Motus (Pasini 1996, 212).²⁴

If my analysis is in its broad outlines correct, perception as an organic function can be explained by means of final causes. That is, a certain anatomical feature may be said to exist for the sake of the effect which constitutes the purpose of that feature (for example, if the anatomical structure of the heart facilitates the pumping of blood, pumping blood is the purpose of that feature). In a similar way, perception as an organic function is end-directed as well as representational. As we have seen above, the processes in the sensory organs are the effects of external objects physically connected to them, and can be regarded as their signs even if they do not resemble them. As I also indicated earlier, Leibniz claims that the representation of external things in the individual is united to a certain reaction or endeavor to act according to that cognition. Thus it is possible to say that perceptual experience is a case of a representational relation in which a certain action, such as the animal's behavior, is formed in response to a certain informative content representing an object. A perceptual experience is then related to its object insofar as it is end-directed and the purposeful behavior can be seen as interpreting signs. This interpretation can only occur for the sake of some end in the sense in which we can say, for example, that the prey's behavior interprets its predator's odor as a sign of danger.²⁵

Now end-directness does not presuppose consciousness, and so the object of perception is not specified by conscious thought; rather, there is an inseparable connection between purpose and object. For Leibniz, perception is an end-directed process insofar as the substantial form is the principle of action of created substances, the primitive force from which the series of its changes result. Perceptual experience without reflection as it is required in animals can take place because the changes in the animal soul are correlated to changes in its environment according to a rule, and the corresponding motion represented in the soul is the final cause. The details of this "quasi-externalist" account of perception as an organic function will have to be developed further. However, for my present purposes it suffices to say that

²⁴"In every machine it must be considered their functions or ends, or their way to operate or by which means the author of the machine has achieved his end (. . .). The primary function of man is perception, but his secondary function (which exists for the sake of the primary function) is to obtain perceptions (. . .) The organs of sense exist for the sake of perception; the organs of motion exist for the sake of obtaining perception or action."

²⁵For Leibniz this behavior would involve the representations of memory, for example when ". . . a dog runs away from the stick with which he was beaten. . ." (AG 208; see also AG 216)

my construal is grounded in two major Leibnizian doctrines: his general definition of expression, and his doctrine of the actions and passions of created substances, from which the relation of expression²⁶ can be specified to include perceptual cognition in both humans and animals.

5 Perception of the External World

We share perception with animals in the relevant sense. In animals, perceptible images do not turn into perceptual judgments, of course, but into some specific behavior; in humans, on the other hand, the end of perceptual experience can be a perceptual judgment concerning external objects. It is the case that in certain circumstances we have a perceptual experience without the associated belief.²⁷ The belief-independence of perception is a fact about perceptual experiences that may be used to account for the similarities as well as the differences between human and animal sentience, in the sense that perceptual belief is not a constituent of perceptual experience qua experience of external objects, and the relation between experience and judgment may account for what is specific to human perception.

According to the conception of perceptual experience I introduced in the previous section, perception is not a kind of thought but it is nonetheless representational. Moreover, it can be distinguished from reflection since it takes place through mediating signs while self awareness does not involve signs because we are immediately aware of ourselves:

Reflexio itaque seu memoria vel conscientia, mentium propria est. Reflexio proprie est memoria cogitationis proxime praecedentis. In sui ipsius perceptione consistit imago divina nobis indita. Non puto ab ullo bruto exerceri illam vim quam in me experior cum volo ut cogitem me nunc cogitare, et hoc ipsum admirer, et continue in me replicem, nullo signi alicujus usu interveniente sed intima quadam perceptione, ubi vim simul nobis facimus imagines ab ea cogitatione avocantes amolendo (A6.4. 1490).²⁸

The autonomy of reflection is required to ground the privileged position of man in creation as a moral agent endowed with an immortal soul:

Illae solae animae sunt Mentis in quas cadit cognitio sui ipsius seu conscientia. Hae solae praemiorum poenarumque sunt capaces, et solae habendae sunt pro civibus ejus Reipublicae

²⁶Note also that the equipollence principle which grounds dynamical processes is a case of the relation of expression (A6. 4. 1371).

²⁷When we doubt, for example, whether an appearance corresponds to a determinate object, since there is no judgment involved in an act of doubting (A6.4. 1414). Consider also the case in which the perceiver is experiencing an illusion (e.g. the Muller – Lyer illusion) well-known to her, and she refrains from judging that things are as she sees them (i.e., that one line is longer than the other).

²⁸“So reflection or memory or consciousness is proper to mind. Reflection is properly the memory of the preceding thought. In the perception of oneself consists the divine image given to us. I do not believe that force I experience in myself when I will to think myself as thinking is exerted by any brute, and I admire it and I unfold continuously in me, not by any intervening sign but by an intimate perception, when we exert the force by deflecting the distracting images from this thought.”

cujus Rex est Deus. Ex mentibus autem eae solae felices sunt, quibus datur cognitio Dei. Aliud est percipere, aliud percipere quod perceiveris, seu meminisse. In brutis itaque perceptionem agnosco sive sensum eorum quae fiunt, (. . .) sed non agnosco in illis conscientiam, . . . (Ibid.).²⁹

In our teleological account of perception, three terms were considered: not only the object and its expression in the soul or the mind, but also the action or tendency to act involved in representing the object. If perception is a kind of cognition that is independent from judgment and belief, making a judgment is a free act of the will. Yet that perceptual experience introduces an external constraint on our judgments is a condition for any robust theory of perception. In any case Leibniz acknowledges the fact that humans usually believe that external objects are the cause of their perceptions. Now although the dynamical framework makes use of causal vocabulary, the meaning of our causal statements concerning the objects of perception has to be properly understood. As Leibniz explains in the *Discourse on Metaphysics*, we can meaningfully say that we know external things through our senses in the same way we can still say that the sun rises even after the Copernican hypothesis has been generally accepted. We can justify this way of speaking because “some external things contain or express more particularly the reasons that determine our soul to certain thoughts” (AG 59). The action of external objects on the sense organs is expressed in the perceiver's representation in a way that this representation is constrained from outside and supplies the “matter of thought.” What counts as a reason for holding a perceptual belief is –potentially– present in the perceptual experience, which does not require the presence of causality, in the ordinary sense, in order to be veridical.³⁰

6 Conclusions

I have concentrated on two main problems concerning perceptual cognition: the possibility of animal perception, and the arguments in favor of its objective value. Once perception is conceived as some affection or transition from one thought to another, the confused matter of thought can be developed by the will into a series ordered in space and time. But when perceptual experience is conceived as an organic function, it can be regarded as the exercise of force. Leibniz's solution is intimately related to his treatment of animal perception and the introduction of final causes into the account of the actions and passions of created substances. An analysis of these features puts into question the argument in favor of external things as the cause of

²⁹“The only souls which are minds are those in which a cognition of oneself or consciousness takes place. Only they are capable of reward and punishment and are to be considered citizens of the Republic whose king is God. But among minds the only happy ones are those in which the cognition of God is given. One thing is to perceive, another to perceive that we perceived or to remember. So I acknowledge perception or sense of what happens in brutes (. . .) but I do not acknowledge consciousness in them.”

³⁰What we need is a reliable method to elicit distinct knowledge from the content of experience.

perceptual experiences. However, I suggest that Leibniz's mature definition of perception can account for representation without thought by introducing teleology into the world.

References

Abbreviations

- A* *Sämtliche Schriften und Briefe*. Edited since 1923 by various Leibniz Research Centers in Germany. Currently published by Akademie Verlag, Berlin [quoted by Series, Volume, Page(s); e.g.: A6. 4. 217].
- AG* 1989. *Philosophical Essays*. Eds. and trs. R. Ariew and D. Garber. Indianapolis, IN: Hackett.
- Smith* 2007. *The Body-Machine in Leibniz's Early Physiological and Medical Writings: A Selection of Texts with Commentary*. ed. and trs. J. E. H. Smith. *The Leibniz Review*, vol 17, 141–179.
- Pasini* 1996. *Appendici: Inediti leibniziani*. In E. Pasini. *Corpo e funzioni cognitive in Leibniz*. Milan: Franco Angeli.

Secondary Sources

- Des Chene, D. 1996. *Physiologia. Natural Philosophy in Late Aristotelian and Cartesian Thought*. Ithaca, NY and London: Cornell University Press.
- Duchesneau, F. 1998. *Les modèles du vivant de Descartes à Leibniz*. Paris: Vrin.
- Fichant, M. (1994). Introduction. In *La réforme de la dynamique*, ed. G. W. Leibniz. Paris: Vrin.
- Gendler, T. and Hawthorne, J. (eds.). 2006. *Perceptual Experience*. Oxford: Oxford University Press.
- Kulstad, M. 1991. *Leibniz on Apperception, Consciousness, and Reflection*. München: Philosophia Verlag.
- McDowell, J. 1996. *Mind and World*. Cambridge, Mass.: Harvard University Press.