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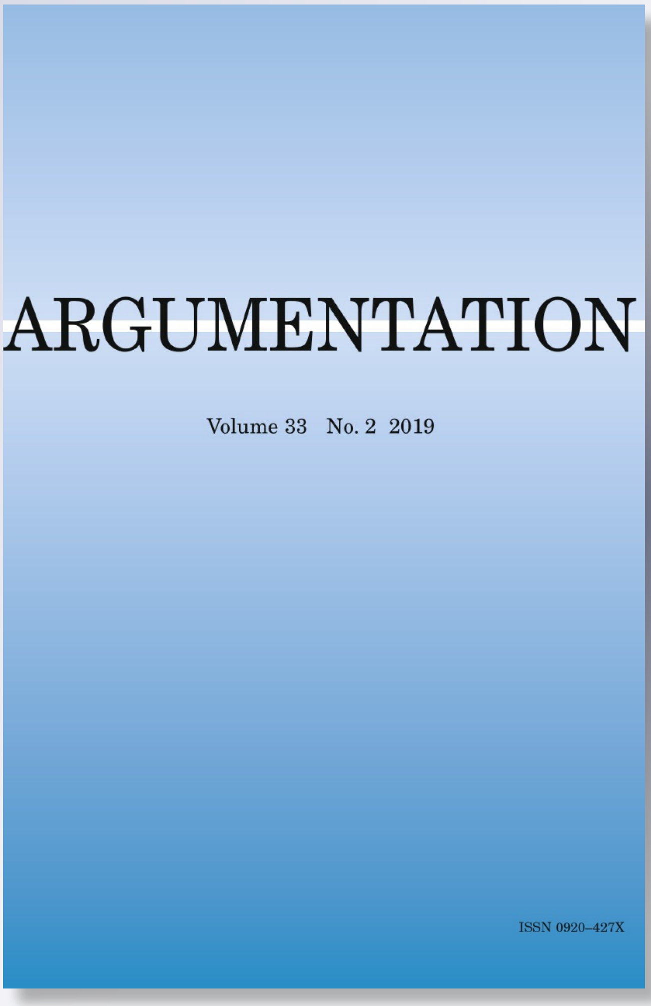

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Old and New Fallacies in Port-Royal Logic

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Abstract

The paper discusses the place and the status of fallacies in Arnauld and Nicole's *Port-Royal Logic*, which seems to be the first book to introduce a radical change from the traditional Aristotelian account of fallacies. The most striking innovation is not in the definition of a fallacy but in the publication of a new list of fallacies, dropping some Aristotelian ones and adding more than ten new ones. The first part of the paper deals with the context of the book's publication. We then show the influence of Cartesian and Augustinian/Pascalian philosophy on the whole book, especially their common critical views about logic, dialectic and their traditional academic teaching. The third part of the paper discusses the two chapters on fallacies. It focuses on their place in the book and their relation with its general orientation, before turning to their content, closely connected with some major concerns of the time.

Keywords Fallacies · Sophisms · Port-Royal · Dialectic · Logic · Jansenism

A survey of the types of arguments called *fallacies* in the publications of about the last three centuries shows that their number constantly increases with time. This phenomenon enables one to divide the history of the presentation of fallacies into two broad periods. For more than 1000 years, the Antiquity and Medieval periods stayed approximately faithful to Aristotle's account of fallacies and to the list he provided, whereas the Modern and Contemporary epochs welcomed new fallacies and discarded old ones or discredited their importance. First published in 1662, Antoine Arnauld and Pierre Nicole's *Logic or the Art of thinking* (*La Logique ou l'art de penser*), better known as *Port-Royal Logic*, seems to be the first book that made serious departures from a tradition faithful to the Aristotelian account of paralogisms.

This increasing number of fallacies is probably connected with the contemporary lack of consensual definition of a fallacy, which may also be the origin of

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disagreements or hesitations regarding the status and the classification of a particular occurrence of fallacious reasoning. Hamblin's lament, in 1970, that "we have no theory of fallacy at all" (1970/1998, 11) and today's lack of a global theory of fallacies seems to be related with this phenomenon. Another consequence is that two of the major contemporary competing theories about fallacies are only partial, in the sense that they are theories of a subset of the types of arguments commonly called fallacies. Woods' "error of reasoning" approach (2004, 2013) focuses only on what he calls "the gang of the eighteen", while pragma-dialectic's theory of fallacies only refers to speech-acts which are breaches of the rules of a critical discussion (Van Eemeren and Grootendorst 1992, 2004; van Eemeren et al. 2009). Another related feature is that some fallacies are considered more prototypical than others, the core staying, more or less, the Aristotelian list, plus, more or less, ad-fallacies derived from the Lockean ad-arguments. I say "more or less" because time has done its job: the contemporary fallacies that are supposed to come from Aristotle or Locke sometimes fail to coincide precisely with those which appear in their works. The history of the criticism of fallacies is not that simple, and the hope underlying this paper is that a better knowledge of this history will help to clarify the contemporary field.

The first part of the paper deals with the general context of the writing and publication of *Port-Royal Logic* that, for short, I will call the *Logic*.[1] One of the most significant features of this book is that its scope spreads well beyond traditional logic. Deeply involved in the turmoil of the political, religious and philosophical life of its time, it made significant contributions in other fields, including grammar, epistemology, philosophy of science and metaphysics (Pécharman 2013; Pariente 1985), and also paved the way to probability calculus and decision theory (Hacking 1975, chap. 9).

The second part examines connections between some central tenets of the *Logic* and the philosophical positions of two major thinkers of its time, Descartes and Pascal, especially about the status of logic and dialectic. The *Logic* is partly a reaction against the laborious teaching and the dialectical use of the theory of the syllogism, but it also acknowledges a debt toward Aristotle.

The third part of the paper begins with a discussion of the place and the status of the two chapters on fallacies in the general economy of the book. It then turns to a discussion of the various fallacies and to the reasons why some old ones are preserved, only in the first chapter, and new ones introduced, mostly in the second chapter.

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[1] I always refer to Descotes' recent critical edition (2014) which is based on the 1664 version of the *Logic* and parts of the 1662 and 1683 editions. I quote J.V. Buroker's translation (1996), sometimes slightly modified when it seems to miss an important point. Buroker's translation is based on the 1683 edition, hence a difference of one unity in the numbering of the chapters on fallacies in the French and the English references.

I abridge references to the text of the *Logic*. To refer both to the French edition (2014) and to the English translation (1996), I do not write, for instance, Arnauld and Nicole (2014, 43, 1996, 54), but simply (L, 43; 54). So, the first number refers to the page in the French edition and the second in the English one. A short introduction to the *Logic* can be found in the Stanford Encyclopedia of Philosophy (Buroker 2017).

1 Context of Publication

Like many logic or dialectic books of its time, the first goal of the *Logic* was to be a textbook. However, despite its presentation of the fundamentals of syllogistic logic, it was also a non-academic book, in two senses of this term. On the one hand, the claim to be an easy digest of two academic topics held as especially tedious—logic and grammar—fits with a disdain for the School tradition, already popularized by the humanistic reformers. On the other, the intellectual breakaway that the *Logic* achieved in fields that we now call epistemology, linguistics or semantics, confirmed that the new French philosophy was flourishing outside of the University. However, despite its downgrading of logic to the benefit of Geometry, the *Logic* became the French reference book on logic for about two centuries. None succeeded it as a primer, and it can even count as a contribution to the French contempt, often associated with Cartesianism, that relegated logic at best into the margins of Mathematics. Its success, however, is confirmed by more than forty French editions, up to now, and an early first translation in Latin, followed by others in most European languages, including twelve editions in English.

Who were the authors of the *Logic*?

Antoine Arnauld (1612–1694) was a priest and a theologian born in an influential Parisian family of lawyers (Arnauld 1995). When he was young, he was influenced by the abbot Saint-Cyran, a close friend of Cornelius Jansen from whom the name "Jansenism" is derived. This label was not claimed by the Jansenists, but first was a nickname applied by the opponents to this Catholic movement inspired by Jansen's reading of Augustine. Arnauld's family was deeply involved in the Jansenist movement: two of his sisters were themselves abbots at the Port-Royal abbey, the institutional home of Jansenism.

Although he wrote famous objections to Descartes' *Meditations*, Arnauld was deeply influenced by this philosopher, and even became a representative figure of Cartesianism. He and his family were also close to Pascal. In 1643, Arnauld was already considered as a Jansenist leader because of his book *On frequent communion*, which criticized the lax practices of the Jesuits, who were, at this time, close to both the king and the pope. In return, the Jansenists were suspected of being opponents, or supporters of the occasional opponents to the king, like the lawyers of the French Parliament. Their Catholic enemies held them as quasi-heretics because of some radical moral views inspired by Augustine that made them close to the Protestants, whereas the Jansenists thought that their own moral views were superior to the corrupt theories and practices of the Jesuits. Thus, part of the intellectual background of the *Logic* is this controversy about Jansenism, which lasted, with ups and downs, for at least one century, and deeply shaped French culture (Taveneaux 1965; Cottret 2016). The *Logic*, however, is not an explicit defense of Jansenism, even though you can find Jansenist arguments among the numerous examples that illustrate logical rules, and Jansenist ideas in the second chapter on fallacies. Its analysis and criticism of authority, for instance, can be interpreted as a consequence of views inspired by the Humanists but also as a typical expression of the radical Christian egalitarism of the Jansenists or as a forerunner of the Enlightenment. Despite their considerable difficulties with the king and the pope who were the top authorities, after God, for French Catholics of their time, the Jansenists had no charge against authority as such. As shown by the *Logic,* they denounced what they called insufficient authority, namely authority that did not directly come from God, for instance when it is only based on secular social status or on mere "marks", like good manners.

Pierre Nicole (1625–1695) was also the son of a lawyer. He came to Paris to study philosophy and theology, and then joined the Jansenist community when he was about twenty. He taught for a few years in the "little schools" opened by the Port-Royal abbey in 1646. Officially in charge of the education of children, the Jesuits were immediately hostile to these new schools, which taught in French rather than Latin. They succeeded in having them moved out of Paris, before having them finally closed in 1660. Nicole had the reputation of being a moderate and accommodating person, despite his collaboration on Pascal's stringent pamphlet called the *Provinciales* and several written contributions to the controversy on Jansenism (Mesnard 1996). His *Essays on moral (Essais de Morale)* (1671) would become influential for more than a century and well beyond the Jansenist world as suggested by the fact that John Locke translated several of them into English (Guion 2002; Yolton 2000).

According to the preliminary "Author's advertisement" (*Avis*) (L, 57–58; 3–4), the authors did not plan to write a book but only to overcome a new challenge. An unidentified "gentleman",[2] probably Antoine Arnauld, told a smart "young nobleman", who has been identified as the young duke of Chevreuse, that, when he was young, he was taught an important part of logic within 2 weeks. This led "another person who was present"[3] and "had no great esteem for this science" to contend that himself could teach the essential part of logic to the young nobleman within 4 or 5 days, if the young man would agree. The challenge was addressed, but "ordinary logic books were thought to be neither short nor precise enough" to do the task. This is why the decision was made to write a digest. According to the advertisement, 1 day should have sufficed, but so many ideas bloomed that "4 or 5 days" were required to get to the main part of the book, to which further additions were made. These extras were no trouble: the young nobleman made "four tables" of the content of the book and did succeed in learning it in 4 days. The advertisement finally reports that many manual copies were made but they added mistakes to the original text; so, it was decided to "give to the public" a printed edition of the original version, enlarged by about one third from the original text.

Is this story true? The encounter with the "gentleman" is not certain, but the story confirms the dissatisfaction of the authors with the teaching of logic, which deserved a better treatment. It also shows some concern for the education of (smart) noblemen and of an indeterminate "public" of educated gentlemen. Thus, the book had to match the new norms of politeness and civility: it had to be clear and respectful of an ordinary reader and so it had to avoid technicalities that could be boring. Thus, it is no surprise that in his *History of formal logic*, Bochenski, like people who have a tendency to identify logic with formal logic, felt dissatisfied with this book because it promised to be free of formal symbolism (1961, 256–257).[4]

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[2] All the shorts quotations without reference are expressions borrowed from the work just discussed, here the *Logic*.

[3] Some commentators speculated that it could have been Blaise Pascal.

The end of the advertisement is not so far from the available historical evidence. First, the *Logic* is anything but the definitive achievement of a single mind. On the contrary, it is an eclectic book, not only because of the variety of topics discussed, but also because beyond its two official authors, it acknowledges the direct influence of three major philosophers—Aristotle, Descartes and Pascal—and quotes or argues with other ancient or contemporary figures, such as Augustine, Ramus and Montaigne.

The writing of the *Logic* went through several stages. It started from a manuscript, probably written around 1659 and known as the manuscript Vallant, that Arnaud would have written alone. It was maybe not very difficult for "the young nobleman" to make "four tables" to learn logic within 4 days, because the manuscript already contained the four parts of the printed editions, namely *On ideas*, *On judgment*, *On reasoning* and *On method*.

It was around 1660 that Arnauld would have begun to work with Pierre Nicole, who is supposed to be the author, or the main author, of most of the additions or changes that appeared in the first printed editions, published in 1662 and 1664 (McKenna 1986; Le Guern 1996). Significant additions still appear in the fifth edition of 1683[5]: for instance, the two first chapters of the second part are borrowed from Arnauld and Lancelot's celebrated *General and Rational Grammar* (*Grammaire générale et raisonnée*) (1660/2016), known as *Port-Royal Grammar* and published in 1660, 2 years before the *Logic*.

The chapters on fallacies were also subject to important modifications in the first three versions of the book. The Vallant manuscript had no chapter on fallacies. Already noticeable in the 1662 edition, the presence of two chapters on fallacies was a first sign of innovation, for most traditional books on logic or dialectic only had one. In 1664, few revisions were made to the first chapter, the most conservative one, whereas the second, which has a quite different general orientation, has undergone significant changes.

So, the overall result is a book that is both more and less than a classical logic textbook. It is less, since important traditional topics in logic are suppressed or drastically summarized; it is more because of its openness to topics that tradition did not consider as relevant to logic or dialectic.

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[4] This move away from "formal" logic could be interpreted as a move towards informal logic, in the sense given today to this term. On this topic, see Finocchiaro (1997).

[5] Descotes' edition of the *Logic* (2014) provides an up to date account of the speculations of historians about the writing of *The Logic* and a useful comparative chart of the structure of its various versions. Remember that Buroker's translation is not based on the 1664 edition but on the 1683 one.

2 A Philosophical Crossroads

In the 1664 edition, a second preliminary "Discourse" (L, 77–91; 14–21) replies to criticisms made to the first edition. One of them is that the book is "a patchwork of rhetoric, moral, physics, metaphysic and geometry". The authors do not deny this and give several reasons to explain this feature. First, it makes the book more readable than ordinary logic books; second, its "natural style" supports the memory of students, who usually quickly forget what they learn in traditional logic courses; third, it puts logic close to the sciences, its natural place, since "it exists only to serve as an instrument for other sciences".

It is true that the *Logic* goes beyond its traditional field in borrowing from various disciplines. However, it is more than a patchwork "of rhetoric, moral, physics, metaphysic and geometry": from a philosophical point of view, it is also a manifest crossroads of ancient and contemporary influences.

For instance, the first introductory "Discourse" (L, 59–76; 5–13) pays a half-hidden tribute to Descartes: "We must acknowledge, however, that the reflections we call new because they do not appear in typical logic books, are not completely due to the author of this work, and that he borrowed several of them from the books of a celebrated philosopher of this century, whose mind is as sharp as those of others are confused" (L, 69; 9–10). Even without this notification, many "reflections", especially about logic, are sufficiently close to Descartes' views to be a sign of his influence on the *Logic*.

We will also briefly discuss another major contemporary influence, namely Pascal who was a friend of Arnauld and Nicole and very close to the Jansenist movement. Pascal died in 1662, the year of publication of the first edition of the *Logic* which explicitly refers to his influence on the book as philosopher, scientist and rhetorician. Finally, among the many Ancient authors who appear in the Logic, the most influential is certainly Aristotle whose works are at the core of the chapters on syllogism and also frame the beginning of those on fallacies. Yet, he is also the point of departure from which the book opens new diverging paths on fallacies.

2.1 Descartes

The opening sentence of the first part of the *Logic* is a definition: "Logic is the art of directing one's reason aright, in obtaining the knowledge of things, for the instruction both of ourselves and others." (L, 93; 23) A few lines further, reasoning is defined as "the action of the mind in which it forms a judgment from several others". Why *several* others judgments? How many others? The *Logic* does not answer this question but this suggests that, on this point, it remains partly faithful to the syllogistic paradigm. Method is finally introduced as "the most convenient way to organize one's ideas and judgments to make it known".

Pariente (1965, 105) rightly stresses the program of the subtitle of the *Logic*: an art of thinking, not an art of talking. But the *Logic*'s very definition of logic shows that its first goal is instruction and dissemination of knowledge: the "mental" is not an end but an unavoidable means in the quest for truth. A similar view can be found in the "Author's letter" that opens Descartes' *Principles of Philosophy*, where he describes the order that an imperfectly educated man should follow to become learned. First he should look for a moral system to rule his life and then study logic "not the logic of the Schools, for this is strictly speaking nothing but a dialectic which teaches ways of expounding to others what one already knows or even of holding forth without judgement about things one does not know. Such logic corrupts good sense rather than increasing it". Descartes recommends to study "the kind of logic which teaches us to direct our reason with a view to discovering the truths of which we are ignorant" (AT IX, 298; 186).[6] This meets the program already announced in the *Regulae* and the *Discourse on Method*, which provide further information on Descartes' view of logic. In part two of the *Discourse*, for instance, he explains that he studied logic but already observed that "syllogisms and most of its other techniques are of less use for learning things than for explaining to others the things one already knows or even, as in the art of Lully, for speaking without judgement about matters of which one is ignorant" (AT VI, 17; 119). A few lines further, he acknowledges that some precepts of logic are "excellent and true", but also that some others are "harmful or superfluous".[7] This last point is his major objection to the logic of the Schools: it is useless for the search of truth and the direction of the mind.

At the end of *Regula* X, he had already developed a more radical version of this view. To discover truth by deduction, he will neglect

> any of the precepts with which dialecticians suppose they govern human reason. They prescribe certain forms of reasoning in which the conclusions follow with such irresistible necessity that if our reason relies on them, even though it takes, as it were, a rest from considering a particular inference clearly and attentively, it can nevertheless sometimes draw a conclusion which is certain simply in virtue of the form. (AT X, 405; 36)[8]

Here again, the main problem is that "new truths" could escape this kind of reasoning. The uselessness of logic as an analytic tool, thus in the art of discovery (*ars inveniendi*) goes hand in hand with its limitation to a synthetic use, to an explanatory or didactical use, to "the instruction of others", as the *Logic* puts it. So, the logic of the Schools works, at best, for "old truths", i.e., truths already known by someone. This limitation appears again in the claim that "the dialecticians are unable to formulate a syllogism with a true conclusion unless they are already in possession of the substance of the conclusion, i.e. unless they have previous knowledge of the very truth deduced in the syllogism." (AT X, 406; 36–37) This is why Descartes holds that this practice does not belong to philosophy but to rhetoric.

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[6] I quote Descartes from the reference edition of Descartes' works by Adam & Tannery (AT). So, instead of (Descartes 1964/1976, Vol IX, 298), for instance, I will write (AT IX, 298). The English quotations of Descartes come from the translation by Cottingham, Stoothoff & Murdoch (Descartes 1985). This is why I will finally refer to Descartes in the following way (AT IX, 298; 186): the second page number (186) is the page in this English translation which also refers to Descartes (1964/1976). This should make things easier for English speaking readers.

[7] On Descartes' view of Logic, see Gauckroger (1989).

[8] I restore the "sometimes" that exists in the French text, but disappeared in the English translation, for it stresses the uselessness of the methods of dialecticians.

Another problem is that the logic of the Schools is too complicated, and thus leads to obscurity. *Regula* IV states that, beyond the simplest operations of the mind, intuition and deduction, the other ones "which dialectic claims to direct with the help of those already mentioned, are of no use here, or rather should be reckoned a positive hindrance, for nothing can be added to the clear light of reason which does not in some way dim it." (AT X, 372; 16) As far as fallacies are concerned, *Regula* X states an interesting consequence of the dangers of dialectic: "the cleverest sophisms hardly ever deceive anyone who makes use of his untrammeled reason; rather, it is usually the sophists themselves who are led astray." (AT X, 406; 36)

Descartes often stresses that the "pure" operations of reason are "easy", "natural" and common to all men. They just need to be directed and not perverted. The *Logic* takes up these ideas that go against the practices of dialecticians and the logic of the Schools. After the definition of the four "actions of the mind" involved in conception, judgement, reasoning and method, the *Logic* states that

> all this is done naturally and sometimes better by those who have never studied any rules of logic than by those who have. Thus this art does not consist in finding the means to perform these operations, since nature alone furnishes them in giving us reason, but in reflecting on what nature makes us do […] (L, 95; 23).

2.2 Pascal

Descartes' criticism of logic has two targets: a certain use of logic—in disputes—and its practitioners—the dialecticians. This twofold attack can be found in another source of inspiration of the *Logic*. In the *First discourse*, beside the tribute to the "famous philosopher of this century", another is paid to Pascal: "Several others [reflections] were also taken from a small unpublished essay of the late M. Pascal which he titled *On the Geometrical Mind.*" (L, 69; 10).[9] In this work, Pascal's views about logic and geometry (1954, 575–604, 1910, 427–444)[10] are close to those of Descartes: he stresses, for instance, the importance of the distinction between the art of discovering new truths (analysis), the art of providing a proof of an already known truth (synthesis) and the art of distinguishing truth from falsity (the specific use of reason). Both men agree that geometry is excellent in the three arts. So, it supersedes logic, which only operates in the second one. Pascal is quite explicit. He grants that "the rules of the syllogism are so natural that you cannot be ignorant of them", but he chooses geometry to explain how to make convincing demonstrations because "it alone knows the true rules of reasoning" (1954, 576, 1910, 429).[11]

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[9] See Descotes' discussion of Pascal's influence on the *Logic* in his "Introduction" to his edition, pp. 38–46.

[10] I give two references: the first one (1954) is to a French edition, the second (1910) to an English one.

[11] The passage I quote is an addition to the original manuscript. It is missing in some contemporary English editions.

In, a second short text called *The Art of Persuasion*, he adds that “perhaps, logic has borrowed the rules of geometry, without apprehending their force”, while the genuine rules of reasoning are “simple, artless and natural” (1954, 600–602, 1910, 415–417).[12] Pascal also makes a statement on the virtue of geometry against fallacies that is very close to Descartes’ opinion: the geometrical method that he exposes “quickly and powerfully takes away the deceitful surprises of the sophists” and “banish any kind of difficulties and equivocations”.

A more distinctive feature of Pascal’s view on this topic is the personification of evil. Logic is not evil, but men are and are even very bad when you are a Jansenist. Hence, his criticisms are more frequently focused on people than in Descartes’ writings, and he is prone to shift from comparing geometry and logic to comparing geometers and logicians.[13] A first consequence of the fact that the rules of right reasoning are easy, common and natural is that logicians did not make or discover them: they just imported them into the principles of their art. Another consequence is what they say of these rules. According to Pascal, if you understand what he says about these rules, you will feel a wide difference with “what a few logicians may perhaps have written by chance approximating to it in a few passages of their works” (1954, 599, 1910, 413). To clarify his view about this coincidence, he explains, at length, that, in different contexts, the same words can have different meanings for different people.

The sterility of logic to distinguish truth from falsity has a sad consequence for the logicians’ claim that they can lead to the truth. They are wrong, because “the geometricians alone attain it, and apart from their science, and the imitation of it, there are no true demonstrations” (1954, 601, 1910, 416). Thus, like Descartes and the authors of the *Logic*, Pascal thinks that the rules of logic that do not amount to geometrical rules are useless and even harmful.

Pascal’s criticism now takes a moral turn. When logicians deal with fallacies, we are close to an intellectual scam: “To discover all the sophistries (*sophismes*[14]) and equivocations of captious reasonings, they have invented barbarous names that astonish those who hear them” (1954, 601, 1910, 416). The logic of the Schools is not only pedantic and thus didactically wrong, it also becomes deceitful by introducing spurious concepts and making simple and common things look complicated and elevated. Pascal, “who knew as much about true rhetoric as anyone has ever known” according to the *Logic* (L, 463; 208), summarizes all this in his unique style: "It is not *Barbara* and *Baralipton* that constitute reasoning.[15] The mind must not be forced; artificial and constrained manners fill it with foolish presumption, through unnatural elevation and vain and ridiculous inflation, instead of solid and vigorous nutriment. […] I hate such inflated expressions." (1954, 602; 1910, 417) Similar scathing opinions can be found in Pascal's *Thoughts*, (1662/1954, 1999) for instance, the view that logicians, like "Muhammad's soldiers, thieves, heretics, etc. have renounced the laws of God and the laws of Nature to make their own ones" (1954, 1161, 1999, 143).[16]

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[12] What are the rules of geometry for Pascal? Here, the most important point is not the very rules of geometry (that Descartes deeply changed with the introduction of what we now call “analytic geometry”), but the fact that the practice of geometers is the best illustration of the three powers of reason, especially its analytic power, the power to discover new truths. Geometry is the best rational science, but this does not entail that it is rationally perfect. Descartes makes this clear in the first lines of *Regula IV*: even geometers often discover truth by chance, for they lack the right method.

[13] Descartes complains more about dialecticians than logicians. Here, Pascal’s target is only logicians. In any case, it seems that they can be identified.

[14] We shall see that the *Logic* does not use the old French term *fallace*, still used at this time and very close to the English “fallacy”. It uses *sophisme*, that it explicitly identifies with *paralogisme*.

The *Logic* roughly agrees with these opinions which are close to Descartes'ones, but its own position is more mitigated (Bouchilloux 1995). The first *Discourse* uses the same kind of vocabulary as Pascal, but supports a more moderate view about logic:

> We also thought we should not be deterred by the aversion of some people who are horrified by certain artificial terms created for remembering different argument forms more easily, as if they were magical incantations, and who often make derisory comments about *Baroco* and *Baralipton* having a pedantic character, because we judged that the derision was more contemptible than the words. Right reason and good sense do not allow us to treat as ridiculous what is not so. (L, 72; 11)

The *Logic*'s authors dislike pedantry, but are brave and optimistic teachers; so, they go on: "Now, there is nothing ridiculous about these terms, provided we do not make too great a mystery of them".

This moderation also appears about Descartes' theses. The first sentence of the first *Discourse* alludes to the first sentence of Descartes' *Discourse on method*: "Good sense is the thing of the world that is the most equally shared", good sense being equaled with reason, itself defined as "the power to judging aright and distinguishing truth from error". The beginning of the *First discourse* says: "Nothing is more praiseworthy than good sense and mental accuracy in discerning the true and the false". Yet, a few pages later, the gap between Descartes' universal good sense and the *Logic*'s more modest desire of good sense gets wider. The rationalism of the *Logic* is less optimistic than Descartes'. The *First Discourse* goes on, expressing perhaps the bitterness of teachers disappointed by their pupils:

> Common sense is not so common a quality as people think. There are countless unrefined and stupid minds which can be reformed, not by giving them knowledge of the truth, but only by restricting them to matters within their grasp and by preventing them from judging about what they are not capable of knowing. (L, 63; 6)

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[15] *Barbara* and *Baralipton* were two famous examples of the mnemonic devises invented in the middle ages to help students remember the list of types of valid syllogisms classified by figures (arrangement of terms) and mood (arrangement of categorical propositions).

[16] The number of this thought is 286 in Chevalier's French edition (Pascal 1954), 794 in Lafuma's classification, 393 in Brunschwig and 647 in Sellier. I quote from Pascal (1999), based on Sellier.

2.3 Aristotle

An accommodating but demanding attitude also appears in the comments on the father of logic. The second preliminary *Discourse* replies to the charge of depreciating Aristotle, motivated by the publication, in the 1662 edition, of false definitions and bad reasoning taken from his works. First, in this *Discourse*, the *Logic* acknowledges its debts: "Indeed there is no author from who we borrowed more in this *Logic* than Aristotle, since the body of precepts belongs to him" (L, 87; 19). His mistakes, however, show that even great men can produce what the *Logic* kindly calls "surprises".[17] Furthermore, mistakes made by celebrated men tend to become celebrated and so, easier to remember. Finally, to take examples from Aristotle's works is also a way to introduce his famous and impressive philosophy. Even his *Physics* which "seems to be the least perfect of his works" teaches many true things. Its main defect is even "that it is too true and teaches us only things of which we cannot be ignorant", so that when you learn them "it seems that you learn no new thing". What a deception when, like Descartes, Pascal and the *Logic*, you long for new truths! Anyway, the *Logic* expects only two attitudes towards philosophers: "From the standpoint of truth, we owe them respect whenever they are right, but the truth cannot oblige us to respect falsity, regardless of where it is found" (L, 88; 20). Therefore, it is important to have Aristotle's mistakes known, especially to those who are influenced by his philosophy and especially—as we shall see in the chapter on fallacies—when his mistakes are not as rude as the defects of the traditional examples of fallacies given by the Schools.

A last argument concerning Aristotle has a slightly more casuistic flavor, because of the way it deals with the authority of "important persons" ("*personnes considérables*") and of "the world".[18] You may look presumptuous in attacking what is received by "all the world" ("*tout le monde*"[19]), but "when the world is divided over an author's views, and when there are important persons on both sides of the issue, we no longer need to be so reserved. We can freely declare what we do and do not accept in books about which learned persons disagree". (L, 88; 20) In such a case, you cannot be accused of boasting yourself. Notice that the vexed question of the credibility of authority, especially in the case of conflicting opinions of "important persons", will constitute an important part of the innovative second chapter on fallacies. According to the *Logic*, Aristotle is at the core of such a controversial situation. At some times he was widely rejected, at some others widely accepted, and now: "Every day, in France, Flanders, England, Germany, and Holland, people write freely for and against Aristotle's philosophy" (L, 89; 20). Hence, the authors of the *Logic* think they are not presumptuous in criticizing the great man, and even honor him by proposing a revised version of some of his tenets. This will again be the case with the fallacies.

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[17] Buroker translates the French "surprises" by "mistakes". This is certainly what the *Logic* means, but this translation loses the careful politeness of the *Logic*'s funny metaphorical expression.

[18] Some aspects of this argument can, however, be traced back to Aristotle's concept of "dialectical argument", introduced in the *Topics*. An argument is dialectical when there is no general agreement about its premises; for instance, when ordinary men and some wise men disagree about them.

[19] In the French of this time, "tout le monde" often only means "all the educated people".

3 The Fallacies

The previous remarks on the proximity of the *Logic*'s theses to the opinions of Descartes, Pascal and Aristotle already suggest that the chapters on fallacies differentiate themselves from the traditional account on fallacies, despite their (critical) tribute to the Philosopher.

First, we shall see that fallacies are not a minor topic in the *Logic,* for it occupies more than one third of its third part dedicated to reasoning. The identification of bad reasoning seems to have been more important for the authors than the understanding of the subtleties of syllogism. We will then turn to an overview of each chapter on fallacies and of its specific style. The first one can be said traditional because it roughly follows Aristotle, although it is less faithful to the Philosopher than most previous writings on this topic, especially in introducing new fallacies. The second chapter is quite different because it stresses aspects less logical than moral, in the use of some typical bad arguments which were not yet traditional fallacies. We will finally discuss the content of each chapter at the end of the paper.

3.1 The Place of Fallacies in the *Logic*

The two chapters on fallacies are included in the third part of the book, *On reasoning*. Their place in this part is consistent with what seems a kind of tradition, perhaps since Aristotle's writings where *On sophistical refutations* is supposed to come after the *Topics*. In most Medieval and Renaissance treatises on logic or dialectic, the chapters on fallacies are still among the final ones, if not the last one.[20] If fallacies are taken as deviations from a norm, typically the rules of the syllogism, it is no surprise that the presentation of the syllogistic system comes first and the fallacies later, in a chapter that is typically shorter. On the contrary, in the *Logic*, the volume of words devoted to the fallacies is unusually big in comparison to the rest of this third part of the book ("On reasoning"), which seems to have first been intended as a theory of syllogism. The chapters on fallacies are more than 35 per cent of Part III in the 1662 edition, and more than 40 per cent in the 1664 and later editions. The fallacies cannot be said to be a marginal topic in the *Logic*.

Their unusual importance can also be seen as qualitative. A first warning that the book is going to make a selection among traditional topics is given in the *First discourse*. Useful matters, like the syllogistic figures, and useless but short and easy ones are kept, whereas useless and complicated ones will be dropped. Likewise, in the 1662 edition, the third chapter of *On reasoning* begins by advertising:

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[20] This is the case, among other works, in Peter of Spain's *Summaries of Logic*, Roger Bacon's *The Art and Science of Logic*, Ockham's *Summa logicae*, Buridan's *Summulae de Dialectica*, Ramus' *Institutionum Dialecticarum* and, at the beginning of the XVIIth century, S. Dupleix' *Logic.*

> This chapter and the following chapters up to chapter 12[21] are among those mentioned in the *Discourse* as containing subtle points necessary for speculating about logic, but having little practical use. (L, 319; 138)

Among them, in 1662 the chapter 9 on the reduction of syllogism[22] even begins with "This chapter is quite useless". It is entirely removed from the 1664 edition. (This partly explains the increase of the relative volume of text on fallacies). Hence, a reader of the 1662 edition who skipped the "subtle" chapters would not read much on the syllogism: only a few pages of generalities (the first two chapters), one (short) chapter on dilemma and one (short) chapter on composed syllogisms. He would also read two (medium) chapters on the "places, or the method of finding arguments", a method that is also "of little use". Finally he would read the two (long) chapters on fallacies.

The two chapters on places, inspired by the works of Ramus and Clauberg that one author of the *Logic* says he has just read (L, 409; 185), deal mostly with the rhetorical use of places and other general questions like causes. No examples of syllogisms appear in these chapters, and almost none in the last two chapters on fallacies. So, the reader of the "abridged" version of *On reasoning* reads nothing but generalities on the syllogism; he mostly reads about fallacies, which have become the main topic of this part. Pariente (1985, 304) even wonders whether the *Logic* could not have totally avoided a theory of the syllogism. On this matter, notice that Clauberg's *Logica vetus et nova* (2007), held as a "Cartesian logic" too, has only a few pages on the syllogism, out of more than three hundred pages.

A Cartesian argument, explicitly rehearsed in the *Logic*, is quite important for understanding the *Logic*'s changing approach to fallacies after the decline of the syllogism, which is, at best, "sometimes helpful for revealing flaws in certain confused arguments and for arranging our thoughts in a more convincing manner" (L, 69,9). The two premises of this argument are: (1) Human reason works well, but (2) men often have trouble in distinguishing the truth. The *First discourse* states the conclusion: "[…] most human errors consist not in letting oneself be deceived by faulty inferences, but in granting false judgments from which mistaken conclusions are inferred". (L, 69; 9) The beginning of *On reasoning* gives a new version of this thesis which is another reason to doubt the "utility" of the teaching of logic. The interest of the theory of the syllogism is only (partly) saved by a pedagogical argument: it can be useful to train the mind, it can be useful in some cases and it can be useful to people of "a lively and inquiring turn of mind" who, in any case, will generally be deceived not by bad reasoning but by a lack of attention to the truth of the premises.

It is probably for these reasons against the complete uselessness of logic, that three new chapters, more syllogistically oriented than the ones on places or fallacies, are introduced in the 1664 version of the *Logic*. Yet, it is not a return to dropped chapters, but an opening towards new topics, namely syllogisms with a hypothetical conclusion, enthymemes and sorites, defined as syllogisms with more than two premises. Finally, a substantial traditional logical core remains in the *Logic*, in spite of all its innovations and investigations of side topics.

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[21] The number of this chapter changes with the changing order of the chapters in the various editions.

[22] The reduction of a syllogism is a way of showing that all syllogisms are either obviously valid or valid because they are reducible by valid rules of argumental deduction to one or another of the ones that are obviously valid.

3.2 The Chapters on Fallacies

The two chapters on fallacies exemplify most of the tendencies previously discussed. The order and content of the old Aristotelian core is revised, but important parts survive in the first chapter, whereas a new orientation is provided by the brand new second chapter.

First, what is a fallacy? We know that the *Logic* does not use the old French word *fallace* but *sophism,*[23] and this is why we will use it too. So, what is a sophism? The *Logic* provides a very short answer: it is the same as a paralogism, namely "a bad reasoning". The French Academy Dictionary of 1694 is very laconic, too: "A deceitful, tricky argument". The second adjective of the French expression is *captieux,* the definition of which is (in the same dictionary): "Appropriate to surprise and dazzling by some beautiful appearance". The combination of these two definitions amounts to: "A deceitful argument appropriate to surprise and dazzling by some beautiful appearance". The stress put on an appearance that is at the root of the deception, makes this definition very close to the definition of a paralogism in Aristotle's *On sophistical refutations* (I, 164a20–165a1), as well as to some contemporary definitions, for instance Hansen's "initial working definition" in the S.E.P[24] stating that a fallacy is "an argument that seems to be better than it really is" (2015).[25]

Is it true that the *Logic* is the first work to bring fresh air to the traditional account of fallacies? We know that its general intellectual context is new and, as far as the French area is concerned, it seems that no previous book of logic or dialectic made so radical a departure from the Aristotelian tradition. The French humanist Petrus Ramus, professor at the Royal College,[26] who could hardly be suspected of being an orthodox Aristotelian, and called for a deep reform of teaching, wrote on fallacies. His *Institutionum Dialecticarum* (Ramus 1547) has a chapter on fallacies that is as conservative as the version that Pedro da Fonseca, nicknamed "the Portuguese Aristotle", gave in his own *Institutionum Dialecticarum* (Fonseca 1588). Chronologically closer to the *Logic*, the influential Scipion Dupleix who was a State Counsellor and in charge of the education of the son of king Henri IV, published in 1600 a book called *Logic or the art of discourse and reasoning (Logique ou art de discourir et raisonner)*, which included a chapter on fallacies quite faithful to Aristole's list (Dupleix 1984).

There is no chapter on fallacies in Clauberg's logic that the authors of the *Logic* had on their table when they wrote. It just includes a few charges against "sophists and heretics" (commonly associated), a full paragraph on composed and divided meanings, which are at the root of the Aristotelian *fallacia compositionis* and *fallacia divisionis* (2007 (III, 8), 206), and in the ninth chapter of the fourth part, it makes a distinction between teaching something by means of a direct consideration and by means of arguments *ab authoritate* or *ad hominem*.

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[23] See note 14.

[24] *Stanford Encyclopedia of Philosophy.*

[25] On the definition of a fallacy that is sometimes called "standard", see also Hansen (2002).

[26] It became the current *Collège de France* in 1870.

3.3 "Different Ways of Reasoning Badly, Which are Called Sophisms"

This first chapter on sophisms need not have existed, since the rules of good reasoning given in the previous chapters should suffice to prevent against bad reasoning. Hence, this chapter, "Different ways of reasoning badly, which are called sophisms", could seem of "little practical use", like many of the previous ones (L, 319, 138). The reason for retaining it is that "examples of mistakes to be avoided" are more striking, and then easier to shun, than "examples to be imitated". (L, 418; 189)

Far from Aristotle, who claimed to give an exhaustive and organized list of fallacies, the *Logic* is neither systematic nor complete. It has no theory of bad reasoning because human reasoning is intrinsically good. Yet, it can easily be corrupted by various sins. Only their main "sources" will be presented, namely "seven or eight", a number that is not only vague, but false, since nine sophisms are discussed in this chapter. There are other sophisms, but "so obvious (*grossiers*[27]) that they are not worth mentioning". Seven of the nine sophisms are borrowed from the famous list of Aristotle's *On Sophistical Refutations*, but the *Logic* does not follow its order nor its structure, in particular its distinction between paralogisms *in dictione* and *extra dictionem.*[28]

The first sophism discussed, *ignoratio elenchi*, is, in a sense, also the first one according to Aristotle who thought that any paralogism could be reduced to this one, because any paralogism shows the arguer's ignorance of the correct way to refute an opponent. The *Logic* describes only one version of this sophism, "very common in our disputes", namely what we nowadays call the strawman fallacy that misrepresents the opinions of an opponent, even if he explicitly denies these distorted views, and concludes that his point of view is wrong. As an example, the *Logic* chooses Aristotle's attack against Parmenides and Melissus. According to the *Logic,* Aristotle claimed to have refuted their view that there is only a single principle of everything, as if everything was composed out of a single principle. This is a misrepresentation: Parmenides and Melissus actually talked of "the sole and unique principle from which everything originates, which is God." (L, 420, 189) (Perhaps, some XXI$^{\text{th}}$ century readers could accuse the *Logic* of committing the same fallacy against Aristotle).

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[27] The meaning of the French word is also very close to "rude".

[28] In *On Sophistical Refutations*, Aristotle claims that there are only thirteen types of paralogisms. We still use the Latin name of some of them. According to Aristotle, six paralogisms are "dependent on language": homonymy, amphiboly, form of the expression, composition, separation, accent. The seven others are "independent of language": accident, *secundum quid*, *ignoratio elenchi*, consequent, *petitio principi*, *non causa pro causa*, multiple question.

The next sophism is *petitio*, interpreted in an epistemic way. The *Logic* acknowledges three forms. The first is based on clearness: an argument makes a *petitio* when it does not follow the rule that "what is used as proof has to be clearer and better known than what we want to prove". (L, 422; 190) The second, based on knowledge, happens when "something unknown is proved by something which is equally or even more unknown"; and the third, based on certainty, when we prove "something uncertain, by something else which is equally or more uncertain". (L, 427; 192) Here again, Aristotle is the target of the *Logic*'s two main examples of this sophism. The first one is Galileo's proof that Aristotle's identification of the center of the world with the center of the Earth is circular. The second is Aristotle's circular theory of substantial forms that leads to the idea of an uncreated Nature, an idea supported only by skeptics and atheists.

Then comes "non causa pro causa", closer to the version given by Aristotle in the *Rhetoric* (II, 24, 1401b30) than to the version of *On sophistical refutations* (5, 1671b20) involving the whole structure of the argument and not only a mere mistake about a cause. According to the *Logic,* a first way to commit this sophism is "by simple ignorance of the true causes of things." A second version occurs when "remote causes that prove nothing are used to prove things that are clear enough in themselves, or false, or at least doubtful". For instance, Aristotle and his followers explain many effects by the "abhorrence of a vacuum", but they obviously ignore their true cause, which is the "weight of the air", as shown by Pascal's demonstrations and experiments. According to the *Logic*, Aristotle also commits the second version of this sophism, namely the use of a "remote cause that proves nothing", when he tries to support the claim that the world is perfect because it has three dimensions, or that the heavens are unalterable and incorruptible because they have a circular motion. The *Logic* claims that this sophism is very common and provides a moral explanation of its frequency: it is rooted in "the empty vanity which makes us ashamed to acknowledge our ignorance". This is why we refer to obscure entities like "faculties", "virtues", "sympathies" or "antipathies" to explain facts, for instance when we say that "poppy has a soporific virtue" to explain that poppy makes you sleep. Men think that they are more learned and feel satisfied when they have a fancy word to merely state that an effect has a cause. This is one reason of the scandalous success of astrologers, experts at using the *post hoc ergo propter hoc* version of this sophism to explain an unusual event happening after the apparition of a comet, or to predict a certainty, like the death of someone, someday. The human taste for explanations has another sad consequence: when one accepts a piece of explanatory reasoning, one has a tendency to also accept the truth of the *explanandum*. Unfortunately, it often happens that there is no *explanandum*, and this leads one to find "chimerical causes for chimerical effects".

The *Logic* does not say if its presentation of sophisms follows some order. The first ones, faithful to the Aristotelian tradition, are just said to be "very common". The fourth of the 1664 edition does not exist in the 1662 edition.[29] It borrows from

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[29] This could explain the mistake about the number of fallacies in this chapter: "seven or eight" are announced in all the editions. This was true in 1662, false in 1664, because of the introduction of this fourth sophism. The author probably forgot to replace "seven or eight" by "eight or nine" in the 1664 edition. Did any proofreader ever check the number of fallacies actually listed in this chapter?

Descartes' fourth rule of method, for instance, as it is expressed in the second part of the *Discourse on method*: "to make enumerations so complete, and reviews so comprehensive, that I could be sure of leaving nothing out" (AT VI, 19; 120). According to the *Logic* "capable persons" easily fall into the mistake of

> [...] making imperfect enumerations, and not sufficiently considering all the ways a thing could exist or could happen. This leads them to conclude hastily either that it does not exist because it does not exist in a certain way although it could exist in another, or that it exists in such-and-such a way although it could exist in still another way that they have not considered. (L, 437; 196)

The target of the long following example is Gassendi's wrong Epicurean thesis of the existence of a *vacuum disseminatum*. In all the cases he discusses, he forgets alternative explanations that do not need the hypothesis of a void. Thus, Gassendi's enumeration of explanatory hypotheses is incomplete.

After this new sophism, the *Logic* returns to Aristotle with *fallacia accidentis*, which happens "whenever we draw an absolute, simple, and unconditional conclusion from what is true only accidentally". (L, 442; 198) This is not exactly the notoriously unclear definition that Aristotle gave in *On Sophistical Refutations* (5, 166b28-30),[30] but it fits with its common Medieval version. According to the *Logic*, this sophism is quite common, since it is made by the many people who criticize antimony, eloquence and even medicine, when they should rather complain about their misuse. It is also common among heretics who criticize the cult of the Saints because superstitious abuses crept into this holy practice. It also occurs when someone takes a mere occasion for a real cause. (The *Logic* does not remark that its version of the *fallacia accidentis* is very close to the *secundum quid* sophism and that this last example could also be classified as a case of *non causa pro causa*.)

The sixth sophism is two-in-one, since it gathers *fallacia compositionis* and *fallacia divisionis*, an association already quite common. The *Logic* does not define the two sophisms more precisely than what you can grasp from the title of the paragraph: "Passing from a divided sense to a composite sense, or from a composite sense to a divided sense" (L, 444, 199). The *Logic* justifies this lack of definition on the ground that you understand these fallacies better by examples. Most of them can be found in previous writings on fallacies and are supposed to be popular because they are based on famous paradoxical statements from the Gospel or Holy Scriptures, such as "The blind see, the lame walk upright, the deaf hear", "God justifies the impious" or "Let the defamers, the fornicators, and the miserly not enter the kingdom of heaven". (L, 445–446; 199) The *Logic* briefly explains that "these things" (not these words, like in Aristotle[31]) should be taken "separately and not conjointly" in cases like "The blind see", and "in a sense opposed to the divided sense" in the case of defamers, fornicators and miserly. "The blind see" must be divided, for blind people cannot see; thus, this judgment means that those who were blind are not blind anymore. On the other hand, sinners, like defamers, fornicators and misers will not be saved if they remain attached to their vice: the meaning of the original sentence must not be "divided". So far, all this is a matter of interpretation and no reasoning is involved. The sophism occurs when you "pass from one of these senses to the other", for instance when an unrepentant sinner argues that he will be saved, because Jesus came to save sinners.

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[30] On the obscurity of Aristotle's definition see Ebbesen (1981 (vol I), 224), Hamblin (1970/1998, 84), Schreiber (2003, 113).

[31] In Aristotle's *On sophistical refutations* (4,166a20-b1 and 20,177a32-b35) these sophisms belong to the paralogisms *in dictione*. This verbal aspect is less explicit in the *Logic*, even though it says that it is a matter of sense.

The seventh sophism too, abbreviated as *secundum quid (*originally, *a dicto secundum quid ad dictum simpliciter),* is left undefined and only illustrated by examples. Most of them go against the impious *secundum quid* arguments of Cicero and Epicureans. To illustrate their fallaciousness, the *Logic* uses a clear and funny comparison. They look like the argument of "a rustic" who had always seen houses covered with thatch and concludes that there are no houses in towns because he has been told that there are no houses with thatched roofs in towns.

The eighth sophism is the abuse of ambiguity. This Aristotelian sophism is presented in the traditional way that shows the different ways a syllogism can be biased by an ambiguous term. Two examples of the 1662 edition, directed against Aristotle's thesis about the eternity of the world, disappear in the 1664 edition. What is left is mostly the denunciation of the stoic argument that claims that the World has a proper rational soul. The *Logic*'s example is a syllogistic argument that Cicero ascribes to Zeno in *De natura deorum* (II, 8): "That which has the use of reason is better than that which has not. Nothing is better than the world; therefore, the world has the use of reason." The second premise is patently false for our two Christian authors. Yet, they grant it could be said to be true if "better" were used in a different sense in the second premise: then "nothing better" would qualify the collective creation of God. In any case, the only acceptable conclusion is that some parts of the world, such as angels and men, have the use of reason.

The last sophism, *Drawing a general conclusion from a faulty induction*, is the second one departing from the Aristotelian tradition, but contrary to the fourth sophism of the list, "imperfect enumeration", it is already present in the 1662 edition. Induction matters for the *Logic*, since "this is even the beginning of all knowledge, because singular things are presented to us before universals, although afterwards universals are used to know the singulars." (L, 451; 202). Now, what is a faulty induction? An induction that is not "complete". Unfortunately, the *Logic* leaves the conditions of completeness unspecified. In a sense, the trouble with such a generalization is that it is hasty. Nowadays, the fallacy of hasty generalization is sometimes interpreted as a *secundum quid* fallacy, because the arguer drops or neglects some relevant circumstances (*secundum quid*) and then derives a false general (*simpliciter*) conclusion. This ninth sophism also has some similarities with the fourth, "imperfect enumeration": a false general conclusion—for instance, Gassendi's belief in the existence of a disseminated void—can be the result of an induction that is defective because of an incomplete enumeration of the various possible theories accounting for some phenomena. The void is the topic of the *Logic*'s only example illustrating this last sophism of the first chapter: in spite of a "multitude of experiments", Pascal's new experiments have shown that a pump cannot raise a column of water to any height one wants. Here again, the choice of the example is closely related with controversial topics of the time.

3.4 Sophisms in Civil Life and in Ordinary Discourses

In the 1662 edition, the second chapter on sophisms, called "On bad reasoning in everyday life", begins by the statement that the previous chapter gave a few examples of "the most ordinary mistakes we make in reasoning" (L, 655).[32] It goes on to say that we should pay more attention to mistakes in ordinary life than to those made in science, since the former are more numerous and, in practice, much more dangerous than scientific mistakes, since they are not only errors but (moral) faults.

The 1664 edition makes this distinction between science and ordinary life sharper and more explicit. Now, according to the beginning of the second chapter, the first one was about mistakes "most common in reasoning on scientific matters". This topic-dependence of the *Logic*'s first list of sophisms is another departure from the Aristotelian tradition, although its content is mainly inherited from Aristotle. In *On sophistical refutations*, even if a few examples of the paralogisms are borrowed from arithmetic or geometry, most of the other ones concern arguments which appear more "ordinary" than "scientific", at least in the sense that they do not clearly belong to a scientific discipline. The *Rhetoric*, the second main contribution of Aristotle to the study of paralogisms, confirms that the Aristotelian paralogisms were not topic-dependent and so, did concern as much civil and ordinary matters as disciplinary ones. However, if we count theological matters as scientific, almost all the examples of the first chapter of the *Logic* can be said scientific, at least in the sense of theoretical or doctrinal. This orientation also confirms that this textbook is also an ambitious Jansenist weapon, most of the examples of the first chapter on sophisms being directed against Aristotle and Cicero, two favorite authors of the Jesuits (Fumaroli 1980), or against Epicure and the Stoics, symbols of atheists or heretics.

The second chapter on sophisms is not scientific but explicitly moral. This is why it is commonly attributed to Nicole who mostly wrote on moral issues.[33] This chapter is particularly important, because, like Pascal, the *Logic* claims—for instance, in the *First Discourse*—that the use of reason in a scientific inquiry is at most a secondary activity, if not a trifle, when compared to its use to follow God's word in daily life. Here again, the problem is not bad reasoning: it is blindness leading to badness. This is why, in the spirit of Descartes' idea that bad reasoning is much rarer than reasoning based on false premises, the second chapter on sophisms announces that

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[32] This does not appear in Buroker's English translation based on the 1683 edition.

[33] The *Logic* explicitly states that the project to understand what leads people to make false judgments would require "a separate work that would include practically all of ethics" (L, 454; 203). This is precisely what Nicole did.

> We have not made it a point to distinguish false judgments from bad reasonings,[34] and we have paid equal attention to the causes of each. This is as much because false judgments are the source of bad reasonings and necessarily results in them, as because in fact there is almost always a hidden inference embedded in what appears to be a simple judgment, since there is always some reason or principle behind this judgment. (L, 454; 203)

Thus, we should not expect a chapter like those of traditional logic books: now, the aim is not good logic, but good behavior, especially in dialectical arguments. This shift from a view of sophisms limited to logical tricks just good enough for dialecticians, to a moral concern connected with the right use of reason is probably the main innovation made by the *Logic* about sophisms. Now, some sophisms are more than mistakes or tricks, they are sins.

This second chapter on sophisms has two parts, each one associated with one of the two main sources of errors, often mixed in practice but one more apparent than the other: "one internal, namely a disorder of the will that disturbs and confuses our judgment; the other external, arising from the objects we are judging, which misleads the mind by false appearances." (L, 454; 204)

3.4.1 Sophisms of Self-Love, of Interest, and of Passion

Self-love is the core of the Augustinian moral criticism of man. This perennial individual slant, plus interests and other passions are the three causes that attach us to one opinion rather than to another: "For us, truth and utility are the same thing". The first part of the chapter presents nine different faces of a general attitude leading us to symptomatic bad arguments.

The first one is what we would today call "cultural relativism". It has national versions, for instance the possibility for "what is true in Spain to be false in France" (L, 456; 204), but also professional ones. More generally, it is bound to a specific status. We mistakenly presume that our interest is always a good reason to believe something: "I am of such-and-such an order, therefore I ought to believe that a certain privilege is authentic." This is especially visible when passions change. Hence the sophisms: "I love him, therefore he is the most competent (*habile*) man in the world; I hate him; therefore, he is without merit". (L, 457; 205) A third kind, bound to common psychological traits, is the tendency to consider one's own authority as the best reason for one's own opinions. It is not even necessary to argue. Since I am right, you are wrong. This attitude has a pleasant deductively valid alternative: "if that were the case, I would not be clever; but I am clever; therefore it is not the case." This attitude is so frequent that, during an argument, it is also common to see both parties charging the other with bad faith and stubbornness. This is why "wise and judicious persons" will avoid it, and will "defend the truth by weapons appropriate to it", namely "clear and sound reasons." (L, 461; 207)

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[34] Buroker uses "unsound argument" which may nowadays have unwelcome technical connotations to understand the *Logic*. "Bad reasonings" keeps literally closer to the French "mauvais raisonnements".

These first five sophisms are all based on the tendency to prefer oneself to others. The arguments produced by a sixth fallacious attitude are based on a common general perversion, the twin sister of self-love: the hate of others. One consequence is arguments like: "Someone else said it, therefore it is false; it was not I who wrote this book, therefore it is bad." (L, 462; 207)

An a priori biased argument leads not only to cross-accusations but also, sometimes, to a "spirit of contention" that is quite common among men. Disputes are not bad when they are free from passions and can even be a powerful way to discover truth, since a single mind alone is sometimes not powerful enough to discover truth. So, a taste for debate is not wrong when it is not mixed with the will to win at any cost. Another consequence of self-love now is a tendency to place oneself "above arguments", "to find reasons for everything", to become skeptical and "to confuse truth with error, viewing both as equally probable" (L, 470; 210). A well-known result of this spirit of debate that never surrenders to any reason is the many ways people get lost in endless controversies. Only a long training can prevent one from falling into this vice or from following others when one fails.

A way to resist the turmoil of heated arguments is not to get involved in them: just grant everything. Complacency, quite common at the Royal Court, is the opposite excess to the spirit of debate; it leads from the tendency of the mouth to grant everything to the tendency of the mind to approve everything. A result is that the trustworthiness of language is lost, since words are "no longer signs of our judgments and thoughts, but merely signs of the outward civility we want to show toward those we are praising, as if it were a form of reverence" (L, 473; 212).

The ninth, and last, sophism of this section seems to be a mere return to the first one, namely the attachment to a view, caused by self-love. Yet, the *Logic* goes further by stressing another aspect of this general attitude: when we are committed by self-love to a point of view and ready to be persuasive at any cost, we are not ready to examine "whether our reasons are true or false". Then "we use all sorts of arguments, good and bad, in order to have one for everybody" (L, 473; 212). We then say things that we know to be totally false, but useful to our point of view. Montaigne, a regular target of this section, and the skepticism of which he is an ambassador, would be expert at this kind of sophism.

3.4.2 False Reasoning that Arise from Objects

The view of the *Logic* on what it calls "internal causes" of errors and bad reasoning can be seen as Augustinian, in the sense that these causes are perennial aspects of the inherited corruption of human nature. In contrast, the "external causes", discussed in the second part of this chapter, are not bound to a long-lasting nature but to limited events or occasional circumstances. The *Logic*'s interpretation of the errors they produce is close to Descartes' theory of error in the fourth *Meditation*, since it calls on the overwhelming power of the will over the limited resources of the understanding. Mistakes would not happen if "the will did not push the mind to make a hasty judgment when it is not yet sufficiently enlightened" (L, 477; 214).

We remember that Descartes thought that reason was the power to distinguish truth from falsity, and Pascal thought that the skill to make this distinction was one of the three main goals in the study of truth. The *Logic* agrees: it is an impious opinion to believe that truth and lie, or vice and virtue cannot be distinguished. However, it also grants that "in most matters there is a mixture of error and truth, vice and virtue, perfection and imperfection, and this mixture is one of the most common sources of our false judgments." (L, 478; 214) You could say that this external mixture is the material cause of the majority of mistakes, but they also have an internal cause, which leads to a first sophism: "people hardly ever consider matters in detail, they judge only according to their strongest impression and feel only what is most striking". (L, 478; 214) The most impressive aspect hides or cancels the less impressive ones. A less superficial examination can correct this general attitude, like in the case of "the Church fathers [who] took excellent points on morality from books written by pagans". On the other hand, it is not unfair to argue that "a book is good whenever there is noticeably more good than bad in it". In any case, men are wrong to judge on the consideration of what is least important but more striking for them. The author does not discuss this point, but this attitude could also be at the root of several scientific sophisms of the first chapter, for instance *ignoratio elenchi*, imperfect enumeration, *secundum quid*, faulty induction, *non causa pro causa*.

The second sophism of this section is a variant of the first one. People are commonly impressed by "a certain pompous and magnificent eloquence". Here, again, the trouble does not come from eloquence itself or from grandness and pomposity. It comes from "a false reasoning[35] [that] can slide gently by us following a phrase that is pleasing to the ear or a figure that is startling and delightful to consider" (L, 481; 216) or from a false judgment "necessary to make the phrase or the figure precise". Naïve people are not the only ones mistaken by bad reasonings hidden by brilliant rhetoric, for these reasonings "are often imperceptible to those who make them, and mislead them first of all." (L, 484; 217) Like Descartes, the *Logic* stresses that the innate power of reason to distinguish truth from falsity needs to be supported by the strength of attention.

Although the *Logic* does not point it out, the third sophism can be seen as a case of "imperfect enumeration", the fourth (and new) sophism discussed in the previous chapter. It occurs when ignorance leads to a false explanation, a typical case being when men "judge rashly of the actions and intentions of others, and almost always fall into it by a bad reasoning". Most of the examples can be said *ad hominem*[36] or set the conditions for circumstantial *ad hominem* argument: "A writer is found agreeing with a heretic on a point of criticism that is independent of any religious controversy. A malevolent adversary will infer from this that the writer has an inclination for heretics" (L, 485; 218) or "Someone is a friend of a wicked person. So, another infers, the former's interests are tied up with the latter's, and he participates in his crimes." (L, 486; 218) Notice that the *Logic* only stresses the badness of these arguments, not their *ad hominem* character.

In civil life, "false inductions" are quite common, because many men "need only three or four examples to form a maxim or a platitude, which they then use as a principle for judging everything." For instance, "There are flighty and fickle women. This is enough for jealous persons to suspect the most honest women unjustly" or, in a different domain: "Some matters are obscure and hidden, and people often make great mistakes. Everything is obscure and uncertain, say the ancient and modern Pyrrhonists, and we can know the truth about nothing with certainty." (L, 487; 219) Unfortunately, the *Logic* forgets to explain why these false inductions are classified in the section on false reasoning that arises from objects themselves. The first example could easily be considered as a sophism based on self-love, interest or passion and the second one as a scientific sophism.

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[35] Buroker uses "fallacious inference".

[36] The *Logic* does not use the term *ad hominem,* already used by Clauberg (2007 (IV,9), 274).

The briefly discussed fifth sophism can be seen as a prelude to the sixth, on authority, since it looks like the contraposition of an argument *ab autoritate*: you conclude that someone is not an authority because what he has said is false. "It is a weakness, and an injustice, often condemned but rarely avoided, to judge decisions by events" (L, 488; 219) and to make people responsible for bad consequences they could not foresee. When they fail, men often look for the reason of their failure, and try to understand what they should have done or not have done. So far, so good, but they also have a strong tendency to apply this to pieces of advice. Just like astrologers, who are gifted at explaining *ex post facto*, they have a tendency to believe that a successful explanation is the true explanation. When applied to a failure, this leads to the common form of bad reasoning—"He is unsuccessful, therefore he is at fault"—a variant of which is to conclude that a piece of advice (or a counsellor) was bad, since it was followed by a failure.

Each of the three last subchapters does not focus on a particular sophism but they all deal with two related sophisms, quite common according to the Logic: the sophism of authority and the sophism of manner. Men fall into the sophism of authority when "judging the truth of things hastily based on some authority insufficient to assure us of it" (L, 489; 220), and they fall into the sophism of the manner when "deciding what is essential to something by appearances". The success of these sophisms is based on the tendency of most men to decide "by certain external and alien marks" that they think more indicative of truth than of falsehood. Here again they are misled by the fact that these marks are "clear and visible", while truth is often hidden and men's minds are often feeble and cloudy. Furthermore, men dislike making distinctions: "they want things to be all or nothing" and "they like short, decisive, abbreviated ways." (L, 492; 221)

In the *Second discourse* opening the *Logic*, the discussion on Aristotle has already shown that authority is a subtle topic, in need of decisive distinctions concerning its ground and its status. This is the case anew for this sophism. God made many men with feeble minds, but he also wanted them to know the "mysteries of faith". This might be the reason why "people are readily led to what is easiest, they almost always support the view where they see these external marks that are easily discernible." (L, 490; 220) Fortunately, the authority of the "universal Church" is "clear and evident", and this allows even feeble minded men to access those truths that would otherwise need a thorough examination of all the points to believe. Furthermore, the right religious authority is also supported by the right manner. Just compare the bright signs it has on its side, for instance miracles, to the opinions of heretics propagated by "iron and blood". For less crucial topics, God gave men the power of reason to make up their minds. It is only in this case that authority and manner are less crucial and can even become obstacles to the discovery of truth. According to the *Logic*, there are no general rules in this area, and this is why it will stress only "gross faults".

Testimony is a case at hand. We sometimes only take into account the number of witnesses. Yet, "as an author of our time has wisely remarked",[37] it is quite unlikely that many men discover by themselves a truth that is hard to find out. Accordingly, we should not argue, for instance, that "most philosophers grants this opinion, therefore it is the truest". In the poor Latin of our contemporary classification of fallacies, we could say that the *Logic* warns us against both arguments *ad populum* and *ad authoritatem*.

Sometimes, bright marks persuade people strongly but wrongly. This is the case when people think the oldest people are always right, even on topics that do not depend on age or experience but only on the "light of the mind". A similar mistake occurs when we credit wise, pious or moderate men with a wisdom spreading beyond the reach of the light that God has given them to act. On the contrary, what really matters, in many cases, is the power of the intellect or of study, which is less visible than the regular behavior of a good man.

The *Logic* could forgive the minor sin of putting forward an irrelevant premise stressing the manifest goodness of a man. But it is very critical when the truth of an opinion is only supported by a call to the wealth, the high social status or the dignity of someone who holds it. Men are prone to bad arguments like: "He has an income of a hundred thousand pounds, therefore he is right; he comes from a noble lineage, therefore we ought to believe what he claims to be true; he is without wealth, therefore he is wrong." (L, 493; 222)[38] Put the same statement in the mouth of a man of quality or in the mouth of a man of nothing, and you will often get a quite different level of approval. The cause of this common attitude lies in the heart of men who are impressed and admire honors and pleasures. Simple men consider that people who benefit from them are happier, and thus more gifted. Their souls would be as high as their rank, and their opinions are then considered as right by humble men. The same illusions work for great men who forget that they are equal to other men "in terms of body and soul". They think that they belong to an upper kind, they incorporate to their natures "greatness, nobility, wealth, mastery, of a lord, or of a prince" and believe that their judgments are not as weak as those of others. This is what makes them "so impatient with the slightest contradiction" and think that they are always right, especially when they discuss with modest men, who already believe that they are right.

The target of this sophism *ab authoritate* is the authority of noblemen (among others) in the XVIIth century French society. They are also a major target of the twin sophism, the sophism of manner, when they become courtiers. First,

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[37] Probably Descartes. He states this in the second part of his *Discourse on Method* (AT VI, 16; 119).

[38] In this passage, Buroker translates the French singular "he" by "they". I return to the original singular.

> we are naturally led to believe that a man is right when he speaks with grace, fluency, seriousness, moderation, and gentleness, and to believe, by contrast, that a man is wrong whenever he speaks disagreeably or when he allows anger, bitterness, or presumption to appear in his actions and words. (L, 496; 223)

Second, "there are very mediocre and superficial minds who, because they were educated at court, where the art of pleasing is studied and practiced better than anywhere else, have quite pleasant manners that make many of their false judgments acceptable". (L, 497; 224) The *Logic* concludes that content and manner should not be mixed: "we must judge appearances by appearances and the essentials by the essentials, and not the essentials by appearances nor appearances by the essentials." (L, 497; 224) Yet, its position is more complex because of the "greatest precept of rhetoric" stating that, if you honor truth, you should not go against it "by presenting it in an offensive manner". This is why you should respect the egalitarian rationalism of the *Logic*, which suggests that "an individual should never claim that his authority ought to prevail over the authority of all the others." (L, 499; 225)

4 Conclusion

What is old and what is new in *Port-Royal Logic*'s account of sophisms? The following chart, based on the 1664 edition, summarizes the content of the two chapters devoted to this topic. The "old" Aristotelian paralogisms are italicized and called by their traditional names, as reported in the *Logic*. All the other sophisms are "new" and most of them have yet no proper name. In the second chapter they are not always formally distinct deceptive arguments but various manifestations of general bad human tendencies that have bad consequences on reasoning. The *Logic* presents them as innate or accidental bad habits (self-love, lack of attention, conformism or servile submission to human authority). In the chart, they are summarized by a few words stating a feature or an attitude that is typical of this sophism.

	Chapitre XVIII Scientific sophisms	Chapitre XIX Sophisms committed in everyday life and in ordinary discourse	
		Sophisms of self-love, interest, or passion	Sophisms arising from external objects
1	*Ignoratio elenchi*	Self-love, passion or interest	Hasty reasoning based on the strongest impression (lack of attention)
2	*Petitio principii*	Changing passions	Misleading pompous eloquence
3	*Non causa pro causa*	I am right	Hasty conclusion based on the actions or the presumed intentions of the others
4	Imperfect enumeration	I am smart	Hasty generalization based on few experiments
5	*Fallacia accidentis*	Accusation of the opponent (of bad faith, hair splitting)	He did not succeed, therefore he is wrong

	Chapitre XVIII Scientific sophisms	Chapitre XIX Sophisms committed in everyday life and in ordinary discourse	
		Sophisms of self-love, interest, or passion	Sophisms arising from external objects
6	*Fallacia compositionis et divisionis*	Jealousy or envy	Sophism of authority
7	*Secundum quid*	Spirit of dispute	Sophism of manner
8	*Equivocation*	Obsequious servility	
9	Generalization from a faulty induction	Anything goes to support my point	

Even in its overall treatment of fallacies *Port-Royal Logic* is at the crossroads of several influences. It keeps partly faithful to the Aristotelian and scholastic tradition, but does not hesitate to criticize Aristotle (among many others) and to drop some of the traditional fallacies which appear too obvious to be interesting. It also illustrates the view shared with Descartes and Pascal that the way logic and dialectic are taught and used in the Schools is sterile and useless, since it cannot produce new knowledge as geometry does. Even the examples used in the chapters on fallacies suffice to show that *Port-Royal Logic* was deeply involved in the religious, philosophical, political and scientific arguments of its time.

At least one of the two new sophisms introduced in the first chapter on sophisms seems to be inspired by Descartes' method, in particular his call for a correct use of reason in the sciences and his distrust for induction. Part of the new sophisms discussed in the second chapter could be called, in our contemporary jargon, cognitive biases. *Port-Royal Logic*, however, adds a moral turn inspired by Jansenism. It interprets the bad reasonings used in civil or daily life as various consequences of the intrinsic badness of human beings, leading them to often misuse their reason, although it is a gift from God. Thus, many sophisms are not the privilege of clever sophists anymore, but are a sad mark of the human condition. Some of the new fallacies are also connected with the rise of the French absolute monarchy and its consequences on the pragmatics of public discourse. *Port-Royal Logic* shows the risks you take if you try to meet the challenge of conjugating the privileges and the rhetorical whims of the royal court with the pursuit of an egalitarian, humanistic and non-pedantic speech.

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