Sketches Of The History Of Man

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Chap. IV. Remarks.

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them, and what figures and modes are adapted to each. Thus, in ſome ſyllogiſms ſeveral diſtinct concluſions may be drawn from the ſame premiſes: in ſome, true concluſions may be drawn from falſe premiſes: in ſome, by aſſuming the concluſion and one premiſe, you may prove the other; you may turn a direct ſyllogiſm into one leading to an abſurdity.

We have likewiſe precepts given in this book, both to the aſſailant in a ſyllogiſtical diſpute, how to carry on his attack with art, ſo as to obtain the victory; and to the defendant, how to keep the enemy at ſuch a diſtance as that he ſhall never be obliged to yield. From which we learn, that Ariſtotle introduced in his own ſchool, the practice of diſputing ſyllogiſtically, inſtead of the rhetorical diſputations which the ſophiſts were wont to uſe in more ancient times.

CHAP. IV.

Remarks.

SECT. 1. *Of the Converſion of Propoſitions.*

WE have given a ſummary view of the theory of pure ſyllogiſms as delivered by Ariſtotle, a theory of which he claims the ſole invention. And I believe it will be difficult, in any ſcience, to find ſo large a ſyſtem of truths of ſo very abſtract and ſo general a nature, all fortified by demonſtration, and all invented and perfected by one man. It ſhows a force of genius, and labour of inveſtigation,

investigation, equal to the most arduous attempts. I shall now make some remarks upon it.

As to the conversion of propositions, the writers on logic commonly satisfy themselves with illustrating each of the rules by an example, conceiving them to be self-evident when applied to particular cases. But Aristotle has given demonstrations of the rules he mentions. As a specimen, I shall give his demonstration of the first rule. "Let A B be an universal negative proposition; I "say, that if A is in no B, it will follow that B is in no A. If "you deny this consequence, let B be in some A, for example, "in C; then the first supposition will not be true; for C is of the "B's." In this demonstration, if I understand it, the third rule of conversion is assumed, that if B is in some A, then A must be in some B, which indeed is contrary to the first supposition. If the third rule be assumed for proof of the first, the proof of all the three goes round in a circle; for the second and third rules are proved by the first. This is a fault in reasoning which Aristotle condemns, and which I would be very unwilling to charge him with, if I could find any better meaning in his demonstration. But it is indeed a fault very difficult to be avoided, when men attempt to prove things that are self-evident.

The rules of conversion cannot be applied to all propositions, but only to those that are categorical; and we are left to the direction of common sense in the conversion of other propositions. To give an example: Alexander was the son of Philip; therefore Philip was the father of Alexander: A is greater than B; therefore B is less than A. These are conversions which, as far as I know, do not fall within any rule in logic; nor do we find any loss for want of a rule in such cases.

Even in the conversion of categorical propositions, it is not enough to transpose the subject and predicate. Both must undergo some change, in order to fit them for their new station: for in every propoſition the ſubject muſt be a ſubſtantive, or have the force of a ſubſtantive; and the predicate muſt be an adjective, or have the force of an adjective. Hence it follows, that when the ſubject is an individual, the propoſition admits not of converſion. How, for inſtance, ſhall we convert this propoſition, God is omniſcient?

Theſe obſervations ſhow, that the doctrine of the converſion of propoſitions is not ſo complete as it appears. The rules are laid down without any limitation; yet they are fitted only to one claſs of propoſitions, to wit, the categorical; and of theſe only to ſuch as have a general term for their ſubject.

SECT. 2. *On Additions made to Ariſtotle's Theory.*

Although the logicians have enlarged the firſt and ſecond parts of logic, by explaining ſome technical words and diſtinctions which Ariſtotle had omitted, and by giving names to ſome kinds of propoſitions which he overlooks; yet in what concerns the theory of categorical ſyllogiſms, he is more full, more minute and particular, than any of them: ſo that they ſeem to have thought this capital part of the Organon rather redundant than deficient.

It is true, that Galen added a fourth figure to the three mentioned by Ariſtotle. But there is reaſon to think that Ariſtotle omitted the fourth figure, not through ignorance or inattention, but of deſign, as containing only ſome indirect modes, which, when properly expreſſed, fall into the firſt figure.

It is true alſo, that Peter Ramus, a profeſſed enemy of Ariſtotle, introduced ſome new modes that are adapted to ſingular propoſitions; and that Ariſtotle takes no notice of ſingular propoſitions, either in his rules of converſion, or in the modes of ſyllogiſm. But the friends of Ariſtotle have ſhewn, that this improvement of of Ramus is more ſpecious than uſeful. Singular propoſitions have the force of univerſal propoſitions, and are ſubject to the ſame rules. The definition given by Ariſtotle of an univerſal propoſition applies to them; and therefore he might think, that there was no occaſion to multiply the modes of ſyllogiſm upon their account.

Theſe attempts, therefore, ſhow rather inclination than power, to diſcover any material defect in Ariſtotle's theory.

The moſt valuable addition made to the theory of categorical ſyllogiſms, ſeems to be the invention of thoſe technical names given to the legitimate modes, by which they may be eaſily remembered, and which have been compriſed in theſe barbarous verſes.

Barbara, *Celarent*, *Darii*, *Ferio*, dato primæ;
Ceſare, *Cameſtris*, *Feſtino*, *Baroco*, ſecundæ;
Tertia grande ſonans recitat *Darapti*, *Felapton*;
Adjungens *Diſamis*, *Datiſi*, *Bocardo*, *Feriſon*.

In theſe verſes, every legitimate mode belonging to the three figures has a name given to it, by which it may be diſtinguiſhed and remembered. And this name is ſo contrived as to denote its nature: for the name has three vowels, which denote the kind of each of its propoſitions.

Thus, a ſyllogiſm in *Bocardo* muſt be made up of the propoſitions denoted by the three vowels, O, A, O; that is, its major and concluſion muſt be particular negative propoſitions, and its minor an univerſal affirmative; and being in the third figure, the middle term muſt be the ſubject of both premiſes.

This is the myſtery contained in the vowels of thoſe barbarous words. But there are other myſteries contained in their conſonants: for, by their means, a child may be taught to reduce any ſyllogiſm of the ſecond or third figure to one of the firſt. So that the four modes of the firſt figure being directly proved to be concluſive, all the modes of the other two are proved at the ſame time, by means of this operation of reduction. For the rules and manner of this reduction, and the different ſpecies of it, called *oſtenſive* and *per impoſſibile*, I refer to the logicians, that I may not diſcloſe all their myſteries.

The invention contained in theſe verſes is ſo ingenious, and ſo great an adminicle to the dextrous management of ſyllogiſms, that I think it very probable that Ariſtotle had ſome contrivance of this kind, which was kept as one of the ſecret doctrines of his ſchool, and handed down by tradition, until ſome body brought it to light. This is offered only as a conjecture, leaving it to thoſe who are better acquainted with the moſt ancient commentators on the Analytics, either to refute or to confirm it.

SECT. 3. *On Examples uſed to illuſtrate this Theory.*

We may obſerve, that Ariſtotle hardly ever gives examples of real ſyllogiſms to illuſtrate his rules. In demonſtrating the legitimate modes, he takes A, B, C, for the terms of the ſyllogiſm. Thus, the firſt mode of the firſt figure is demonſtrated by him in this manner. " For," ſays he, " if A is attributed to every " B, and B to every C, it follows neceſſarily, that A may be at- " tributed to every C." For diſproving the illegitimate modes, he uſes the ſame manner; with this difference, that he commonly for an example gives three real terms, ſuch as, *bonum*, *habitus*, *prudentia*; of which three terms you are to make up a ſyllogiſm of the figure and mode in queſtion, which will appear to be inconcluſive.

The commentators, and ſyſtematical writers in logic, have ſupplied

plied this defect; and given us real examples of every legitimate mode in all the figures. This we must acknowledge to be charitably done, to assist the imagination in the conception of matters so very abstract; but whether it was prudently done for the honour of the art, may be doubted. I am afraid this was to uncover the nakedness of the theory; and has contributed much to bring it into contempt: for when one considers the silly and uninstructive reasonings that have been brought forth by this grand organ of science, he can hardly forbear crying out, *Parturiunt montes, et nascitur ridiculus mus.* Many of the writers of logic are acute and ingenious, and much practised in the syllogistical art; and there must be some reason why the examples they have given of syllogisms are so lean.

We shall speak of the reason afterwards; and shall now give a syllogism in each figure as an example.

No work of God is bad;
The natural passions and appetites of men are the work of God;
Therefore none of them is bad.

In this syllogism, the middle term, *work of God*, is the subject of the major and the predicate of the minor; so that the syllogism is of the first figure. The mode is that called *Celarent;* the major and conclusion being both universal negatives, and the minor an universal affirmative. It agrees to the rules of the figure, as the major is universal, and the minor affirmative; it is also agreeable to all the general rules; so that it maintains its character in every trial. And to show of what ductile materials syllogisms are made, we may, by converting simply the major proposition, reduce it to a good syllogism of the second figure, and of the mode *Cesare*, thus:

Whatever is bad is not the work of God;
All the natural passions and appetites of men are the work of God;
Therefore they are not bad.

Another

Another example:

Every thing virtuous is praiſe-worthy;
Some pleaſures are not praiſe-worthy;
Therefore ſome pleaſures are not virtuous.

Here the middle term *praiſe-worthy* being the predicate of both premiſes, the ſyllogiſm is of the ſecond figure; and ſeeing it is made up of the propoſitions, A, O, O, the mode is *Baroco*. It will be found to agree both with the general and ſpecial rules: and it may be reduced into a good ſyllogiſm of the firſt figure upon converting the major by contrapoſition, thus:

What is not praiſe-worthy is not virtuous;
Some pleaſures are not praiſe-worthy;
Therefore ſome pleaſures are not virtuous.

That this ſyllogiſm is concluſive, common ſenſe pronounces, and all logicians muſt allow; but it is ſomewhat unpliable to rules, and requires a little ſtraining to make it tally with them.

That it is of the firſt figure is beyond diſpute; but to what mode of that figure ſhall we refer it? This is a queſtion of ſome difficulty. For, in the firſt place, the premiſes ſeem to be both negative, which contradicts the third general rule; and moreover, it is contrary to a ſpecial rule of the firſt figure, That the minor ſhould be negative. Theſe are the difficulties to be removed.

Some logicians think, that the two negative particles in the major are equivalent to an affirmative; and that therefore the major propoſition, *What is not praiſe-worthy, is not virtuous*, is to be accounted an affirmative propoſition. This, if granted, ſolves one difficulty; but the other remains. The moſt ingenious ſolution, therefore, is this: Let the middle term be *not praiſe-worthy*. Thus, making the negative particle a part of the middle term, the ſyllogiſm ſtands thus:

Whatever is *not praiſe-worthy* is not virtuous;
Some pleaſures are *not praiſe-worthy*;
Therefore ſome pleaſures are not virtuous.

By

By this analyſis, the major becomes an univerſal negative, the minor a particular affirmative, and the concluſion a particular negative, and ſo we have a juſt ſyllogiſm in *Ferio*.

We ſee, by this example, that the quality of propoſitions is not ſo invariable, but that, when occaſion requires, an affirmative may be degraded into a negative, or a negative exalted to an affirmative. Another example:

All Africans are black;
All Africans are men;
Therefore ſome men are black.

This is of the third figure, and of the mode *Darapti*; and it may be reduced to *Darii* in the firſt figure, by converting the minor.

All Africans are black;
Some men are Africans;
Therefore ſome men are black.

By this time I apprehend the reader has got as many examples of ſyllogiſms as will ſtay his appetite for that kind of entertainment.

SECT. 4. *On the Demonſtration of the Theory.*

Ariſtotle and all his followers have thought it neceſſary, in order to bring this theory of categorical ſyllogiſms to a ſcience, to demonſtrate, both that the fourteen authoriſed modes conclude juſtly, and that none of the reſt do. Let us now ſee how this has been executed.

As to the legitimate modes, Ariſtotle, and thoſe who follow him the moſt cloſely, demonſtrate the four modes of the firſt figure directly from an axiom called the *Dictum de omni et nullo*. The amount of the axiom is, That what is affirmed of a whole *genus*,

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may be affirmed of all the ſpecies and individuals belonging to that *genus*; and that what is denied of the whole genus, may be denied of its ſpecies and individuals. The four modes of the firſt figure are evidently included in this axiom. And as to the legitimate modes of the other figures, they are proved by reducing them to ſome mode of the firſt. Nor is there any other principle aſſumed in theſe reductions but the axioms concerning the converſion of propoſitions, and in ſome caſes the axioms concerning the oppoſition of propoſitions.

As to the illegitimate modes, Ariſtotle has taken the labour to try and condemn them one by one in all the three figures: but this is done in ſuch a manner that it is very painful to follow him. To give a ſpecimen. In order to prove, that thoſe modes of the firſt figure in which the major is particular, do not conclude, he proceeds thus: "If A is or is not in ſome B, and B in every C, "no concluſion follows. Take for the terms in the affirmative "caſe, *good*, *habit*, *prudence*, in the negative, *good*, *habit*, *ignorance*." This laconic ſtyle, the uſe of ſymbols not familiar, and, in place of giving an example, his leaving us to form one from three aſſigned terms, give ſuch embarraſſment to a reader, that he is like one reading a book of riddles.

Having thus aſcertained the true and falſe modes of a figure, he ſubjoins the particular rules of that figure, which ſeem to be deduced from the particular caſes before determined. The general rules come laſt of all, as a general corollary from what goes before.

I know not whether it is from a diffidence of Ariſtotle's demonſtrations, or from an apprehenſion of their obſcurity, or from a deſire of improving upon his method, that almoſt all the writers in logic I have met with, have inverted his order, beginning where he ends, and ending where he begins. They firſt demonſtrate the general rules, which belong to all the figures, from three

three axioms; then from the general rules and the nature of each figure, they demonſtrate the ſpecial rules of each figure. When this is done, nothing remains but to apply theſe general and ſpecial rules, and to reject every mode which contradicts them.

This method has a very ſcientific appearance; and when we conſider, that by a few rules once demonſtrated, an hundred and ſeventy-eight falſe modes are deſtroyed at one blow, which Ariſtotle had the trouble to put to death one by one, it ſeems to be a great improvement. I have only one objection to the three axioms.

The three axioms are theſe: 1. Things which agree with the ſame third, agree with one another. 2. When one agrees with the third, and the other does not, they do not agree with one another. 3. When neither agrees with the third, you cannot thence conclude, either that they do, or do not agree with one another. If theſe axioms are applied to mathematical quantities, to which they ſeem to relate when taken literally, they have all the evidence which an axiom ought to have: but the logicians apply them in an analogical ſenſe to things of another nature. In order, therefore, to judge whether they are truly axioms, we ought to ſtrip them of their figurative dreſs, and to ſet them down in plain Engliſh, as the logicians underſtand them. They amount therefore to this. 1. If two things be affirmed of a third, or the third be affirmed of them; or if one be affirmed of the third, and the third affirmed of the other; then they may be affirmed one of the other. 2. If one is affirmed of the third, or the third of it, and the other denied of the third, or the third of it, they may be denied one of the other. 3. If both are denied of the third, or the third of them; or if one is denied of the third, and the third denied of the other; nothing can be inferred.

When the three axioms are thus put in plain Engliſh, they ſeem not to have that degree of evidence which axioms ought to have;

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and if there is any defect of evidençe in the axioms, this defect will be communicated to the whole edifice raifed upon them.

It may even be fufpected, that an attempt, by any method, to demonftrate, that a fyllogifm is conclufive, is an impropriety fomewhat like that of attempting to demonftrate an axiom. In a juft fyllogifm, the connection between the premifes and the conclufion is not only real, but immediate; fo that no propofition can come between them to make their connection more apparent. The very intention of a fyllogifm is, to leave nothing to be fupplied that is neceffary to a complete demonftration. Therefore a man of common underftanding, who has a perfect comprehenfion of the premifes, finds himfelf under a neceffity of admitting the conclufion, fuppofing the premifes to be true; and the conclufion is connected with the premifes with all the force of intuitive evidence. In a word, an immediate conclufion is feen in the premifes, by the light of common fenfe; and where that is wanting, no kind of reafoning will fupply its place.

SECT. 5. *On this Theory, confidered as an Engine of Sciense.*

The flow progrefs of ufeful knowledge, during the many ages in which the fyllogiftic art was moft highly cultivated as the only guide to fcience, and its quick progrefs fince that art was difufed, fuggeft a prefumption againft it; and this prefumption is ftrengthened by the puerility of the examples which have always been brought to illuftrate its rules.

The ancients feem to have had too high notions, both of the force of the reafoning power in man, and of the art of fyllogifm as its guide. Mere reafoning can carry us but a very little way in moft fubjects. By obfervation, and experiments properly conducted, the ftock of human knowledge may be enlarged without end; but the power of of reaſoning alone, applied with vigour through a long life, would only carry a man round, like a horſe in a mill, who labours hard, but makes no progreſs. There is indeed an exception to this obſervation in the mathematical ſciences. The relations of quantity are ſo various, and ſo ſuſceptible of exact menſuration, that long trains of accurate reaſoning on that ſubject may be formed, and concluſions drawn very remote from the firſt principles. It is in this ſcience, and thoſe which depend upon it, that the power of reaſoning triumphs: in other matters its trophies are inconſiderable. If any man doubt this, let him produce, in any ſubject unconnected with mathematics, a train of reaſoning of ſome length, leading to a concluſion, which without this train of reaſoning would never have been brought within human ſight. Every man acquainted with mathematics can produce thouſands of ſuch trains of reaſoning. I do not ſay, that none ſuch can be produced in other ſciences; but I believe they are few, and not eaſily found; and that if they are found, it will not be in ſubjects that can be expreſſed by categorical propoſitions, to which alone the theory of figure and mode extends.

In matters to which that theory extends, a man of good ſenſe, who can diſtinguiſh things that differ, and avoid the ſnares of ambiguous words, and is moderately practiſed in ſuch matters, ſees at once all that can be inferred from his premiſes; or finds, that there is but a very ſhort ſtep to the concluſion.

When the power of reaſoning is ſo feeble by nature, eſpecially in ſubjects to which this theory can be applied, it would be unreaſonable to expect great effects from it. And hence we ſee the reaſon why the examples brought to illuſtrate it by the moſt ingenious logicians, have rather tended to bring it into contempt.

If it ſhould be thought, that the ſyllogiſtic art may be an uſeful engine in mathematics, in which pure reaſoning has ample ſcope: Firſt, It may be obſerved, That facts are unfavourable to this opinion: for it does not appear, that Euclid, or Apollonius, or Archimedes, or Hugens, or Newton, ever made the leaſt uſe of this art; and I am even of opinion, that no uſe can be made of it in mathematics. I would not wiſh to advance this raſhly, ſince Ariſtotle has ſaid, that mathematicians reaſon for the moſt part in the firſt figure. What led him to think ſo was, that the firſt figure only yields concluſions that are univerſal and affirmative, and the concluſions of mathematics are commonly of that kind. But it is to be obſerved, that the propoſitions of mathematics are not categorical propoſitions, conſiſting of one ſubject and one predicate. They expreſs ſome relation which one quantity bears to another, and on that account muſt have three terms. The quantities compared make two, and the relation between them is a third. Now to ſuch propoſitions we can neither apply the rules concerning the converſion of propoſitions, nor can they enter into a ſyllogiſm of any of the figures or modes. We obſerved before, that this converſion, *A is greater than B*, therefore *B is leſs than A*, does not fall within the rules of converſion given by Ariſtotle or the logicians; and we now add, that this ſimple reaſoning, *A is equal to B*, *and B to C*; therefore *A is equal to C*, cannot be brought into any ſyllogiſm in figure and mode. There are indeed ſyllogiſms into which mathematical propoſitions may enter, and of ſuch we ſhall afterwards ſpeak: but they have nothing to do with the ſyſtem of figure and mode.

When we go without the circle of the mathematical ſciences, I know nothing in which there ſeems to be ſo much demonſtration as in that part of logic which treats of the figures and modes of ſyllogiſm; but the few remarks we have made, ſhew, that it has ſome weak places: and beſides, this ſyſtem cannot be uſed as an engine to rear itſelf.

The compaſs of the ſyllogiſtic ſyſtem as an engine of ſcience, may be diſcerned by a compendious and general view of the concluſion

clusion drawn, and the argument used to prove it, in each of the three figures.

In the first figure, the conclusion affirms or denies something, of a certain species or individual; and the argument to prove this conclusion is, That the same thing may be affirmed or denied of the whole genus to which that species or individual belongs.

In the second figure, the conclusion is, That some species or individual does not belong to such a genus; and the argument is, That some attribute common to the whole genus does not belong to that species or individual.

In the third figure, the conclusion is, That such an attribute belongs to part of a genus; and the argument is, That the attribute in question belongs to a species or individual which is part of that genus.

I apprehend, that, in this short view, every conclusion that falls within the compass of the three figures, as well as the mean of proof, is comprehended. The rules of all the figures might be easily deduced from it; and it appears, that there is only one principle of reasoning in all the three; so that it is not strange, that a syllogism of one figure should be reduced to one of another figure.

The general principle in which the whole terminates, and of which every categorical syllogism is only a particular application, is this, That what is affirmed or denied of the whole genus, may be affirmed or denied of every species and individual belonging to it. This is a principle of undoubted certainty indeed, but of no great depth. Aristotle and all the logicians assume it as an axiom or first principle, from which the syllogistic system, as it were, takes its departure: and after a tedious voyage, and great expence of demonstration, it lands at last in this principle as its ultimate conclusion. *O curas hominum! O quantum est in rebus inane!*

SECT.

SECT. 6. *On Modal Syllogifms.*

Categorical propofitions, befides their quantity and quality, have another affection, by which they are divided into pure and modal. In a pure propofition, the predicate is barely affirmed or denied of the fubject; but in a modal propofition, the affirmation or negation is modified, by being declared to be neceffary or contingent, or poffible or impoffible. Thefe are the four modes obferved by Ariftotle, from which he denominates a propofition modal. His genuine difciples maintain, that thefe are all the modes that can affect an affirmation or negation, and that the enumeration is complete. Others maintain, that this enumeration is incomplete; and that when an affirmation or negation is faid to be certain or uncertain, probable or improbable, this makes a modal propofition, no lefs than the four modes of Ariftotle. We fhall not enter into this difpute; but proceed to obferve, that the epithets of *pure* and *modal* are applied to fyllogifms as well as to propofitions. A pure fyllogifm is that in which both premifes are pure propofitions. A modal fyllogifm is that in which either of the premifes is a modal propofition.

The fyllogifms of which we have already faid fo much, are thofe only which are pure as well as categorical. But when we confider, that through all the figures and modes, a fyllogifm may have one premife modal of any of the four modes, while the other is pure, or it may have both premifes modal, and that they may be either of the fame mode or of different modes; what prodigious variety arifes from all thefe combinations? Now it is the bufinefs of a logician, to fhew how the conclufion is affected in all this variety of cafes. Ariftotle has done this in his Firft Analytics, with immenfe labour; and it will not be thought ftrange, that

that when he had employed only four chapters in difcuffing one hundred and ninety-two modes, true and falfe, of pure fyllogifms, he fhould employ fifteen upon modal fyllogifms.

I am very willing to excufe myfelf from entering upon this great branch of logic, by the judgement and example of thofe who cannot be charged either with want of refpect to Ariftotle, or with a low efteem of the fyllogiftic art.

Keckerman, a famous Dantzican profeffor, who fpent his life in teaching and writing logic, in his huge folio fyftem of that fcience, publifhed ann. 1600, calls the doctrine of the modals the *crux logicorum*. With regard to the fcholaftic doctors, among whom this was a proverb, *De modalibus non guftabit afinus*, he thinks it very dubious, whether they tortured moft the modal fyllogifms, or were moft tortured by them. But thofe crabbed geniufes, fays he, made this doctrine fo very thorny, that it is fitter to tear a man's wits in pieces than to give them folidity. He defires it to be obferved, that the doctrine of the modals is adapted to the Greek language. The modal terms were frequently ufed by the Greeks in their difputations; and, on that account, are fo fully handled by Ariftotle: but in the Latin tongue you fhall hardly ever meet with them. Nor do I remember, in all my experience, fays he, to have obferved any man in danger of being foiled in a difpute, through his ignorance of the modals.

This author, however, out of refpect to Ariftotle, treats pretty fully of modal propofitions, fhewing how to diftinguifh their fubject and predicate, their quantity and quality. But the modal fyllogifms he paffes over altogether.

Ludovicus Vives, whom I mention, not as a devotee of Ariftotle, but on account of his own judgement and learning, thinks that the doctrine of modals ought to be banifhed out of logic, and remitted to grammar; and that if the grammar of the Greek tongue had been brought to a fyftem in the time of Ariftotle, that

moft

most acute philosopher would have saved the great labour he has bestowed on this subject.

Burgersdick, after enumerating five classes of modal syllogisms, observes, that they require many rules and cautions, which Aristotle hath handled diligently; but as the use of them is not great, and their rules are very difficult, he thinks it not worth while to enter into the discussion of them; recommending to those who would understand them, the most learned paraphrase of Joannes Monlorius, upon the first book of the First Analytics.

All the writers of logic for two hundred years back that have fallen into my hands, have passed over the rules of modal syllogisms with as little ceremony. So that this great branch of the doctrine of syllogism, so diligently handled by Aristotle, fell into neglect, if not contempt, even while the doctrine of pure syllogisms continued in the highest esteem. Moved by these authorities, I shall let this doctrine rest in peace, without giving the least disturbance to its ashes.

SECT. 7. *On Syllogisms that do not belong to Figure and Mode.*

Aristotle gives some observations upon imperfect syllogisms: such as, the Enthimema, in which one of the premises is not expressed but understood: Induction, wherein we collect an universal from a full enumeration of particulars: and Examples, which are an imperfect induction. The logicians have copied Aristotle upon these kinds of reasoning, without any considerable improvement. But to compensate the modal syllogisms, which they have laid aside, they have given rules for several kinds of syllogism, of which Aristotle takes no notice. These may be reduced to two classes.

The first class comprehends the syllogisms into which any exclusive, five, restrictive, exceptive, or reduplicative proposition enters. Such propositions are by some called *exponible*, by others *imperfectly modal*. The rules given with regard to these are obvious, from a just interpretation of the propositions.

The second class is that of hypothetical syllogisms, which take that denomination from having a hypothetical proposition for one or both premises. Most logicians give the name of *hypothetical* to all complex propositions which have more terms than one subject and one predicate. I use the word in this large sense; and mean by hypothetical syllogisms, all those in which either of the premises consists of more terms than two. How many various kinds there may be of such syllogisms, has never been ascertained. The logicians have given names to some; such as, the copulative, the conditional, by some called hypothetical, and the disjunctive.

Such syllogisms cannot be tried by the rules of figure and mode. Every kind would require rules peculiar to it. Logicians have given rules for some kinds; but there are many that have not so much as a name.

The Dilemma is considered by most logicians as a species of the disjunctive syllogism. A remarkable property of this kind is, that it may sometimes be happily retorted: it is, it seems, like a hand-grenade, which, by dextrous management, may be thrown back, so as to spend its force upon the assailant. We shall conclude this tedious account of syllogisms, with a dilemma mentioned by *A. Gellius*, and from him by many logicians, as insoluble in any other way.

" Euathlus, a rich young man, desirous of learning the art of
" pleading, applied to Protagoras, a celebrated sophist, to instruct
" him, promising a great sum of money as his reward; one half
" of which was paid down; the other half he bound himself to
" pay as soon as he should plead a cause before the judges, and

" gain it. Protagoras found him a very apt ſcholar; but, after
" he had made good progreſs, he was in no haſte to plead cau-
" ſes. The maſter, conceiving that he intended by this means to
" ſhift off his ſecond payment, took, as he thought, a ſure me-
" thod to get the better of his delay. He ſued Euathlus before
" the judges; and, having opened his cauſe at the bar, he pleaded
" to this purpoſe. O moſt fooliſh young man, do you not ſee,
" that, in any event, I muſt gain my point? for if the judges
" give ſentence for me, you muſt pay by their ſentence; if a-
" gainſt me, the condition of our bargain is fulfilled, and you
" have no plea left for your delay, after having pleaded and gained
" a cauſe. To which Euathlus anſwered. O moſt wiſe maſter,
" I might have avoided the force of your argument, by not
" pleading my own cauſe. But, giving up this advantage, do
" you not ſee, that whatever ſentence the judges paſs, I am ſafe?
" If they give ſentence for me, I am acquitted by their ſentence;
" if againſt me, the condition of our bargain is not fulfilled, by
" my pleading a cauſe, and loſing it. The judges, thinking the
" arguments unanſwerable on both ſides, put off the cauſe to a
" long day."

CHAP.