

Conceivability Errors and the Role of Imagination in Symbolization

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Abstract In the years 1675-84, Leibniz sought to disprove Descartes's account of clear and distinct perception by implementing a three-step argumentative strategy. The first part of the paper reconstructs the argument and highlights what aspects of Descartes's epistemology it addresses. The reconstruction shows that the argument is based on conceivability errors. These are a kind of symbolic cognition that prove Descartes's clear and distinct perception as introspectively indistinguishable from Leibniz's symbolic cognition. The second part of the paper explores the epistemic implication of the indistinguishability between clear and distinct perception and symbolic cognition: the mind constitutively depends on products of the imagination. My conclusion addresses the role of the imagination in symbolization. Symbolization does not exceed imagination; it rather is an idealized use of cognitive surrogates, like characters, to submit to the imagination what is not subject to it.

Keywords Leibniz. Descartes. Symbolic cognition. Imagination. Symbolization.

Summary 1 Introduction. – 2 Descartes's Transparency. – 3 Conceivability Errors: Leibniz's Strategy. – 3.1 The Argument Reconstructed. – 3.2 Descartes's Theory of Error and Symbolic Cognition. – 4 Imagination and Symbolization.



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293

1 Introduction

In the years 1675-84, Leibniz sought to disprove Descartes's account of clear and distinct perception.¹ In texts widely explored in the literature, such as *De mente, de universo, de deo* (henceforth, *De mente*, 1675) and *Meditationes de cognitione, veritate et ideis* (henceforth, *Meditationes*, 1684),² Leibniz implements the same three-step argumentative strategy:

1. He concedes that there is one process of cognition involving signs and another involving the perception of ideas.³
2. He challenges Descartes's claim that we understand signs because we perceive ideas directly. He does this by introducing what I call *conceivability errors*: well-formed linguistic formulations that refer to nothing because the idea they express is impossible.⁴
3. He concludes that we do not perceive ideas directly and instead only by way of what he calls symbolic cognition.⁵

The first part of this paper explains how the argument works and which aspect of Descartes's epistemology it challenges. In the second step of the argument, Leibniz opposes conceivability errors to cases of allegedly clear and distinct perception. This shows, I argue, that Leibniz does not simply rely on raising sceptical doubts about our apprehension of ideas. Rather, he rejects the claim that ideas are ever direct objects of perception by challenging the alleged transparency of clear and distinct perceptions of ideas – the capacity of the mind to know itself to be in a clear and distinct state *about* an idea. In short, the argument based on conceivability errors shows that Descartes's clear and distinct perception is introspectively indistinguishable from Leibniz's symbolic cognition.

The second part of the paper explores the epistemological consequences of my reconstruction of the argument. The fact that clear and distinct perception is introspectively indistinguishable from symbolic cognition means that the mind constitutively depends on products of the imagination, namely signs and symbols. This bestows epistem-

¹ I follow Picon 2003, 102-32, who argues that the two texts I focus on here are dedicated to refuting the Cartesian notion of ideas rather than taking a position in the Arnauld-Malebranche controversy on true and false ideas.

² Mugnai 1676; Bolton 2011; Leduc 2011; Picon 2003; Favaretti Camposampiero 2007.

³ *De mente*, A VI 3, 462.

⁴ *De mente*, A VI 3, 462-3; *Meditationes*, A VI 4, 588.

⁵ *De mente*, A VI 3; *Meditationes*, A VI 4, 588/L 292: "Ex his jam patet, nos eorum quoque quae distincte cognoscimus, ideas non percipere, nisi quatenus cogitatione intuitiva utimur".

ic and cognitive value on imagination. I conclude by elaborating on the relation between imagination, understanding, and symbolization.

I begin by reconstructing Descartes's theory of clear and distinct perception, as Leibniz interprets it (§ 1). I argue that clear and distinct perception must be transparent. This happens when three cognitive states occur: the mind attends to the idea (priority), knows itself to be doing so (pure intellection), and is also aware that the idea is possible (epistemic warrant). I then explain Leibniz's overall argumentative strategy and point out that it addresses priority rather than epistemic warrant (§ 2). In § 3, I discuss Leibniz's argument in *Meditationes*, arguing that Descartes's framework cannot explain conceivability errors unless clear and distinct perception is regarded as introspectively indistinguishable from symbolic cognition. I conclude that the best we can hope for are symbolic *expressions* (§ 4) and inquire into the role of the imagination in symbolization.

2 Descartes's Transparency

Descartes's *Meditations on first philosophy* has the very demanding aim of establishing those truths of metaphysics that cannot be doubted. A proposition cannot be doubted, Descartes argues, if it is the object of a clear and distinct perception:

A perception which can serve as the basis for a certain and indubitable judgement needs to be not merely clear but also distinct. I call a perception 'clear' when it is present and accessible to an attentive mind - just as we say that we see something clearly when it is present to the eye's gaze and stimulates it with a sufficient degree of strength and accessibility. I call a perception 'distinct' if, as well as being clear, it is so sharply separated from all other perceptions that it contains within itself only what is clear. (AT VIII A, 22/CSM I, 207)

Clear and distinct perception is characterized by immediate assent. It possesses this characteristic in virtue of being independent of other faculties, such as the senses and imagination: it is neither mediated by images nor linguistic expressions. Rather, the intellect immediately grasps an idea and knows its possibility. The immediacy here should not be understood temporally, but rather as cognitive priority: to have cognition, the mind needs first to intuit an idea. An idea is:

the form of any given thought, immediate perception of which makes me aware of the thought. Hence, whenever I express something in words and understand what I am saying, this very fact makes it certain that there is within me an idea of what is signified

by the words in question. Thus it is not only the images depicted in the imagination which I call 'ideas'. Indeed, in so far as these images are in the corporeal imagination, that is, are depicted in some part of the brain, I do not call them 'ideas' at all; I call them ideas only in so far as they give form to the mind itself, when it is directed towards that part of the brain. (AT VII, 160/CSM II, 113)

When the intellect is immediately aware of ideas through clear and distinct perception, no epistemic error can arise in the process of knowing. The absence of mediation by other faculties in the perception of ideas is Descartes's transparency thesis (hereafter, TT). For the sake of making Leibniz's argument clear, in this paper I define transparency using three assumptions:⁶ the priority of ideas (Priority); pure intellection (PI); and epistemic warrant (EW):

Priority: in the very act of being presented with an object, an image, or a linguistic formula expressing an idea, the mind understands them because it perceives ideas.⁷

PI: the mind knows itself to be engaged in clear and distinct perception.

EW: the mind can reliably believe in the possibility of the object represented by the idea because of priority and PI: It grasps the idea clearly and distinctly, i.e., without the mediation of images, signs, or other intermediaries.

The distinction between priority and PI is important for Leibniz's argument, as we will see in § 2. Leibniz's argument endorses the claim that clear and distinct perception is always transparent. By transparent, I mean that the mind knows itself to be in a clear and distinct state of mind and that this state is about an idea. Not every mental act is transparent: I may be conscious of seeing a mermaid and yet not be aware that I am dreaming. In normal cases, subjects can be aware of the kind of mental states they have but may be attending to an idea in a confused way. However, a peculiar kind of mental state, clear and distinct perception, is always transparent. The mind must be aware that an idea is the object of a clear and distinct perception:

⁶ My aim is not to enter into the debate about whether *thought*, for Descartes, is transparent (viz., the object of privileged access from a first-personal perspective) (Wilson 1978, 132 ff.). I wish only to suggest that, in order to understand how Leibniz's argument works, we need to assume that clear and distinct perception is transparent, i.e., that the mind must know itself to be in such state.

⁷ Some scholars, like Perler 1996, may argue that Descartes does not endorse Priority. It might be true. The point in this paper is that, as Leibniz reads Descartes, he does or, if he is not aware of it, he should, otherwise he would face the issues raised in § 3.1 and § 3.2.

But I know now that I am incapable of error in those cases where my understanding is transparently clear. Or can it be objected that I have in the past regarded as true and certain many things which I afterwards recognized to be false? But none of these were things which I clearly and distinctly perceived [...]. For even though I might be dreaming, if there is anything which is evident to my intellect, then it is wholly true. (AT VII, 70-1/CSM II, 48-9)

Leibniz's argument is exclusively addressed to cases of clear and distinct perception. In order to show that there are cases of conceivability errors, he needs to distinguish priority from pure intellection.

The distinction between priority and pure intellection is central to distinguish two senses of *ofness* (Shapiro 2012; Wilson 1999). According to Shapiro (2012), there are two senses of 'idea of'. In one sense, to have an 'idea of' something means that the idea presents what Descartes calls objective being. In the other, pre-theoretical sense, 'idea of' is understood propositionally, as an idea apprehended confusedly or a name.

This distinction, Shapiro further argues, is important to the explanation of cases of clear and distinct perception as cases in which there is a path that brings the mind from perceiving something confusedly to perceiving it in a clear and distinct way. It further explains intentional divergence: the mind apprehends something in a clear and distinct way, but attributes it to the wrong subject. Cases of intentional divergence are cases of materially false ideas because the mind perceives the formal side of the idea of sensation, i.e., that it is an act of the mind, but attributes this positivity to the wrong subject, since it believes that what the idea represents, for instance a color, exists in the body. Likewise, a pagan claims that existence pertains necessarily to Jupiter because she clearly and distinctly perceives the true idea of God, but she attributes it to the wrong subject (Shapiro 2012, 378-418).

Leibniz's conceivability errors question that there can be a process of clarification and distinction, supported by imagination, that leads to grasp an *idea's possibility*. If the possibility of an idea is required for interpretation of signs and images, signs and images, or other products of imagination, cannot be the reason why we apprehend an idea's possibility.⁸ The insistence on conceivability errors,

⁸ This remark makes me conclude that the criticism Leibniz raises is structural: he does not question whether Descartes thought imagination has a cognitive and epistemic role; Leibniz doubts that, if the imagination has any epistemic and cognitive role, this can be compatible with what Descartes holds in *Meditations*. As showed in a survey by Foti 1986, and in a more extensive study by Sepper 1996, imagination has a prominent role according to Descartes. Sepper more specifically discusses the "evolution" of Descartes's conception of imagination from early writings, like *Rules to the Di-*

i.e., acts that make us believe in the possibility of an impossible idea, challenge that there ever is an act of pure intellection. Therefore, they also are not cases of intentional divergence. In cases of intentional divergence, the mind conceives of an idea clearly and distinctly but attributes it to the wrong subject; in cases of conceivability error, the mind has the illusion of conceiving an idea clearly and distinctly, but there is, in fact, no such idea – the idea is impossible in the sense that it entails a contradiction.

3 Conceivability Errors: Leibniz's Strategy

Conceivability errors are cases in which the mind believes itself to be perceiving an idea clearly and distinctly, while in truth there is no such idea because the idea is impossible. The mind believes itself to have an idea because it mistakenly takes syntactic properties of a linguistic formula for a clear and distinct perception of an idea (Mugnai 1676).

The common aim of *De mente* and *Meditationes* is to invert the Cartesian model of the priority of intuition over signs in order to make two points. First, Leibniz aims to show that only products of the imagination, namely images and definitions, are immediately available to an epistemic subject, where immediacy is to be understood both temporally and cognitively: we have signs before the concept, and we can think of the concept because we have the signs (Oliveri 2016b). Definitions are products of the imagination because they require a syntactically and semantically regulated system of signs which must be recalled and represented in the imagination. Second, Leibniz argues that PI is impossible for finite human minds. Undermining the priority of ideas is the key to rejecting PI and, therefore, to disproving TT.

I illustrate my point using *Meditationes*, for this is Leibniz's key text on epistemology and because it exerted significant influence on subsequent accounts of language (cf. Meier-Oeser 2019):

It often happens that we falsely believe ourselves to have ideas of things in our mind, when we assume wrongly that we have already

rection of Mind – where a central stage in cognitive processes is assigned to this faculty – to *Meditations*, where Descartes seems to deny any epistemic role to it (*Meditation VI*; on this change of mind, see also Bos (2001, chapter 3) who interprets it as a consequence of Descartes's development of analytic algebra, that frees the mind from imagination insofar as the entertainment of geometrical diagrams assumes secondary importance). In Sepper's view, the cognitive role of the imagination remains constant through Descartes's writings: to be an aid for cognition. Leibniz's criticism raises the question of how imagination can be an aid if both priority and Descartes's theory of error are true (see § 3.1 and § 3.2).

explained certain terms which we are using. It is not true, or at least it is ambiguous, to say, as some do, that we cannot speak of anything and understand what we say without having an idea of it. For often we understand after a fashion each single word or remember to have understood it earlier; yet because we are content with this blind thinking and do not sufficiently press the analysis of the concepts, we overlook a contradiction which the composite concept may involve. [...] To explain this I usually make use of the example of the most rapid motion (A VI 4, 588-9/L 292-3)

This passage *prima facie* suggests that the argument rests on the unreliability of the human capacity for apprehending the possibility of ideas, implying that the problematic step in my reconstruction of Descartes is EW. A closer look at the strategy used by Leibniz shows, however, that the real issue is our capacity to know ourselves to be perceiving an idea in a clear and distinct way.

In order to deny TT, Leibniz finds cases in which we cognize a well-formed sequence of signs with the following characteristics:

- a. it is construed such that the spontaneous reaction of a rational epistemic subject acquainted with language is to judge that it corresponds to a possible idea; but
- b. it actually refers to an impossibility, which means that it cannot be the object of an act of clear and distinct perception.

I call these cases *conceivability errors*. They are special cases of *symbolic cognition*.

Notice that conceivability errors involve a combination of signs which is linguistically well-formed but to which no idea corresponds. Leibniz's example is the most rapid motion: a sequence of signs that can be proved to be impossible, using a diagram, at least according to Leibniz. Imagine a wheel and a nail on the rim, if one extends the spoke beyond the rim, the point on the new rim will move faster than the other, and so on to infinity (*Meditationes*, A VI 4, 589/L 293).

Notice that an ill-formed combination of signs, such as 'greenly fastly blue', would not do the same job because the subject would not be in a position to believe that it stands for an idea. This has to do with the nature of language: when a subject is presented with a linguistically well-formed combination of signs, she is inclined to believe that it refers to something possible.⁹ Why? Because this is an important cognitive aspect of language: once speakers of a linguistics

⁹ This property of language was debated at the time. Bacon, for instance, regards language as being responsible for what he calls idols of the marketplace. Words draw epistemic subjects into error by imposing ideas of non-existing entities on the understanding. In arguing for this, Bacon notes that we spontaneously assume that an object always corresponds to words, without enquiring whether this is really the case. When

tic community are acquainted with a language, they spontaneously conceptualise other people's linguistic expressions.¹⁰

The other important aspect of Leibniz's argument involves the kind of impossibility that a conceivability error entails. To challenge Descartes, Leibniz needs conceivability errors in a domain in which the mind can potentially obtain clear and distinct knowledge, like mathematics. In *De mente*, Leibniz offers two such examples: 'the number of all numbers' and $\sqrt{-1}$ (*De mente*, A VI 3, 462-3).

This appeal to conceivability errors in mathematics allows us to conclude that transparency is indeed the target of Leibniz's argument, because symbolic cognition cannot be distinguished from cases in which, according to Descartes, we perceive an idea clearly and distinctly. The key point is that, once we undermine priority, the Cartesian framework implies that there is no introspective cognitive difference between linguistically well-formed formulations to which an impossible idea corresponds and formulations referring to what Descartes calls a clear and distinct idea, as in the case of 'that being than which no greater can be thought'. There is, however, a substantial epistemic difference between such cases: in the former, we mistakenly believe something impossible to be true; in the latter, we correctly believe in something's possibility. Now that the overall strategy is laid down, we can move on to reconstructing Leibniz's argument.

3.1 The Argument Reconstructed

Recall that transparency maintains that the mind is capable of clearly and distinctly perceiving an idea's possibility and of knowing itself to be in such a state. This is not our usual way of cognizing. Leibniz's point is not that, to understand a sequence of signs, we always need to perceive an idea clearly and distinctly; he denies the possibility of clear and distinct perception, i.e., that we can introspectively recognize cases of clear and distinct perceiving.

In the Cartesian framework, transparency grounds the epistemic reliability of a subject's beliefs in the possibility of the things her ideas represent. If the mind can reliably judge that x is possible, this is because it grasps the possibility of idea x (e.g., God), independently of any particular mode of presentation of the idea. The intellect cannot generate error. As stated in *Meditation III*: "If I consider just the ideas themselves as modes of my thought, without referring

people talk of 'fortune', for instance, they believe that fortune and misfortune really exist and influence our lives. See Bacon, *Novum Organum*, I, 60.

¹⁰ This is an obligatory aspect of language use (Oliveri 2020).

them to anything else, they could scarcely give me material for error" (AT VII, 37/CSM II, 26). *Meditation V* confirms that clear and distinct perception provides us with knowledge free of contradiction: "Admittedly my nature is such that so long as I perceive something very clearly and distinctly I cannot but believe it to be true" (AT VII, 69/CSM II, 48).

Therefore, Descartes attributes epistemic warrant to transparency: priority and pure intellection guarantee that one reliably judges that x is possible.

To disprove Descartes, Leibniz introduces cases of conceivability errors. There can be cases where the mind believes itself to perceive a possible idea, but, in fact, cannot be doing so because the idea is actually impossible.

Suppose the mind believes itself to perceive an impossible idea as possible, such as the most rapid motion. If transparency is true, then the mind must know either that it is not in a clear and distinct state (PI) or that the idea is impossible (EW). Since the mind is mistaken in judging that the idea is possible, the only reasonable explanation for this is that it mistakes the words for the idea, i.e., priority is false. In the final stage of my reconstruction of his argument, I argue that Leibniz thinks that this solution is not available to Descartes, given Descartes's view that errors are acts of will.

3.2 Descartes's Theory of Error and Symbolic Cognition

We can ask, as Leibniz does, whether Descartes could say that the signs 'the most rapid motion' deceives us who do not suspend judgement regarding the idea that 'the most rapid motion is possible' because we are, after all, presented with words that make sense. Descartes could have granted that, in this case, we first grasp a sequence of signs, implicitly assume that an idea corresponds to the well-formed sequence, and mistakenly judge the idea to be possible.

Leibniz believes that this solution does not square with Descartes's theory of judgement as an act of will. The real issue is not that we believe something impossible to be possible, but that we believe ourselves to clearly and distinctly perceive something, a state that is introspectively indistinguishable from the presentation of the linguistic formula 'being than which no greater can be thought'. The error arises because the will judges that the most rapid motion is possible, which means that it mistakes syntactic properties of the linguistic formula for properties of the ideas represented by this formula.

In *Meditation IV*, Descartes appeals to the separation between the intellect and the will in order to (i) avoid the objection that God, who gave us the intellectual faculty, is the source of human epistemic and moral failures; and (ii) to reject that the intellect can be the cause of

error (cf. Favaretti Camposampiero, Priarolo, Scribano 2016; Scribano 2016). Without (i) and (ii) there would be no way for the finite mind to resist general scepticism. Descartes maintains that errors do not consist in conceiving of erroneous ideas, but in the act of judging that something may correspond to them. In other words, epistemic subjects do not err in conceiving of the most rapid motion but rather in judging that the most rapid motion is *possible*:

When I look more closely at myself and enquire into the nature of my errors [...], I notice that they depend on two concurrent causes, namely on the faculty of knowledge which is in me, and on the faculty of choice or freedom of the will; that is, they depend on both the intellect and the will simultaneously. Now all that the intellect does is to enable me to perceive the ideas which are subjects for possible judgments; and when regarded strictly in this light, it turns out to contain no error in the proper sense of the term. (AT VII, 56/CSM II, 39)

To discharge the intellect of any responsibility for error, Descartes maintains that error consists in a judgement that affirms or denies something about an idea, like that an idea is possible, and that this judgement results from a free act of the will (see Newman 2008, 334-52). The will has the power to suspend such judgements and refrain from erring. When epistemic subjects do not refrain from making false judgements, they are fully responsible for their errors.

Errors can also arise from deceptive perceptual states that present the mind with materially false ideas. In the case of a stick which looks crooked in water, for instance, the will decides on the ultimate truth about the shape of the stick by refraining or not refraining from drawing a false judgement. If the will does not so refrain from judging falsely, the mind errs because the will is free to remain indifferent regarding the content of the judgement that the stick is crooked or not.

Such indifference is not possible with regard to those truths that the intellect clearly and distinctly understands. In the case of clear and distinct perception, the will must judge according to the truth presented by the intellect. If the intellect grasps that $3 + 2 = 5$, the will is not free to deny this conclusion (see AT II, 57-8/CSM II, 40). Only when dealing with materially false ideas, which are not clear and distinct, is the will free to choose what judgement to endorse, because the conclusion is not fully determined by the intellect.¹¹ Why,

11 Indeed, Descartes acknowledges some falsity in materially false ideas: “For although I have before remarked that it is only in judgments that falsity, properly speaking, or formal falsity, can be met with, a certain material falsity may nevertheless be found in ideas, i.e., when these ideas represent what is nothing as though it were something” (AT VII, 43/CSM II, 30). For a discussion of this issue, see De Rosa 2010.

then, does the will conclude that the most rapid motion is possible when presented with the linguistically well-formed expression ‘the most rapid motion’, if the intellect is not presented with any corresponding idea?

According to the Cartesian picture, when we are presented with the expression ‘the most rapid motion’, a corresponding idea must be perceived by the mind. But, because there is no idea, the intellect does not grasp anything, and, nonetheless, the will judges that the idea of the most rapid motion is possible. The only plausible explanation for this judgement is that the mind falsely believes itself to be perceiving the idea and thus to be forming a judgement about the possibility of the idea, while the judgement actually concerns only the linguistic consistency of the formulation.

This is possible because the will does not refrain from judging and because it is subject to an implicit bias that a well-formed combination of signs normally refers to something in the world.

This explanation, however, is more of a threat to Descartes’s *Meditations* than it is a solution to the Leibnizian criticism, because it undermines the assumption that the intellect can distinguish cases where a subject is presented with a clear and distinct idea from cases where there is no such idea. Pure intellection should, according to Descartes, guarantee that the mind is in a clear and distinct state concerning an idea, such that the will either judges correctly that the idea is impossible, or refrains from judging. But, when it is presented with impossible notions, the intellect cannot introspectively know whether it perceives an idea or not, so the will instead judges the idea’s possibility based on the consistency of the linguistic formulation.

The only solution is to admit that there are cases in which the mind falsely believes itself to have a clear and distinct idea when it actually has a symbolic cognition, because the two states are introspectively indistinguishable. Once we concede this, introspection is seen to be unreliable, even when conjoined with careful attention.

Leibniz’s example of the wheel and the rim gestures towards the idea that proving the possibility of something requires the mind to find an expression for it. The linguistic formulation ‘the most rapid motion’ and its expression by a diagram of a wheel and a rim are not cognitively on a par, but not in virtue of the ideas involved. It is only in virtue of the expression, not of the idea itself, that we conceive with more or less clarity and distinction. This conclusion bestows epistemic and cognitive force on the imagination and its products: signs, images, and imaginative surrogates in general.

4 Imagination and Symbolization

Leibniz does not simply deny that we primarily cognize ideas rather than expressions, like images or symbols; he rather denies that pure intellection is ever available to an epistemic being. We cannot rely on introspection to determine whether the knowledge we acquire is beyond doubt. This change of perspective makes human beings as knowers constitutively dependent on the senses and the imagination through their use of symbolic cognition. My reconstruction of this argument suggests that Leibniz is a *sui generis* rationalist. He claims that all cognitive acts involve a form of imagination-based reasoning. The intellect does not have the capacity to understand without making use of cognitive surrogates:

Any time a human being reasons about abstract things that surpass the imagination, this does not happen without having in the imagination some signs that respond to them, such as letters and characters. There never is an understanding so pure that it is not accompanied by some imagination. So there always is in the body something mechanical that corresponds exactly to the series of thoughts that are in the mind of a human being insofar as what is imaginable is part of them, as a consequence the *automaton* of the body no more needs the influence of the soul, nor the supernatural assistance of God, than the bodies of non-human animals. (GP IV, 541)¹²

In the final part of this paper, I explore the connection between the work of the imagination and of expressions within a framework in which the introspection of ideas is unavailable. My main claim is that we learn to transform one subject matter into another through the imagination. In this act of transformation, the imagination foregrounds salient traits of the subject matter that one wishes to know by idealizing things that fall under its power: images and signs. Understanding the use of the imagination will therefore shed light on two questions: first, can images be means of clear and distinct cognition? Second, is symbolization a way of going beyond the limits of the imagination?

Through a perceptive analysis of Leibniz's epistemology and theory of cognition, Leduc (2014, 53-68) has argued that symbolization does not have a unified task. While scholars like Belaval (1960, 176-81) and Couturat (1901, 88-93) have argued that symbolization has a single function, namely compensating for the weaknesses of the imagination, Leduc argues that (2014, 63-8) there are two forms of symbolization: one that expands the domain of the imagination; and

¹² Pasini 1996 draws attention to this passage.

another that exceeds the imagination by structuring contents that are rational rather than imaginary. The epistemic force of symbolization does not change in virtue of the symbols employed, but in virtue of the kind of notions (i.e., imaginary vs. intellectual) it expresses. When symbols express notions of the understanding, symbolization has nothing to do with the imagination. Leduc concludes from this that images, even intellectualized images, cannot be used to cognize of intellectual notions clearly and distinctly (Leduc 2014, 66).

Why can we not take Leibniz's example of the wheel and rim as a proof of the impossibility of the idea of 'the most rapid motion'? Although Leduc is correct to ultimately conclude that there is a difference between imaginary and intellectual notions (Letter to Sophie Charlotte, 2 May 1702, A I 21, 328-46), the difference between these two kinds of notions is not grounded in the use of symbols rather than images. It depends instead on a joint effort by the intellect and imagination in which the imagination supplies materials that can be idealized to express notions that are not directly available to the imagination. Unless we find ways to express or exhibit an abstract subject matter, we cannot grasp it introspectively simply by knowing that it is apprehended via the intellect. In this sense, symbolization is not a way to exceed the imagination, but rather a mean of extending the work of the imagination to things that are otherwise not subject to it, namely intellectual notions. The process of expressing intellectual notions requires the cognition of notions that would be beyond the mind's reach without the deployment of cognitive surrogates provided by the imagination. In short, I contend that there is a double use of symbolization. There is a cognitive difference when we use symbols to grasp intellectual notions, and when we use them for imaginary notions, but this difference does not mean that one use exceeds the imagination - we rather find ways to submit to the imagination what is not otherwise subject to it. If symbolization is an intellectual use of expressive materials, then why cannot intellectualized images be means of cognizing with more or less clarity and distinction?

This approach accords with two decisive points highlighted by Leduc (2014). The first is that the epistemic and cognitive force of a system of signs does not depend on the kind of signs or characters involved, but on the kind of idealization they allow for. Images or characters can both be reliable forms of symbolic cognition, although symbolization via characters can provide forms of idealization that are not permitted by images, depending on the subject matter under consideration. Symbolization through formal languages is a form of imagination insofar as such languages are rule-governed systems of signs that allow for the expression of relations that other systems do not.

The second point is that Leibniz has the resources to distinguish between imagination and understanding, even within a framework in

which the imagination is pervasive and there is no act of pure understanding. Even if the imagination is often the source of errors, no use of symbols is entirely independent of the imagination. The following four examples illustrate, despite their heterogeneity, that the “movement” to cognize and understand intellectual notions is to find ways of *expressing* them through imagination. In this sense, I do not see expression as a way of exceeding imagination, but rather as a way of expanding imagination’s domain to those notions that are not subject to it. This is just a first step towards a more substantial claim that cannot be proved fully within the length of this paper: This process of expressing *is* a process of making those notions more clear and distinct either because it allows to solve problems we were unable to solve without the imagination work (infinite series); or because the expression provides a cognitive tool to understand what the thing might be (metaphors and fictions like the mill); or, finally, because the expression provides a form of visualisation of data that boosts cognition (*ars characteristic*). I analyze these examples in a row.

Consider the use of fictions in mathematics, such as an infinite series. An infinite series is a series in which there is no final term. In treating the series *as if* it were finite, the imagination provides a way of dealing with problems that would otherwise remain unsolvable (Arthur 2013; Arthur, Rabouin 2020). In this case, the imagination expands our heuristic capacities by providing the intellect with a fiction similar to a conceivability error in the sense that there is no final term. Leibniz transforms the limits of the imagination – the fact that the imagination seeks always for a final term (as highlighted through the discussion of the shortcomings of imagination for metaphysical notions) –¹³ into a cognitive resource that can provide demonstrations in fields that would otherwise be out of our intellectual reach.

Consider also our use of metaphors and tropes in general. Leibniz thinks that linguistic tropes serve cognitive purposes. They enable the mind to extend the range of notions that it can consider (Olivieri 2013; 2016c; Marras 2010). Without figurative speech, the mind would not be in a position to think about abstract notions. Figures do not give minds the subject matter of their thoughts but rather provide a way of idealizing aspects of things that we can imagine in a way that bears a relation to those things we cannot imagine. The fact that the mind is incapable of pure understanding means that it is dependent upon a developmental process of such expressive tools (Olivieri 2016a, 3: 1-2).

For Leibniz, the mind is associated with an organic body, a condition that means the mind always depends upon the senses and the

¹³ Letter to Hartsoecker, October 1710, GP III, 507.

imagination.¹⁴ The mind is thus first directed to what falls under the senses and finds expressions for those things. Through the use of metaphors and tropes, the mind finds ways to expand the range of notions it can think about. Figurative speech transforms an imaginative notion into an intellectualized one. In this sense, the mind exercises its constitutive tendency “to explain via the imagination also what is not subject to it” (A VI 4 A 890). This can lead to mistakes, as when we carelessly take expressions like ‘God is a king’ or ‘the soul is inside the body’ literally and imagine that God is a king or that the soul has a physical location. Notwithstanding this risk, without this process of intellectualizing images, we could not attend to metaphysical or moral notions, because we form the relevant expressions before we are able to unpack all the requisites of the notions.¹⁵ The process of transforming a sensible cognition into an intellectual one via the imagination is tantamount to the process of clarifying and specifying notions.

Another example hinting at figurative expressions as contribution to understanding is the use of fictions in fields like morals and metaphysics. Leibniz uses fictions such as a mill (*Monadology*, § 17, GP VI, 609/L 644) and two swapped worlds (*Third letter to Clark*, Ariew 2000, 29) to demonstrate metaphysical truths. We use such fictions to achieve a better understanding of intellectual notions. Why cannot images of this kind contribute to clear and distinct cognition and provide an understanding that symbolization alone may not provide?

To clarify my point here, I introduce a final example drawn from logic. Leibniz tried to develop a linear calculus to explain the form of syllogisms.¹⁶ Are these lines symbols or images? It seems to me that Leibniz’s idea of using lines to express syllogisms gestures at another general feature of languages and of the *ars characteristic* in particular: the function of visualizing or exhibiting notion in unitary cognitive acts. The *ars characteristic* provides a link from one definition to the other because it is a way of presenting a content ‘uno obtutu’, all at once. In a text dated to 1685, entitled *De totae cogitabilium varietatis uno obtutu complexione*, Leibniz defines precisely such an act of beholding a multitude ‘all at once’ as the greatest kind

¹⁴ See, for instance, *Principes de la nature et de la grâce*, §§ 1-7, GP VI, 598-602/L 636-8.

¹⁵ Oliveri 2016 has argued that signs are invented before minds possess notions and that they function as placeholders for minds’ reflective acts.

¹⁶ Cf. *De la méthode de l’universalité* (1674; A VII 7, 118/C 125), where Leibniz writes, “mais comme ces choses ne sont gueres intelligibles sans figures et exemples”, and he proposes a calculus comprised of segments. A similar procedure can be found in *Schémes linéaires des syllogismes* (C 248); *De formae logicae comprobatione per linearum ductus* (1986, C 292); *Generales inquisitiones de analysi notionum et veritatum* (1686, A VI 4, 771-3).

of knowledge: “The greatest moment in thinking is when *we can connect all at once* the totality of the conceivable things that our minds are used to observe more frequently” (A VI 4, 595, my italics). This is how we understand comparisons and connections between things, discover the things we are searching, and compare one given thing with others. He concludes that the discovery of a *lingua characteristica* - comprised of true definitions - will greatly expand this capacity (see A VI 4, 595).

What the intellect cannot achieve, namely an intuition, the imagination supplies by visualizing the relations embodied in a system of signs or images. I do not deny that characters may serve this purpose better than images. But, even when we move from images to characters, the work of the imagination remains constant: it supplies the mind with the cognitive materials that can be interpreted as expressing metaphysical or moral notions.

My purpose is not to advocate for the use of intellectualized images, but rather to cast doubt on the idea that there is a form of symbolization that exceeds the imagination. The imagination is involved in the formation of symbols in symbolization in exactly the same way as it is involved in the use of intellectualized images: the imagination provides materials it can manipulate to express notions that otherwise exceed its domain. In light of Leibniz’s criticism of Descartes - that there is no pure intellection and reasoning is imagination based - this process must be understood as a way of expanding the domain of imagination, rather than a way of exceeding it. Idealization is achieved by the joint work of the intellect and imagination to change the use of symbols. We could not think of such intellectual notions, were we incapable of exhibiting them in the imagination: metaphors, images, and definitions via signs are all products of the imagination. Therefore, symbolization is essentially imaginative, insofar as it allows us to apprehend intellectual notions by rendering them subject to the imagination. The idealization of expressions is the organization and structuring of notions. This is the imagination’s work in human cognition.

Abbreviations

- A = Leibniz, G.W. (1923-2021). *Sämtliche Schriften und Briefe*. Berlin: Akademie Verlag.
- AT = Descartes, R. (1964-78). *Oeuvres de Descartes*. Ed. by C. Adam and P. Tannery. Paris: Vrin.
- C = Leibniz, G.W. (1903). *Opuscles et fragments inédits*. Ed. by L. Couturat. Paris: Alcan.
- CSM = Descartes, R. (1984-91). *The Philosophical Writings of Descartes*. Transl. by J. Cottingham, R. Stoothoff, D. Murdoch, A. Kenny. 3 vols. Cambridge: Cambridge University Press.
- GP = Leibniz, G.W. (1978). *Die philosophischen Schriften*. Ed. by C.I. Gerhardt. 7 vols. 2nd ed. Hildesheim: Olms.
- L = Leibniz, G.W. (1989). *Philosophical Papers and Letters*. Transl. by L.E. Loemker. Dordrecht: Kluwer.

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