

Language in the Mind's House¹

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It happened to me one day to say that Cartesianism, in what good it has, was only the anteroom of true philosophy. A person in the company, who frequented the court, was well read, and even had ideas about science, pressed the figure into an allegory—maybe a little too far. For, he asked me whether I didn't think that one could say, along the same line, that the ancients led us up the staircase, that the modern school had arrived at the guards' room, and that, if the innovators of our century had managed to reach the anteroom, he wished me the honor of introducing us into Nature's sanctum. This parallel made us all laugh, and I told him, "You see, Sir, your comparison has rejoiced the company. But you forgot that between the anteroom and the sanctum there is the audience chamber, and that it will be enough if we obtain audience, without purporting to penetrate in the inner sanctum" (VE, p. 1867).

1. Porch

"I very much approve the search for analogies," Leibniz assures us (GP V, 24).² Let us then follow his advice. Let us employ the beautiful allegory we have chosen as a motto in order to spell out the Leibnizian conception of the relationships between language and mind. The question will be: up to what point language can lead us in this building, whose inner cabinet is occupied not by nature, but by the highest cognitive capacities of the human mind?

Before crossing the door, since we want to be systematic and disciplined explorers, let us pause to consider the equipment we will use in order to fulfill our mission in the best possible way.

1.1 Thread

As everywhere in the labyrinth of Leibniz's texts, we need first of all a leading thread, a *filum Ariadnes*. Since we are drawing parallels between language and mind, our thread must comprise at least three fibers. It must give us indications about the range of application of the terms 'language' and 'mind', as well as about the kind of relationships between them we should be looking for. In order to avoid overloading ourselves with preliminaries, I propose to thread our triple cable by exploring the interpretive potential of a well-known Leibnizian saying in the *New Essays*: "Languages are the best mirror of the human mind" (GP, V, 313).

The general context where this claim is made refers to natural languages. The more specific context is even more precise: it is concerned with what can be learned

from an examination of linguistic “particles” regarding the “forms of understanding” or the “operations of the mind.” The relationships between language and mind revealed under this narrow prism are no doubt important and deserve much attention (cf. Dascal 1990). However, our concern here is not with the details of one room, however important it may be, but with the building as a whole. Therefore, I propose—with the typical freedom of an explorer of analogies—to expand the meaning of Leibniz’s remark beyond the context where it has been made.

On the one hand, the set of “languages” to be taken into account here includes natural languages in their synchronic states as well as in their diachronic evolution, attested as well as hypothesized, for one should not overlook the speculations about an “adamic language” nor Leibniz’s etymological fantasies. It includes also those systems of signs that Leibniz undertakes to develop, some of which he called “languages”: philosophical, universal, general, rational *language*; logical, universal, rational *calculus*; verbal, geometric, real, universal *characteristic*; rational, universal *mathesis*; etc.

On the other hand, the “operations of the mind” mirrored by language must also be broadly understood. Besides the concatenation of concepts or propositions, marked by prepositions and conjunctions, one should take into account the non-cognitive “operations,” such as emotions, as well as other aspects of the mind’s cognitive activity, such as perception and apperception, memory, discovery, and the various types and degrees of knowledge.

As for the third component of our thread, we must consider the kinds of mirrors that languages are *vis-à-vis* the mind. In this, we follow Leibniz’s own awareness of the existence of a variety of mirrors. First, languages are a “plural” mirror: it is in the correspondence between the *ensemble* of our linguistic/semiotic activities and the *ensemble* of our mental activities that the one reflects the other; and it is within the context of such a plural correspondence that point-to-point correspondences acquire their meaning. Each of the little drops of foaming water is a little mirror that reflects its portion of light, but it is only the ensemble of their reflections that lets us see the whiteness of the foam (GP, I, 19). Second, the mirror must be a synoptic one, in order to give us an image of the whole object. Whereas the microscope reveals to us only a part of a body, a concave mirror presents us with the totality of the body in a glance (GP, VII, 267). Thirdly, this mirror may enlarge as much as we want what it reflects (GP, VII, 267), while presenting distinctly both the rays lying in the optical axis and those outside it, just like the little lenses Leibniz claims to have invented (GP, I, 59). Finally, it will be an “active mirror” (GP, III, 72; GP, IV, 557). This does not mean that it is a “living”

mirror, i.e. one “endowed with internal action,” like the monads (GP, VI, 599). It means that languages do not just passively reflect mental activities performed independently of any language, but rather play a fundamental role in the performance of these activities.

1.2 Historical Context

Our building is located on a central street of the European *République des Lettres*, in the 17th precinct of history. The citizens of the Republic, the “moderns,” once they have raised the question of the relationship between language and mind, have in fact inaugurated a debate that continues up to our day (cf. Dascal 1995). In order to understand Leibniz’s views on this subject, it is indispensable to situate them at least with respect to those of his immediate neighbors in this debate. I will do so by recalling two radically opposed positions, which signal clearly the two poles of the debate.

For Descartes, language is no doubt a privileged mirror of the mind. It is the very fact that “even the most stupid” man can understand language and react to the meaning of whatever is said in his presence that proves, better than anything else, that he is not a machine, i.e., that he possesses a mind capable of thinking (AT, VI, 56-57). But such a mirror is entirely external to that which it reflects. Language provides us with the means to “declare our thoughts to the others” (ibid.), i.e., it has only a communicative function. The mind, in its cognitive activities, grasps and manipulates ideas directly, rather than signs of these ideas (AT, X, 387-388). Any linguistic interference in mental operations risks compromising truth and validity (AT, X, 406). From this point of view, neither the development of a logical calculus, nor the creation of a “philosophical language” have, for Descartes, any real value for the progress of knowledge. A philosophical language—he writes in his well-known reply to Mersenne—cannot help in the advancement of science, because it depends upon the perfection of science. All languages, however perfect, are nothing but the clothing of a thought entirely independent of them. For Descartes, therefore, if we want to penetrate the mind’s house, we must first undress the linguistic clothing, leaving language at the porch.

At the other extreme we find Hobbes’s position. Hobbes, it will be recalled, conceives of reasoning as a calculus performed through the manipulation of linguistic signs. “Reasoning”—he writes—“is nothing but a reunion and chaining of names by means of the word *est*” (4th Objection to Descartes’s *Meditations*; AT, IX-1, 138). Rather than placing language at the doorsteps, Hobbes introduces it at the very core of the mind’s cognitive sanctum. For Descartes, it is so evident that “the reunion made in reasoning is not that of names, but of the things signified

by these names” that he cannot but be astonished by the fact that “the opposite may occur to anyone” (AT, IX-1, 139).

Nevertheless, Descartes’s astonishment, however sincere, doesn’t persuade the 17th and 18th centuries to throw Hobbes’s thesis in the wastebasket. It remained a worthwhile option regarding the mind-language relationship. Even for those who did not accept its extreme hobbesian form, it had the merit of calling into question the Cartesian *parti pris*, by suggesting the possibility that language is not merely the external clothing of thought, but plays some role in thinking processes themselves. The precise nature of this role—of the kinds of mental operations to which language contributes, of the properties of language that allow it to do so, and of the consequences of such a partnership—were and still are the object of intense debate. This debate explores the space between the two poles—complete externality of language vis-à-vis thought vs. its constitutive role in thought. It is important to notice that, in this debate, the participants do not range themselves according to the traditional dividing line between empiricists and rationalists. Spinoza the rationalist joins forces with Locke the empiricist in defense of the externality of language, whereas Condillac the declared empiricist defends, with Leibniz the super-rationalist, if not the identification of thought with the processing of linguistic signs, at least the thesis that language plays a fundamental role in cognition (cf. Dascal 1990b, 1990c, 1995).

2. Staircase

Whoever wants to get to know the mind’s living quarters must take a look at the neighboring houses: those of the animals, at the left side; those of the “pure spirits” (the angels, God), at the right side. In general, 17th century thinkers follow the Old Testament, both in its creationism and in its thesis that man is made “at God’s image”—from which it would follow that humans are closer to their right wing neighbors.

A crisply dualistic thought such as Descartes’s can easily set aside the animals, putting them in the category of spiritless machines. All we have in common with them is the physiology of our bodies which, except in its mysterious contact with the mind through the pineal gland, has nothing to do with the latter. But for someone who adopts the principle of continuity like Leibniz, things are not so simple. The Cartesians were wrong in identifying animals and machines, he claims (GP, IV, 494); they have exaggerated the separation between man and animal; they have “shocked the common opinion by denying feeling to animals” (GP, VI, 600).

To be sure, it is out of the question to attribute to Leibniz some sort of evolutionary theory, but in climbing the staircase that leads to the upper chambers of the mind's house, one should examine carefully not only what separates us from animals, but also what brings us together.³

2.1 *In the company of the animals*

For Leibniz, animals have “feeling” (*sentiment*)—a term that covers emotive affections as well as sensation. This fact places them above simple monads, which are nothing but “living beings,” capable only of *perceptions* (“representations of the composed ... in the simple”; GP, VI, 598) and of *appétitions* (“tendencies of a perception toward another, which are the principles of change”; *ibid.*). Feeling “is something more than a mere perception” (GP, VI, 610) because it involves a “more distinct perception, accompanied by memory” (*ibid.*). This “more distinct perception,” which Leibniz also calls “highlighted” (*relevée*), is what allows the animal to escape the state of drowsiness (*etourdissement*) in which he would be if he were submitted only to “a large multitude of *petites perceptions*, where there is nothing distinct” (*ibid.*). The “distinction” here mentioned is what we would today call the “salience” of a stimulus as against those surrounding it, which makes it pass a certain perceptual *threshold*, thus attracting the animal's *attention*.

The memory animals have, on the other hand, is what grants them “a sort of consecution ... which imitates reason, but must be distinguished from it” (GP, VI, 611). Here is how Leibniz describes and illustrates this:

We see that animals, having the perception of something that strikes them and of which they had a similar perception earlier, expect, by the representation of their memory, that which had been joined to it in that earlier perception, and are led to similar feelings to those they had then. For example: when one shows a stick to dogs, they remember the pain it inflicted to them and cry or run away (GP, VI, 611).

It is, therefore, an associative memory, which might as well be described without Leibniz's mentalist vocabulary in terms of conditioned reflexes.

Men, in so far as their actions are guided only by feeling, act as “empirical” beings. In so doing, they do not differ from animals: “men act as animals in so far as what follows from their perceptions relies only upon the principle of memory” (GP, VI, 611). This mode of action is not rare, since according to Leibniz “we are nothing but Empirical in three out of four of our actions” (*ibid.*).⁴

Animals thus accompany us a great deal of the way. We part company only in the upper floor of the building, where we demonstrate our capability to have “knowledge of necessary and eternal truths,” which “makes us have Reason and

the sciences, raising us to the knowledge of ourselves and of God” (ibid.). Up there,

we are raised to Reflective Acts, which make us think about that which is called Self, and to consider that this or that is in Us: in this way, when we think about ourselves, we think about Being, substance, the simple and the composed, the immaterial and God himself, by conceiving that what is limited in us is without limits in him. And these Reflective Acts provide the main objects of our reasoning (GP, VI, 612).

Before examining what happens in these bright heights—especially before inquiring whether language plays any role there—let us return to the obscurity of the staircase and ask, first, whether it is really possible that we climb it in the company of the animals, and, second, whether language already plays any role there.

2.2 *Feeling*

Robert McRae (1976: 30-46) points out certain contradictions in Leibniz’s position regarding the similarities and differences between man and the animals—contradictions that call into question the “company thesis” just presented—on the basis of texts of the *Monadology* and the *Principles of Nature and Grace*. According to McRae, Leibniz can attribute to animals neither sensation nor memory, because both require *apperception*, with which only humans are endowed.

Let us consider first sensation. When he introduces his concept of *apperception* in the *New Essays*, Leibniz employs it in order to mark the threshold we cross when we move from the *petites perceptions* we are not aware of to a perception we are aware of (GP, V, 121). Apperception thus seems to refer to the same phenomenon that—as we have seen—establishes the difference between animals endowed with feeling and “living beings” for whom no perception is “highlighted” or “distinct.” However, Leibniz identifies elsewhere apperception with the power of reflection typical of humans (GP, VI, 600), which of course prevents animals from having it. “We are thus”—McRae concludes—“left with an unresolved inconsistency in Leibniz’s account of sensation, so far as sensation is attributable both to men and to animals” (p. 34).

According to McRae, the only possible solution for Leibniz is “to adopt the wholly unsatisfactory thesis that sensation in animals is something very different from that in rational beings” (p. 33). He believes this is the solution Leibniz in fact adopts when he accepts an objection by Foucher (letter of September 12, 1695) to the *New System*. Foucher, while accepting that there must be an internal principle of unity in the animal, takes the Cartesian line of comparing such a prin-

ciple to that of a clock, rejecting thereby the attribution of a “sensitive principle” to the animal: “whatever disposition there is in the organs of the animal, this is not sufficient to make it sensitive; for, after all, it concerns only the organic and mechanical composition” (GP, IV, 488). Leibniz’s reply is incisive: an animal’s unity is not that of a clock; hence, the sensitive principle of animals is not to be found in the disposition of the organs (GP, IV, 494).⁵

But, anticipating such a reply, Foucher goes on to conclude that Leibniz has no reason to assume a sensitive principle in animals which is substantively different from that of humans (GP, IV, 488). It is Leibniz’s reply to this conclusion that, according to McRae, proves that he adopted the “entirely unsatisfactory thesis” of the two types of sensation. Indeed, Leibniz’s candid reply to Foucher is: “[I assume it] because one does not observe that Animals perform reflections that constitute reason and, in providing knowledge of necessary truths or of the sciences, make the soul capable of personality” (GP, IV, 492). But does this reply imply that Leibniz accepts two radically different types of sensation, animal and human? Not at all. Let us see why.

What forces Leibniz to admit, in the reply quoted above, that the animal’s sensitive principle is *sui generis* is the slippery slope Cartesian argument employed by Foucher, according to which if this were not the case, then one would also have to grant animals reason and judgment (GP, IV, 488). Leibniz’s reply is thus based on a *modus tollens*: 1. If some being has sensation, it has also reason; 2. Animals do not have reason; 3. Therefore, either they do not have a sensitive principle (which is excluded by other reasons), or their sensitive principle is different from that of humans. The acceptance of the conclusion depends upon the acceptance of the major premise. But it is precisely this premise that Leibniz rejects in his more considered reply to Foucher, the one found in the *Clarification of the New System*: “But, when you seem to say that the animal’s soul must have reason if one grants it sensation, this is a consequence whose proof I do not see” (GP, IV, 494). Thus, it is not surprising that in the *Clarification* the thesis of the two sensitive principles is entirely absent.⁶

What could have been the proof Leibniz doesn’t see, which was so evident for the Cartesians and for Foucher? It seems to me that such a proof relies upon the Cartesian theory of perception, according to which every perception is the result of an inferential process. As such, even the simplest perception requires the most powerful cognitive apparatus of the mind. Sensation, on the other hand, is a purely physiological or mechanical bodily process, for Descartes. If the animal sensation to which Leibniz refers is not “bodily”—as he categorically affirms—it can-

not but be “perception” in the Cartesian sense, which implies that an animal endowed with perception must also be endowed with all the powers of reason.

But, as is well-known, Leibniz accepts neither Cartesian metaphysics nor Cartesian theory of knowledge. By granting the animal a “sensation” that is neither “mechanical” nor “rational,” he is once more breaking away from Cartesian metaphysical dualism. By the same token, he is also calling into question the rigid framework of Cartesian theory of knowledge. From this point of view, animal (as well as human) “sensation” corresponds to a level of “direct” perception which does not imply reasoning or inference, and which does not, therefore, require the mediation of a conceptual apparatus.⁷ All it requires is the ability to notice something which is salient, and to retain the impression left by it, possibly associated with other salient impressions. This, in turn, requires “apperception” only in the sense of “attention” (GP, VII, 330), not in the higher sense of a reflective activity of the mind, whereby the content of a perception and the act of perceiving are discerned.

The dog turns to the noise, not to his ear. For him, the noise is a highlighted or distinct perception that attracts his attention; but this does not require that he form concepts or judgments about the nature of noise, its causes, and the differences between the perception of noise, the perceiver, and the noise itself. Similarly, we pay attention to the noise of the sea’s waves, not to the fact that we apperceive it or to its reasons. To be sure, we possess the capacity of reflective apperception, but simple attention does not make use of it. No doubt Leibniz is guilty of terminological confusion when he employs the same term (*apperception*) to denote both non-reflective attention and reflective attention, which is conscious, conceptual and reasoned.⁸ But such a terminological problem should not confound us. For it does not prevent him from defending vigorously and persistently⁹ the idea that there is a mode of “perception”—in fact, a mode of knowledge, as we will see—shared by humans and animals, a mode that does not require the attribution of higher cognitive abilities, which are the privilege of humans, to animals.

2.3 *Memory*

Although he claims that the same problem he pointed out about sensation occurs also with regard to memory (p. 43), McRae acknowledges that in this case the problem is less acute, since Leibniz has at his disposal a concept of memory that can be shared by humans and animals. It is this kind of memory that McRae appropriately dubs “non-reflective memory,” since it “produces its results without any reflection” (p. 45). In this, it differs from “remembrance” (*souvenir*),

which is reflective since it involves not only the repeated representation of the perceived object “without the object’s return,” but also the fact that we “know that we have had” its earlier perception. Leibniz, like Locke, distinguishes between short term or immediate memory and long term memory or retention proper (cf. Dascal 1978: 163-164). Animals and humans possess both. The former is nothing but the attention we momentarily address to “the objects we distinguish and select over others” (GP, V, 147). It is this kind of memory that is required by sensation. The latter is the “consecution” mentioned earlier, by virtue of which animals and humans act “empirically,” and which—as pointed out by McRae—does not require reflection.

Although it is only a “shadow of reason,” this empirical consecution is, no doubt, a form of *knowledge*. It is merely a shadow of reason because it permits us neither to “perfect experience by adding to it the investigation of causes,” nor to “make demonstrative syllogisms and to know necessary truths, which provide absolutely universal statements” (GP, IV, 525-526). “There is no trace in animals” of all this (ibid.). Nevertheless, consecutive memory allows animals (and men acting in an “empirical” way) to “perform inductions”—contingent, of course, since “they can fail” (GP, IV, 527). These inductions, based on experience, yield something universal (GP, IV, 526), which can guide the animal’s actions as far as the similarities with past experience suffice.

2.4 Knowledge

In spite of what they share, the distance between animal and human remains “immense” (GP, VII, 330). Animals do not have general ideas (GP, V, 130); they cannot know the universality of propositions, because they lack the concept of necessity (GP, VII, 331); they have no access to *cogitation*, i.e. perception accompanied by its reason, of which only humans are capable (GP, VII, 330-331); and the chaining of judgments in reasoning is completely different from mere empirical consecution (GP, VII, 331). Nevertheless, however immense, the difference in question does not imply discontinuity. “No transition is made by jumps”—says the principle of continuity respected by Leibniz everywhere. If applied to the realm of knowledge, what this principle implies, minimally, is that it should be possible to find, in the hierarchy of human knowledge, levels corresponding to the animal knowledge ensured by sensation and consecution.

Leibniz’s most thorough classification of the levels of knowledge is presented in the well-known article “On cognition, truth and ideas,” that he published in the *Acta Eruditorum* of November 1684. According to this seminal text, it seems to me that it is possible to attribute to animals knowledge belonging to the two first

levels, namely “obscure” and “confused” knowledge. Recall that a notion is “obscure” when “it is not sufficient to recognize the thing represented” or “to discern it from its neighbors” (GP, IV, 422). Suppose we (or an animal), at a given moment, have only the sensation of something. In this case, only our attention or immediate memory is activated at that moment. This means that we do have a highlighted or distinct perception of the thing at that moment. But, since this perception or representation does not persist beyond the narrow limits of immediate memory, it is not sufficient later on for discerning this thing from other ones (similar or not), nor, consequently, for recognizing it. Knowledge based solely on sensation, thus, is equivalent to knowledge that can only be obscure.

Clear knowledge, in contrast, is that which “permits one to recognize the represented thing” (ibid.). This knowledge implies not only the initial discerning of the sensed thing, but also the retention of such a discerning. It does not imply, however, the capacity also to discern the features according to which one recognizes the thing. Recognition can rely upon an “I do not know what” of which the recognizer is not aware. Hence, *clear* knowledge is not always distinct, *pace* Descartes. It becomes distinct only if the recognition relies on the knowledge of the distinctive traits. Otherwise it is clear but *confused*. In light of these definitions, confused knowledge requires only, in addition to sensation, consecutive memory. The latter ensures the retention of the initial discerning, thus allowing for recognition. The dog recognizes the stick that hit it because he retains its representation in his memory as a distinct stimulus, be it by virtue of the intensity of the pain he felt, or by virtue of the frequency of its use by his master.

The principles of sensation and memory animals share with humans acting in an “empirical” way are, thus, sufficient to explain the levels of obscure and clear but confused knowledge.¹⁰ But they do not suffice for clear and distinct knowledge. For, at this level, the required distinctiveness does not consist in the mere salience of a perception, but rather in the analysis of its components, which requires, in turn, “reflective acts” of which only humans are capable.¹¹

2.5 Language

It is not casually that Leibniz identifies the enumeration of distinctive traits required for distinct knowledge with *nominal definitions* (GP, IV, 423). The reason is that human language, which permits the formulation of these definitions is, thanks to its articulation, the ideal analytic tool to achieve the kind of “analytical distinction” of which animals are not capable. The progress of knowledge, for Leibniz, will depend essentially on the improvement of the “instruments of analysis” that articulated languages are.

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Does this mean that there is a discontinuity between animals and humans? In other words, should one say that there is no such a thing as an “animal language” or that there are no traces of a pre-analytic knowledge in the structure of human languages? I think the answer is “No,” for here too continuity prevails.

Leibniz doesn't write much about animal language. When he mentions, following Locke, “talking animals,” he admits that they “do not use language to express general ideas” (GP, V, 130). Their use of words, being entirely geared to the particular, cannot but be the result of the exercise of their limited cognitive abilities, namely sensation and consecutive memory. Words function as signs for them like the stick for the dog. They retain them by virtue of an “empirical” association with certain emotions linked to the circumstances of their learning of these words.

In so far as human languages “have a certain natural origin, namely the agreement between the sounds and the affections that the sight of things excited in the mind” (C, 151), these languages do not differ substantively from a possible or actual animal language. One should note that the “origin” in question is not to be found only in the “first” language—possibly the Adamic one. It can be found wherever new languages arise or naturally develop according to the dispersion and new needs of men (*ibid.*). Such original components of language are, thus, structural elements present in all languages and always renewed, whose formation principle is the “empirical” association shared by humans and animals. They come from man's impetuousness, not from his reason, from that which is “barbarian” in his affective eruptions, and from what is contingent in the circumstances of their manifestation (D, IV-2, 187). True, no *affectus* is purely passive for Leibniz. Rather, “every *affectus*, eventually ... caused by external agents, activates a flux of thought, which proceeds either by resemblance or by relative lack of similarity” (Gensini 1990: 66). But, although Leibniz indeed employs the term *cogitatio* in his description of the series of mental events triggered by the *affectus*,¹² it is clear that the described process is entirely explainable by means of consecutive memory, and does not require the intervention of the capacity of reflection. The “affective” elements present in all languages—of which the onomatopoeic words and roots are the examples Leibniz most often gives—do not require, then, cognitive capacities other than those humans share with animals. Consequently, they can yield, at most, confused knowledge.

From the point of view of the image of languages as a mirror of the mind, these “primitive” elements of natural languages reflect man's affective reactions. This comprises two aspects. On the one hand, such reactions are always accidental,

due to historical or geographical contingencies. Hence, the traces they leave in natural languages bear testimony to such contingencies. Their comparative analysis permits one to reconstruct the history of the migrations, contacts, reciprocal influences of peoples, ancient and modern (D, IV-2, 186). On the other hand, in so far as one can discern some invariance in these elements in all languages, they reflect not the particularity of affective reactions, but some of their general properties.¹³ Leibniz in fact is persuaded that there are invariants of this kind, which he calls “roots”: “it seems indeed that almost all languages are but variations, often quite mixed up, of the same roots” (D, VI-2, 185). However, they cannot be recognized “unless one compares many languages together, without neglecting the jargons” (ibid.). That is to say, once more it is the collective mirror formed by the ensemble of natural languages that counts.

To be sure, the “primitive” elements of language do not account for all the components of natural languages. But men often use the more articulated levels of language in a way no less primitive or “empirical.” For instance, when they employ ill-defined scholastic terms (GP, IV, 422). Or when they use extremely vague general terms, such as ‘thing’, which do not denote anything precise (GP, V, 255).¹⁴ In all these cases, and in many others as well, “the words we have [are] quite obscure and they [give] us often only confused notions” (GP, VII, 27). In other words, these uses of articulated language are similar to those of the “primitive” linguistic elements in that they do not raise us above the level of confused knowledge.¹⁵ In order to achieve this, what is needed is either to replace such words by “other characters denoting precise and determinate notions,” or else—what amounts to the same thing—to define them, since “definitions are nothing but the distinct expression of the idea of a thing” (ibid.).

3. Guards’ Room

It has not been easy to climb the staircase. Not only because of its natural obscurity, but mainly because it is not usually toured by Leibniz’s interpreters. But we will now be able to move quickly through the upper chambers, which are much more illuminated and better known.

What should we expect to find in the guards’ room, which controls the passage to the upper cognitive chambers? Guardians, of course. They must prevent anything that would bring obscurity or confusion from entering these clear spaces. Since, as we have seen, natural languages are a source of obscurity and confusion, perhaps the guardians should be placed under the command of Captain Bacon,

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who has so vigorously denounced the “idols of the market place,” i.e., the words of ordinary language that, instead of reflecting the true order of nature, reproduce the prejudices and lack of knowledge of the vulgar spirits that have created them. Second in command might well be Lieutenant Spinoza, the declared enemy of the “knowledge by hearsay” obtained through language, the indefatigable hunter of “chimeras” and other kinds of error engendered by language alone (cf. Dascal 1990c). And, in order to avoid any possible mistake, the troop should perhaps receive a single order, very simple and clear, issued by General Descartes: “Language and dogs not allowed!”

Obviously this is not the kind of radical instructions Leibniz issues to the guards. To be sure, he worries about the idols, chimeras, pseudo-universals, meaningless sounds of the *blitiri* kind, and other dangers that threaten our understanding due to ill-employed natural languages. But there is no question of his condemning them *in toto* because of such dangers, thus ruling out any possible cognitive contribution by them. There is no question of his thinking of the linguistic clothing as irremediable soiled by obscurity and idols, and therefore demanding that it be completely removed before one proceeds.

In spite of the fact that they are inappropriate, due to their ambiguities, to fulfill the role of an instrument of (logical) calculation, “vulgar” languages are declared to be very useful for reasoning (GP, VII, 205). Even those languages that are philosophically underdeveloped like German can teach us much, because they have “fitting terms” for a lot of things (D, VI-2, 9). The imperfections of language can and should be corrected. After admitting Locke’s criticism of the abuses and imperfections of words (*New Essays* III.2 and III.3), Leibniz invariably stresses that they have remedies, and that if they subsist it is only “due to our negligence” (GP, V, 318; cf. Pombo 1987: 125-126). The guardians’ task is to block the way to linguistic negligence, not to language as such.

They also have a positive mission. They have to deal with, or to stimulate those who should deal with the cure, the cleaning, and the perfecting of language. Words, *qua* pre-formulations (*Vorbilde*) of understanding, can and must be easily distinguishable, fluent, and even comfortable to use (D, VI-2, 8). It is not easy to achieve this, but it is certainly possible. Meanings can be fixed by precise definitions; empty expressions can be avoided or completely banished; under the apparent irregularities of natural languages, one can find deep regularities; grammar can be reduced to a simple and regular “rational grammar” (C, 35-36, 353; VE, 795). As a whole, these measures (along with similar ones) are sufficient to pass to the anteroom, where all we want is distinct knowledge. In order to penetrate farther,

say, in order to reach the calculating function, the remedy must be more radical: one must abandon natural languages altogether and replace them by systems of signs which are completely transparent, expressive, and absolutely precise.

4. Anteroom

For the mind to achieve its mark of distinction—i.e., for it to reach universality, the knowledge of causes, the necessary truths—it must be presented with the “materials” over which its reflective acts, its judgments, its reasoning exercise themselves. One of the most important providers of such materials is language.

4.1 *Communicative Function*

Strictly speaking, the communication of knowledge is entirely external to the process of production of knowledge. Descartes presumably could do without such a communication—a situation that might even help him to accomplish the aims he set up for himself at the beginning of the first *Meditation*: “to free myself of all the opinions I had received earlier in faith, and to begin everything anew from the foundations ... [in order] to establish something firm and constant in the sciences” (AT, IX, 13). But Leibniz, as opposed to Descartes, does not consider the theories other than his only as sources of prejudice. He finds everywhere fragments of truth, which one should first pick up, then unify, in order eventually to go beyond them by building upon the foundations so acquired (cf. Dascal, forthcoming). His system, by his own testimony, “takes the best from all sides and ... later on goes farther than we have gone so far” (GP, V, 64); it is a sort of synthesis of human knowledge, which “seems to link Plato with Democritus, Aristotle with Descartes, the Scholastics with the Moderns, theology and ethics with reason” (ibid.). For the construction of such a synthesis, the communication of knowledge through language is essential.

Every improvement in the means of scientific communication is, thus, welcome for Leibniz. This includes the creation of archives, academies, museums, libraries, and other institutions that make knowledge accessible, as well as scientific journals that increase the circulation of knowledge and its critical discussion. And one should not forget the improvement of language itself, through which knowledge is expressed and circulated. One must endeavor to make terminology and notation uniform within each science, to regularize orthography, and even to develop if not a language at least an international writing system directly readable by all the citizens of the *République des Lettres*.

Leibniz of course contributes to all these projects, both those related to the im-

provement of the academic network of scientific communication and those more specifically related to the improvement of the semiotic means of communication (cf. Dascal 1978). His endeavor to develop better notations and a "Real" or "Universal Characteristic" are well known. For this purpose, he studies the contributions of others. In particular, he analyzes carefully the details of Dalgarno's *Ars Signorum* and Wilkins's *Real Character* (VE, 382-393, 397-398, 910, 1176, etc.), for these works are based on a logical classification of concepts, and therefore go beyond the arbitrary coding systems that merely establish a correspondence between words of different languages. He insists, however, that the utility of these systems is limited to the communicative function of language. In contrast, improving scientific communication will only be a marginal advantage of his own project of a "Real Characteristic" (GP, VII, 12), which would function as an "organ of Reason" or "instrument of the understanding," designed to help the mind in its activities of discovery, storage, and judgment.

4.2 Psychotechnical Function

Leibniz believes that language and other semiotic systems have the function not only of expressing or communicating independently produced thoughts, but also a "psychotechnical" function—that of an "inner" auxiliary of the mind, helpful for the formation and development of thought itself.

This role is already evident in natural languages, which, however, fulfill it only partially and imperfectly. Following Hobbes, Leibniz observes that words function both as *signs* of our thoughts for the others and as *notes* or *marks* of our earlier thoughts for ourselves (GP, V, 315; A, VI, 2, 488). Words thus have one of the most important psychotechnical functions—the mnemonic function. Left to its "natural state," this function of language would not go beyond what can be achieved by "consecutive memory" alone. But it can be improved through the development of an "art of memory," endowed with means to increase the efficacy both of our short term memory or attention and of the storage and retrieval of data in long term memory (cf. Dascal 1978, chapter 6).

Improvements in language and other semiotic systems can also help discovery and judgment. A well organized synoptic table of a certain field of knowledge lets us know "immediately" what is missing there, and thereby can direct our attention to that missing component; the representation of the properties of curves by equations may lead to the discovery of unknown "family resemblances" between them; the systematic variation of components of these equations may lead to the discovery of new curves; a notation that marks clearly the arguments pro and con a given decision helps the judge to form his judgment with rapidity and relative certainty

(cf. Dascal 1978: 155-160).

All this (and many more similar devices) is very useful and important. But we are still talking about auxiliary means for the mind to conduct efficiently its rational activities. Such means belong to the anteroom because, even though rational thought is powerfully supported by them, the very rationality of the cognitive activities conducted there does not depend upon them. In this sense, the psychotechnical semiotic means described above are only a shadow of what Leibniz advertises as the potential contributions of the true Characteristic to thought—if not in its inner sanctum, at least in its audience chamber.

5. Audience Chamber

5.1 *Beyond Distinct Knowledge*

Distinctiveness alone, even if it is analytic (i.e., even if it enumerates the features that permit recognition of the object known), is not sufficient for adequate knowledge. The reason is that the traits assembled in a nominal definition may always hide contradictions we are not aware of. For example, each of the words in the expression ‘the biggest number’ is clearly understood, so that such an expression seems to convey a distinct notion. No doubt when we hear it we “think something.” Statements containing it may even seem to us to be certain. Unfortunately, however, such a certainty is a psychological illusion. For, since the components of the expression imply a contradiction, no *idea* can actually correspond to it, and no sentence employing it can actually express a proposition. For Leibniz, the existence of an idea depends not upon psychological criteria, but upon logical ones. Properly speaking, an idea corresponds only to a definition for which a proof of possibility—i.e., of non-contradiction—is available. It is such a proof that transforms a nominal into a *real* definition, thereby ensuring *adequate* knowledge.¹⁶

From the mere existence of a linguistic expression, even if it is clearly and distinctively understood as well as defined nominally, it does not follow, therefore, that something corresponds to it at the level of adequate knowledge. It is true that we employ the word ‘God’. It is also true that we define God as the most perfect being, one of whose perfections is existence. But, as long as we have not proved the logical possibility of this definition, we cannot say that we “have the idea” of God. Descartes’s epistemological mistake, as well as Locke’s, was to content themselves with psychological criteria in their conceptions of “idea.” Hobbes’s mistake, on the other hand, was to believe that nominal—i.e., arbitrary—

definitions guarantee the possibility of an idea (GP, IV, 424-426; cf. Dascal 1987, chapter 4). Both sides do not allow us to cross the threshold of clearness and distinction, which offers us only subjective certainty, and to reach adequate knowledge, whose certainty is grounded on logical analysis.

5.2 *Symbolic Knowledge*

From the preceding remarks it would seem to follow that language has nothing to do with adequate knowledge. Ideally, such knowledge should indeed be “intuitive,” i.e., based on thinking simultaneously all the components of a complex notion. However, due to the finitude of our capacity of simultaneously thinking many things (i.e., due to the severe limitation of our “short term memory”), any minimally complex cognitive task can only be performed if we abandon the ideal of grasping all its components simultaneously. We can do this thanks to the availability of signs that represent such components, whose explication or analysis can be omitted in the ongoing thinking, on the assumption that we know (or suppose we know) how to provide it when needed (GP, IV, 423). Leibniz calls *symbolic* or *blind* this kind of thought that makes essential use of signs. We employ it, he says, “in algebra and in arithmetic, and indeed everywhere” (ibid.), and it has for him a fundamental role in cognitive processes (cf. Dascal 1978, chapter 7).

The allusion to algebra and arithmetic shows that symbolic thought is operative in the highest cognitive levels. In fact, the very notion of proof, required for adequate knowledge, is intimately connected to the use of signs or characters. As opposed to the “mental gymnastics” recommended by Descartes as a means to guarantee the validity of a deductive reasoning (see his 7th Rule in *Regulae ad Directionem Ingenii*) and to his disdain for the logician’s reliance upon “formulae” (see the 10th Rule), Leibniz recommends putting reasoning “in form.” In other words, he recommends the use of signs that make apparent the logical structure of reasoning. This permits one to demonstrate—i.e., to *show*—its validity, so that it can be *seen* at leisure through simple visual (sensory) inspection, without any *mental* effort. The more perfect they are—i.e., the more such signs represent more faithfully the structure of reasoning as well as of the concepts used in reasoning—the more they approach the ideal of “expressiveness” of the Universal Characteristic, whose application to all the domains of knowledge would ultimately allow for the discovery of all truths and for the solution of all disputes through calculation.¹⁷

6. Inner Sanctum

If we wanted now to go into the mind's inner sanctum, where we would deal with pure ideas, without the intervention of any language, what would we find there? Leibniz's reply is ambivalent.

Let us consider, for example, intuitive knowledge—the kind of knowledge in which all the components of a thought are also thought directly, distinctly, and simultaneously. According to “On cognition, truths, and ideas,” this kind of thought covers very little. However, in the *New Essays* (4.2.1), after accepting Locke's definition of intuitive knowledge (the kind of knowledge where “the mind apperceives the agreement of two ideas immediately by themselves, without the intervention of any other” GP, V, 342), Leibniz lists several “primitive truths we know by intuition,” including both truths of reason and factual truths. The former are called identical propositions “because they seem to repeat the same thing, without teaching us anything” (GP, V, 343). They are propositions “we may be sure about without any proof” (GP, V, 344). Their possibility is thus known intuitively, “so that we can say that intuitive knowledge is comprised in the definitions when their possibility appears at first. In that way all adequate definitions contain primitive truths of reason and, consequently, adequate knowledge” (GP, V, 347). In the category of intuitively known factual truths, we find the Cartesian *cogito* along with an infinity of particular propositions such as “I think A,” “I think B,” etc. Therefore there are infinitely many intuitively knowable propositions of the two kinds. But such an infinity instantiates a small number of general schemata like “A is A,” “AB is A,” “A is not B,” “I think A.” However many, these truths represent only a small parcel of the totality of truths. The complexity of the rest requires analysis for their proof (GP, V, 349), which in turn requires the intervention of some system of signs.

The same ambivalence can be sensed regarding Leibniz's conception of the precise role of signs in reasoning. Sometimes Leibniz affirms categorically that “all human reasoning is performed by means of certain signs or characters” (GP, VII, 204). On other occasions, he claims, more modestly, that “the majority of our reasonings are performed through the interplay of characters” (B, 97). A curious metaphor Leibniz uses in a letter to Sophie Charlotte—which we might adapt to the case of signs or characters—expresses well the ambivalence in question: “... the external senses [here we would say words or characters] are needed by us for thinking; ... if we had none, we would not think. But what is needed for something does not, by this reason, constitute its essence. Air is necessary for life, but

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our life is something other than air. The senses provide us with the matter for reasoning, and we never have thoughts that are so abstract that do not involve something coming from the senses; but reasoning requires also something other than that" (GP, VI, 506).

Does this mean that we must return to the anteroom, to a conception of language as a mere supplier of "materials" for thought? I do not think so. After all, air penetrates all of the body that breathes it, and its necessity for the processes of life is such that it cannot remain outside the house—not even its inner sanctum (the brain?).

At most we return to the audience chamber, dazzled by the pure essence of thought briefly sensed at the sanctum, but not really grasped by our furtive glance. It is not by chance that Leibniz declares himself satisfied to be credited with reaching the audience chamber—the uppermost chamber in Plato's cave, if you wish. For it is there—rather than in the rarefied atmosphere of the inner sanctum—that the real business of the cognitive realm takes place. It is there that the mind deploys the power of its rational operations. It is there that thoughts embodied in signs can engage in relations with each other, producing palpable chains and connections which lead to the only kind of knowledge truly accessible to us. It is there that thoughts circulate in order to yield real cognitive wealth (cf. Dascal 1987: 16-18). And all of that is possible thanks to "this interplay of characters which can go far, and indeed goes far, so much so that one could not think abstract things without the help of arbitrary characters" (B, 97).

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Notes

¹ A French version of this paper was published in the proceedings of a conference of the Spanish Leibniz Society, in Q. Racionero and C. Roldan (eds.), *G. W. Leibniz: Analogía y Expresión* (Madrid, Editorial Complutense, 1994). I thank the Society for inviting me to take part in that memorable conference, and the editors for their kind permission to publish this slightly corrected English version. I have suppressed the notes giving the original Leibnizian texts. All the translations are my own.

² Leibniz's attitude shows that, by the end of the 17th century, the appeal to analogies is no longer perceived as the dangerous trade-mark of lack of rigor, epitomized by late Renaissance thought. On the evolution of the attitude toward analogy in the 17th century, see the chapter "Language and money: a simile and its meaning in 17th century philosophy of language," in Dascal (1987).

³ There is in Leibniz a surprising openness to evolutionary ideas: "The analogy of plants may enlighten us some day ... the combinations of species, and even the changes in the same species are sometimes very successful in plants. Maybe in some time or place of the universe animal species are or have been or will be more subject to change than they are among us at present, and many animals that have something of the cat, like the lion, the tiger, and the lynx could have been of the same race and may be now like subdivisions of the ancient species of cats" (GP, V, 296).

⁴ For a significant portion of their lives, humans do not even behave as animals, but merely as "living beings" or simple monads, without memory and distinct perceptions, as if in deep sleep without any dreams (GP, VI, 610).

⁵ Foucher's objection is not without support in those of Leibniz's texts where, when he explains animal sensation, he speaks of their organs (e.g., GP VI, 599 and 611). Nevertheless, Leibniz stresses that this sensation is due to the representation in the animal's soul of this unity to which the organs make it susceptible.

⁶ The reply upon which McRae's argument is based appears in the "Remarks," a draft probably written by Leibniz at the moment he read Foucher's objections. One should never overlook the importance Leibniz granted to the slow maturation of ideas and to the precautions to be taken before publishing them. For example, when Foucher observes that he had known Leibniz's "new system" ten years before its publication, Leibniz comments: "It is because before publishing the new

system, we have observed Horace's rule: *nonumque prematur in annum*" (GP, IV, 490). The quotation is from Horace's *De Arte Poetica* 338, where Horace advises a young friend who aspires to be a writer not to publish anything before expert critics take a good look at it and express their opinion. If they find it worthy, he should nonetheless publish his work only nine years after he wrote it, since once out, it cannot be taken back. In this context, "nonumquam prematur in annum" means "and until the ninth year, keep back (or conceal) your work." (I thank Rachel Vishnia for this information on Horace.)

⁷ "Sensation is, as it were, the actual entrance of ideas in the understanding," says Philalète [Locke]; to which Théophile [Leibniz] replies: "I would thus say that it is Sensation when one becomes aware of an external object" (GP, V, 146-147).

⁸ McRae, in order to support his thesis, endeavors to show that "the terms apperception, consciousness and reflective knowledge are, in all instances of their use, equivalent" (p. 33). If one examines the texts he quotes, however, one can see that in *New Essays* 2.9.4, where Leibniz talks about apperception in terms of attention ('prendre garde'), the terms reflection (*réflexion*) and awareness (*conscience*) do not appear. In the other *New Essays* texts quoted, Leibniz says "reflection and apperception" rather than "reflection or apperception." The latter equivalence appears only in the *Principles of Nature and Grace* and the *Monadology*. In these texts—it must be admitted—'apperception' is used sometimes to refer to what allows both man and animal to go beyond the state of drowsiness where they have nothing but a multitude of indistinct perceptions, and sometimes to refer to what elevates man above the animals. The former is nothing but attention; the latter is reflective or "analytical" apperception, whose main feature is not its object – the Self – but the fact that, contrary to simple attention, it dissects this object in at least two components. Condillac later developed the idea that this analytical capacity of the human mind depends upon the human use of articulated language (cf. Dascal 1983).

⁹ This persistence should be stressed. Even after Foucher's critique, Leibniz maintains the tripartite division between living beings (simple monads), souls (animal), and spirits (human), to which corresponds the triad perception / sensation / reason. He also sustains, and even develops, the thesis of the similarity between animal memory (and behavior) and human "empirical" behavior. In addition to the texts already quoted, see GP, VII, 330-331; GP, IV, 527; GP, VII, 529; etc.

¹⁰ McRae (1976: 76) too concludes that to have a sensation involves having a clear idea. However, since he considers the recognition that defines a clear idea as the recognition of an instantiation of a universal in a particular – which requires, in

turn, both the capacity of conceptualization and reflective apperception—he ends up by retrieving here his earlier conclusion, namely that there is no sensation without thought (p. 77). Evidently, the identification of recognition with instantiation suppresses the possibility of the type of perception I have called “direct,” and imposes upon Leibniz—without justification, in my opinion—the Cartesian conception of inferential perception.

¹¹ In this sense, but only in this sense, McRae (1974: 128) is correct in saying that the distinction of perceptions differs from the distinction of concepts.

¹² “An *affectus* is the determination of the soul towards a certain series of cogitations” (Grua, II, 523).

¹³ Perhaps one could go as far as saying that such general properties reveal the “modes of operation” of the affections, just as the comparative study of linguistic particles reveals the “operations of the understanding” (GP, V, 313; Dascal 1990a).

¹⁴ The “generality” of children’s usage of such words is not the expression of a rational capacity of generalization. It is rather a manifestation of the scarcity of their vocabulary and of the lack of “analytical distinction” of their sensations. Therefore, it expresses, at most, the kind of inductive generality that animals also display.

¹⁵ According to Gensini (1990: 74), “the cognitive level more concretely identifiable with the conditions of daily use [of language] is that of clear and confused knowledge.” This is not entirely correct in so far as Leibniz gives as an example of *obscure* knowledge the use of vague terms. For the same reason, the words loaded with “countless ambiguities” (C, 72) mentioned by Gensini are obscure, rather than clear and confused, because, since they do not denote any precise concept or thing, they do not permit the recognition of anything. Maybe, then, Gensini is statistically wrong, but his observation is in tune with the main thesis here defended.

¹⁶ Leibniz defines knowledge as adequate when “all the traits of a distinct concept are also distinctively known, i.e., when analysis is pursued to the end” (GP, IV, 423). Nevertheless, a proof of possibility does not always require a complete analysis, provided the process of analytical reduction ends up with identical propositions.

¹⁷ This dispute-solving capacity is one of the most advertised goals of Leibniz’s well-known Universal Characteristic project – a project that Frege sought to accomplish in his *Begriffsschrift*. What is less known is that Leibniz also worked at another, more realistic, project for handling controversies that did not easily lend themselves to logical formalization. A collection of Leibniz’s writings on this

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other “art of controversies” is being prepared for publication under the editorship of Quintin Racionero and myself.

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