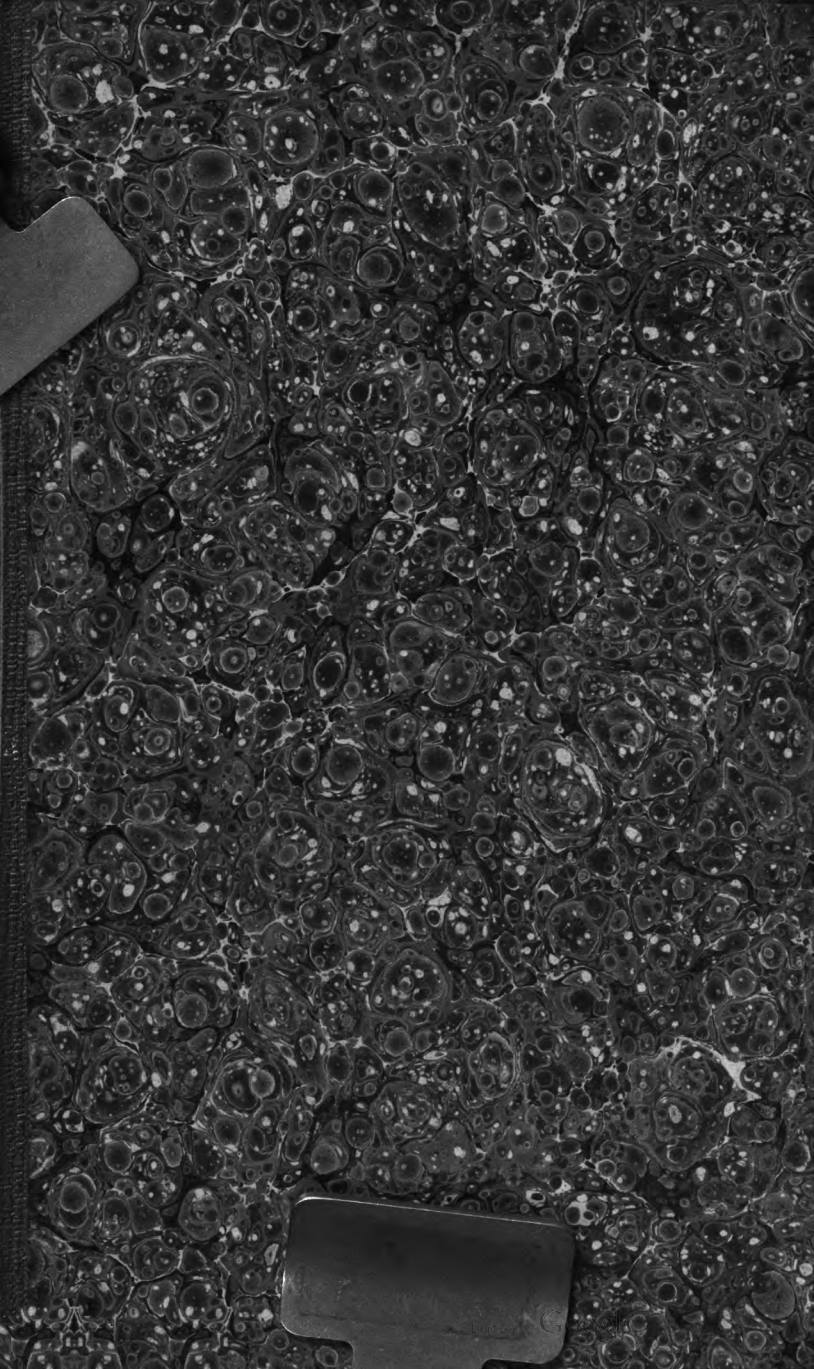
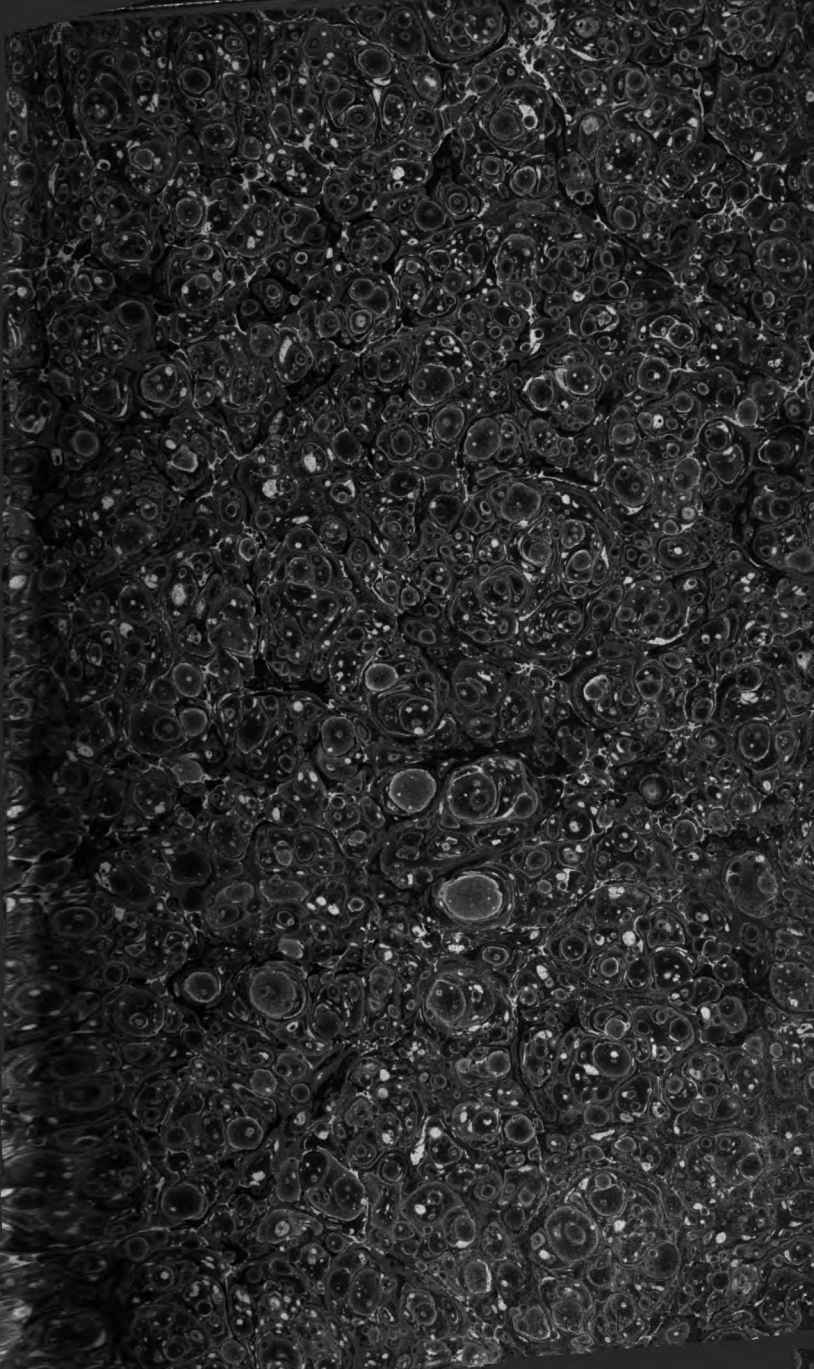

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A
TREATISE

ON

LOGIC,

ON THE BASIS OF ALDRICH,

WITH ILLUSTRATIVE NOTES.

BY

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It is to be hoped that those academical bodies who have been wise enough to retain this science, will, instead of being persuaded to abandon it, give their attention rather to its improvement and more effectual cultivation.

DR. WHATELY, *Elements of Logic*, Preface, *ad finem*.

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P R E F A C E.

THE present treatise is intended to assist those who wish to study Aldrich's Logic, in order to pass their examination in the Oxford Schools. The author's sole endeavour has been, to render the study of the science as easy as he could; and he has freely made use of the suggestions of others, wherever he thought that they were calculated to elucidate any difficulty.

With regard to style, he has endeavoured to explain with *perspicuity*, and not with *élégance*; for "prolixity of style, homeliness of illustration, and baldness of expression, are to be regarded as blemishes not worth thinking of when any thing is to be gained in respect of clearness."—(Whately's Logic, Preface.)

TREATISE ON LOGIC.

PART I. SECT. I.

ON THE OPERATIONS OF THE MIND.

THERE are three operations of the mind—Operations of the mind.
simple apprehension, judgement, and discourse
 or *reasoning*.

Simple apprehension is the mere intellectual Simple apprehension :
 conception of a thing. It is sometimes termed
perception, because the apprehension of the
 mind was thought to be analogous to per- to what analogous.
 ception by the senses; thus it was imagined
 that, by apprehension, an *idea* of any object
 was imprinted on the mind, just as its *image*
 was, by sight, on the eye. The result of this Its result.
 operation is properly termed a *notion*, or, me-
 taphorically, an *image, idea, representation, or*
conception.

There are two kinds of simple apprehen- Two kinds.
 sion, viz. *incomplex* and *complex*.

Incomplex
apprehen-
sion.

Simple incomplex apprehension is the conception of one object, or of many taken *confuse*, i. e. without any grammatical relation to each other^a. It is by this kind of apprehension that the mind gains the ideas represented by each word, in any sentence, when taken *separately*.

Complex ap-
prehension.

Complex apprehension is the conception of several objects taken with a certain order and reference to each other. And it is by this kind of apprehension that the mind understands the meaning of all the words of a sentence taken *collectively*—or, in other words, the complex idea which that sentence may intend to convey.

Of these two kinds of apprehension, the incomplex is prior in point of time.

Judgement.

Judgement^b is the decision on the agreement or disagreement of any two objects when

^a Any *one* word (whether representative of a simple or a compound idea) denotes an *incomplex* simple apprehension in its *logical* sense. So also any number of words when combined so as to form a sentence, become representatives of *complex* apprehension.

^b Dr. Whately defines judgement to be “The comparing together in the mind two of the notions (or ideas) which are the objects of apprehension, whether complex or incomplex, and pronouncing that they *agree* or *disagree* with each other; (or that one of them *belongs* or does not belong to the other.)” He thus considers the *comparison* as much a part of judgement as the *decision* itself—whereas the latter is the result

compared with each other; and until this decision is made, judgement cannot be said to be formed.

There are two kinds of judgement, *affirmative* and *negative*. Two kinds.

Affirmative judgement (which is also termed composition) is that which expresses the *agreement* of the two objects which were compared.

Negative judgement, or division, expresses their mutual disagreement.

The copula is that which indicates the act of judgement, viz. it serves to express the agreement or disagreement of two objects. It is the substantive verb alone in its present tense; and is either affirmative or negative. Copula.

It is by deciding whether the affirmative copula *est*, or the negative *non est*, should be applied, that judgement differs from complex apprehension: for the mere act of understanding the sense conveyed by any assertion, whether affirmative or not, is the office of complex apprehension; but in judgement, the mind not only understands the meaning of the assertion, but, by determining the copula, shows that it acquiesces in, or dissents from, that assertion. Difference between judgement and complex apprehension.

Since the copula serves to indicate the Use of the copula.

of the former: for the object of comparison is to pronounce a judgement on the relations which the objects compared may have to each other.

agreement or disagreement of two objects, it is obvious that the *affirmative* copula expresses their agreement, and the *negative* their disagreement. Thus, "The soul is immortal," is an affirmative judgement, and "The earth is not stationary," is a negative judgement.

Reasoning.

Reasoning, or discourse, is the motion or progress of the mind from one or more judgements to another resulting from them. It is also termed ratiocination^c; and it is expressed or signified by some *illative*, viz. inferential particle, as *hence, therefore, consequently, &c.*; thus,

Nemo mortalium omnibus horis sapit :

Ego sum mortalis :

Ergo, Non omnibus horis sapio.

The mental operations liable to defects.

Owing to the weakness of human nature, the mind of man is fallible, and its operations are consequently liable to certain errors or defects. The error incidental to apprehension is termed *indistinctness*, that of judgement, *falsity*, and of reasoning, "*a faulty mode of*

^c Care must be taken not to confound *reason* with *reasoning*. For *reason*, in its common acceptation, signifies "That use of the faculties of the mind which distinguishes man from any other animal," viz. "It is the characteristic of man." But *reasoning*, or *ratiocination*, (*discursus*), is "the process of inferring a proposition or conclusion, as necessarily resulting from one or more other propositions."

inferring^d." Thus man's ideas of *eternity*, *omnipotence*, *infinity*, must be *indistinct*. So if I were to decide that "the sun moves round the earth," my judgement would be *false*; and if from these two judgements, viz. "Qui sapit pauca loquitur" and "Pauca loquor," I were to deduce this third judgement, "Sapio," the inference would be *erroneous*.

Instances of these defects.

In order to obviate these defects, certain rules have been laid down, the knowledge of which is termed *logic*, or *the art of reasoning*. It is defined to be "*ars instrumentalis dirigens mentem in cognitione rerum*;" for logic, when applied to practice^e, becomes an art; and since it is not studied for its own sake, but with a view to some ulterior object, it is not a *final* or *master* art, but an *instrumental* or *subordinate*

Why logic was taught.

Logic defined:

an art:

^d The words "mendosa collectio" do not exactly mean "erroneous inference," as they are most frequently translated; but rather "a faulty arrangement of the terms of an argument." This will be more clearly shown in the third part of logic.

* "It is to be observed, however, (says Dr. Whately), that as a *science* is conversant about *knowledge only*, an art is the *application* of knowledge to *practice*: hence logic (as well as any other system of knowledge) becomes, when applied to practice, an *art*; while confined to the *theory* of reasoning, it is strictly a *science*: and it is as such that it occupies the higher place in point of dignity, since it professes to develop some of the most interesting and curious intellectual phenomena. It is surely strange, therefore, to find in a treatise on logic, a distinct dissertation to prove that it is an art and *not* a science!"

its object : art. The object which logic has in view, is,
 how attained. “to direct the mind in the attainment of know-
 ledge^f,” and the means which it adopts to attain
 that object are, “the showing the proper use of
 words:” for since, in reasoning, terms may be
indistinct, propositions *false*, and arguments
fallacious; hence, by remedying these defects,
i. e. by shewing the proper use of language,
 logic *does* guide and direct the mind in the at-
 tainment of knowledge.

^f Few sciences have fallen into such disrepute as that of logic, the sole cause of which has been the error into which even logicians themselves have fallen respecting the true nature of it; and thus the censure, due to those who caused the error, has fallen upon the science itself. Many have supposed that logic was a science, the object of which would be the *attainment of knowledge*; and “Accordingly many logical writers, wishing to make their systems appear as perfect as possible, have undertaken to give rules ‘for attaining clear ideas,’ and ‘for guiding the judgement;’ and fancying, or professing themselves successful in this, have consistently enough denominated logic the ‘art of using the reason;’ which in truth it would be, and would supersede all other studies, if it could of itself ascertain the *meaning* of every *term*, and the *truth* or *falsity* of every *proposition*, in the same manner as it actually can, the *validity* of every *argument*.”—Elements of Logic. Logic lays down certain rules as tests of the validity of any argument, as far only as the *form* of its expression is concerned. It does not profess to *communicate* any knowledge, but to *guide* and *direct* the mind in the *acquisition* of knowledge. It cannot supply mental faculties to those who have them not, so neither could an eyeglass make a blind man see. All arguments can *ultimately* be applied to the tests which logic has laid down, and *by them* their validity or fallacy may be ascertained.

Since there are three operations of the mind, Three parts of logic. and consequently three defects to correct, hence also there are three parts of logic.

SECTION II.

In order to express these operations of the Origin of language. mind, and to communicate them to each other, men were compelled to invent certain *signs* or *tokens*, which are called *words*; a knowledge of the proper use of which must be necessary, in order that the mental operations may not be defective.

A word is defined to be, "Signum rei vel Definition of a word. conceptûs ex instituto vicarium;" i. e. "An arbitrary vicarious sign of a thing or idea[‡]."

1. A word is a *sign*, i. e. it is a *token* of the A word is a sign. existence of some thing or idea meant to be represented by it.

2. A word is *the sign of a thing*, because it A word is the sign of a thing. *does* serve to *represent* the particular object

‡ Words are merely *arbitrary* signs, and they do not naturally possess any fitness in their sound or form, as necessary in order that they should express the ideas or objects intended. If this were the case, all languages would have the *same* words to express the *same* ideas, which is not the case. For the same sound conveys different ideas in different languages, and not only in *different* but in the *same* language, as is the case with equivocal words.

which that word conveys to the mind of the hearer.

The sign of an idea.

3. A word is the *sign of an idea*, because a word, when uttered, conveys the very same idea to the hearer's mind which the speaker had in his own.

A vicarious sign.

4. A word is a *vicarious sign*, inasmuch as it not only conveys the idea of an object, but it supplies the place of that object, or "*primo declarat conceptum, deinde supponit pro re^h,*" i. e. a word first *declares* the *idea* or *conception* of any object intended, and afterwards acts as a substitute for that very object itself.

An arbitrary sign.

5. A word is also an *arbitrary sign*, for it requires the mutual agreement of men in order to acquire any signification.

Natural sounds are not words.

Sounds, therefore, which are suggested by nature, such as sighs, groans, shrieks, &c. are not words, for they are not formed "*ex instituto.*"

Three kinds of words.

As there are three mental operations, there are three kinds of words expressive of them: those which express simple apprehension are called *simple* words, those which express judgement, *complex*ⁱ, those which express discursus, *decomplex*.

^h Aldrich.

ⁱ Since (from the definition of judgement) the word expressive of it must consist of some *combination* of simple words, hence has arisen the term *complex* word. Also since the word

Every decomplex word consists of *three* complex, and every *complex* word of three simple words; for a complex word, which is commonly called a proposition, consists of, 1. The *subject*, Component parts of a proposition. i. e. "that concerning which something else is said;" 2. The *predicate*, i. e. "that which is said of another;" and 3. The *copula*^k, which comes between the subject and predicate. It frequently happens that these three words are united in *one*, e. g. "Loquor," viz. "Ego sum loquens;" or the copula is joined to the predicate, as "Cats eat mice," i. e. "Cats are animals which eat mice;" or they may be composed of a great number of grammatical words, as "The opening of this epistle exhibits a connexion with the history which alone would satisfy my mind that the epistle was written by St. Paul, and by

expressive of discursus must be a certain *combination of complex words*, hence it is termed *decomplex*, i. e. *doubly complex*.

^k "It is proper to observe, that the copula, as such, has no relation to *time*, but expresses merely the agreement or disagreement of two given terms: hence, if any other *tense* of the substantive verb, besides the present, is used, it is either to be understood as the same in sense, (the difference of tense being regarded as a matter of grammatical convenience only;) or, else, if the circumstance of time really do *modify the sense* of the whole proposition, so as to make the use of that tense an essential, then, this circumstance is to be regarded as a part of one of the terms: *at that time*, or some such expression being understood. Sometimes the substantive verb is both copula and predicate; i. e. where existence only is predicated: e. g. *Deus est.*"—Whately.

St. Paul in the situation in which the history places him." The whole of this sentence consists of but one proposition; the subject of which is, "The opening of this epistle:" the copula "is," and "an opening which exhibits a connexion," etc. is the predicate.

Subject and predicate are sometimes transposed.

The *subject* ought to be the *first* word in every proposition, and the *predicate* the *last*; but this verbal arrangement is sometimes changed¹: thus in the following examples, the predicate stands first in the propositions; and the grammatical words which compose the subject and predicate are united by a hyphen, the subject, predicate, and copula being separated by an asterisk.

"Blessed * are * the - poor - in - spirit."

"Faded * is * the - flower - which - once - decked - her - fair - bosom."

"Apex - senectutis * est * amicitia."

"Varius - et - multiplex * est * auctoritas."

"Αἰσχρόν * ἐστι * τὸ - ψευδῆ - λέγειν."

"Κερτόμησις * ἐστι * τᾶλθῆ - λέγειν."

Subject, predicate, and copula, are always three in sense.

These three words, though (as it has been shown) they are not always three in *number*, are *always* to be considered as three in *sense*.

¹ "It is worth observing, that an infinitive (though it often comes last in a sentence) is *never* the *predicate*, except when another infinitive is the subject."—Whately.

The Greek examples, which have been given, are instances of the truth of this observation.

Since the subject and predicate are, as far as regards the sense, the *extremes* of a proposition; hence they are called "the terms," from the Latin word "terminus." Terms of a proposition.

The first part of logic is, therefore, said to treat of *simple terms*, or words expressive of simple apprehension; the second part treats of complex words or propositions, which express judgement; and the third part, of decomplex words or syllogisms, which express reasoning. With what words the three parts of logic are engaged.

SECTION III.

Simple words are of three kinds, *categorematic*, *syncategorematic*, and *mixed*. *Categorematic* words, which are also called *simple terms*, are such as may be used *alone*, either as the subject or predicate of a proposition. And such words are nouns substantive in the *nominative* case, as well as verbs in the *infinitive* mood; which (see Dr. Whately) are properly nouns substantive. No nouns, therefore, in the oblique cases can be *categorematics*.^m Division of simple words. Categorematics.

^m A *categorematic* word need not be *one* grammatical word; e. g. "Man that is born of a woman hath but a short time to live." "Man - that - is - born - of - a - woman" is the subject, and is *one* *categorematic* word, and "a - being - that - hath - but - a - short - time - to - live" is the predicate, and is also only *one* *categorematic* word.

Syncategore-
matics.

Syncategorematic words are such as in sense can form only a *part* of the subject or predicate, as adjectives, nouns in oblique cases, verbs, and other parts of speech; for though an adjective is often used as the predicate of a proposition, yet some substantive must always be considered as *understood* and *implied*, though not *expressed*[▫].

Mixed words.

Mixed words are such as are formed by some combination of the two other species; and of these there may be three classes, examples of which are given in Aldrich (c. 1. § 3.), the first, "semper," being compounded of two syncategore-matics; the second, "nemo," of a categorematic and a syncategorematic; and the third, "currit," of a syncategorematic and the copula, to which last class all grammatical verbs may be referred; for they may all be resolved into the copula and the participle: thus, "I walk" is

Grammatical
verbs are
mixed words.

[▫] This fact is denied by Dr. Whately; but I am of opinion, that an adjective cannot ever be *strictly* said to be the *predicate* of a proposition: and this may be shown to be the fact, by *converting* a proposition in which the predicate is expressed adjectively; e. g. "Some men are learned;" the simple converse of which is, "Some learned beings are men:" in which "beings," or some such word, must be *expressed* in order that the proposition, when converted, may be grammatical. Now since conversion is the *transposition* of the extremes of a proposition without any *change* in the extremes themselves, the word "beings" must have been *implied*, though it was not *expressed*, in the predicate of the converted proposition.

equivalent to "I am walking." "Moneo," i. e. How resolvable.
 "Ego sum monens," "γράφω" is equivalent to
 "ἐγὼ εἰμι γράφων."

There is but one *verb* in logic, which is the The logical verb.
 copula, the substantive verb in the present tense.

The *logical noun*^o is defined to be "terminus Definition of the logical noun.
 simplex sine tempore significativus;" i. e. a
 logical noun is "a word which is significant,
 and has no reference to time^p;" that is, it is
 equivalent to a *categorematic* word. Adverbs,
 conjunctions, &c. are not, therefore, logical
 nouns; for they have not any *actual* signifi-
 cation, but they serve to qualify those nouns to
 which they are joined.

There are many divisions of logical nouns, Division of nouns:
 three of which are most necessary to be ob-
 served; viz. the *common*, *univocal*, and noun which most necessary.
 of the *second intention*, because the union of
 these three forms what is termed "a predicable."

The first division of nouns is into *singular* and Singular and common nouns.
common^q.

* The words "recta vox" [Aldrich, c. 1. § 3.] signify "a word in the nominative case;" for grammarians considered the form of the noun as *erect* or *upright*; i. e. "rectus;" and the various changes which that noun received in government, they considered as "fallings down" (or "casus") from that uprightness. Hence the other cases were termed *oblique*.

^p A more accurate definition would be, a logical noun is "a word which is significant, and inexpressive of relation or time." Thus excluding adjectives and nouns in oblique cases.

^q The division of nouns into *singular* and *common* is the true

The *singular* noun speaks of *individuals* alone, the *common* noun of a whole *class* of individuals, and is applicable to every individual of that class, inasmuch as it comprehends them in its signification: thus "Oxford," "London," "Bristol," are singular nouns, because they express or stand for individuals; and "city," "town," &c. are common nouns, and they not only represent the whole class which they express, but are likewise applicable to "Oxford," "London," "Bristol," &c.; which are individuals comprehended in those classes.

division of nouns, inasmuch as it comprehends the whole class; for every noun must either be *singular* or *common*. The other divisions are not so much the divisions of nouns, as the different modes of employing the *same* noun. For "the usual divisions of words into *univocal*, *equivocal*, and *analogous*, and into words of the *first* and *second intention*, are not, strictly speaking, divisions of *words*, but divisions of the manner of *employing them*: the *same* word may be employed either univocally, or analogously; either in the first intention or in the second. The ordinary logical treatises often occasion great perplexity to the learner by not noticing this circumstance, but rather leading him to suppose the contrary."—Whately.

Thus, for instance, the word "bull" may be used equivocally; for it may signify "an animal" or "a blunder in an expression," two ideas which apparently have not any analogy to each other: so when considered as meaning "an animal" *only*, it will be univocally used; for then its one signification, which is that of an animal, will be applicable in the same sense to many objects. Again, when it is used to signify "a violent enemy," it is used analogously; this signification being derived from the analogy between "a bull" (the animal) and "a violent enemy," who seems to partake of the disposition of such an animal.

N. B. Every thing which has actual existence is represented by a singular noun; a common noun does not represent a thing which has actual existence, but an idea or nature common to many individuals; i. e. that idea which is the result of the abstractive faculty. [See Section IV.]

A common noun may be considered as singular when a *sign of singularity* is affixed to it, thus: "He is gone to *the river*," meaning *the Isis*. "River" would here be considered as a singular noun, because its signification applies to but *one* object. So also a singular noun might be employed as common, by extending its signification to many individuals. "The *Cæsars* were emperors of Rome."

Common nouns used as singulars.

Singular nouns employed as common.

A *definite* noun is such as has *not* the particle *non*^r prefixed to it. The *indefinite* is that to which the particle *non is* prefixed. Thus "That quadruped is not a dog:" *dog* is here used *indefinitely*; for since it is predicated of that certain quadruped that it is not a *dog*, the class *dog* alone is excluded, and it remains wholly *undefined* to what other class of quadrupeds it may belong.

Definite and indefinite nouns.

The *positive* noun speaks of a thing as it

Positive, privative, and negative nouns.

^r The particle *non* is consequently called *indefinitant*; because when prefixed to a noun, it renders that noun indefinite. For the use of the definite and indefinite nouns in division, see note on this subject in Sect. VII.

were *present*; i. e. *possessed* by any subject. The *privative* denotes the absence of a thing from a subject *capable* of possessing it; and the *negative* denotes the absence of a thing from a subject *incapable* of possessing it. Thus “rational” is spoken *positively*, “unlearned” *privatively*, of man; and “irrational” is spoken *negatively* of brutes.

Again, *Positive*, A man of sense.

Privative, A senseless boy.

Negative, A senseless stone.

Univocal
nouns.

An univocal noun^s is that which has but *one* signification, and in that one signification is *equally* applicable to many objects.

Equivocal
nouns.

An equivocal noun has *more than one* signification, and in each signification is equally applicable to many objects: such as *post*, *bull*, *mail*, &c. Such words are an imperfection in a language; for the same sound is intended to convey two distinct ideas, the result of which must be frequent mistakes.

^s Thus the word *dog* is an univocal word, and is applicable in the same signification to many dogs: equivocal words are such as are the same in sound, but convey different ideas; as the words *mail*, which signifies *armour*, and *the post-bag*; and *page*, which signifies either *the side of a leaf in a book*, or *an attendant*. Fallacies often result from using such words; these fallacies are termed “fallaciæ equivocationis.”—Whately.

Analogous nouns are such as have but *one* Analogous nouns. signification; but in that one signification they are *unequally*, viz. *with unequal propriety*, applied to many things. When any objects are united by some resemblance which they bear to each other, the same word is often used to apply to them, which word is called *analogous*; as “a *vein* in the body,” and “a *vein* of metal;” where the resemblance is obvious. Analogous nouns are also used to represent any two or more objects which have no resemblance to each other; as, “a *sour* apple,” and “a *sour* look;” though even in this instance some analogy may be perceived in the *ideas* conveyed by these words.

Concrete nouns are such as express some Concrete nouns. quality, at the same time *implying* the subject in which that quality exists; as *prudent*, *wise*^t.

Abstract nouns express a quality by itself, and, Abstract nouns. as it were, independent of the subject possessed of it; such as *prudence*, *wisdom*.

Concrete nouns are not always adjectives^u, Concrete not always adjectives.

^t *Prudent* is a concrete noun, because it cannot be used without at the same time implying or referring to the being who is possessed of that quality: but *prudence* is an *abstract* noun, and may be used without any reference whatsoever to the subject which is possessed of it; it is a word which expresses an abstract idea.

^u It may perhaps be questioned whether all concrete nouns are not strictly *adjectives*, though substantively used: but this is a question of no importance, as far as regards logic. It has before been shown, that the same word may be used univocally,

although most frequently so: e. g. *fool*, *philosopher*, *astronomer*, *geometrician*, &c. which are concretes; the abstracts to them being *folly*, *philosophy*, *astronomy*, *geometry*, &c.

Absolute and relative nouns.

An *absolute* noun is that whose sense is *complete* in itself; and does not imply a relation to any other thing. The *relative* noun implies the idea of its *correlative*, as *husband*, which implies the idea of *wife*.

Agreeing and opposite nouns.

Agreeing nouns are such as express qualities which may be said of any one object *at the same time*, as "a horse may be both *swift* and *tractable*." Opposite nouns express qualities which cannot be said of any one object *at the same time*: thus "a horse could not be said to be at the same time both *swift* and *slow*." At *different* times *opposite* nouns may be predicated of the same object: thus "a horse may be said to be tractable *to-day*, and intractable *to-morrow*."

Nouns of first and second intention.

The *first* intention^x of a word is its common signification; i. e. its vague colloquial meaning. Its *second* intention is its strict and definite

equivocally, and analogously: so also the same word may be considered as *relative*, *opposite*, &c.; e. g. *brother* is the concrete to *fraternity*; and it may also be regarded as a *relative* noun, for it suggests the idea of its correlative *sister*: so again, *great* and *small* are *relative* nouns; and they may be regarded also as *opposite*, for they cannot *both* be predicated of the same thing at the same time: this is the case with many nouns.

^x "The *first intention* of a term, (according to the usual acceptance of this phrase), is a certain *vague* and *general* sig-

sense, limited as may be required when it is used in any particular science or art. When, therefore, we speak *logically*, all words are limited in their signification, and may consequently be considered as in their second intention. As the same word may be used in many different sciences and in different significations, it is evident that such a word will have as many second intentions as there are sciences in which it is used: thus the word *triangle* in mathematics is “a plane rectilinear figure contained by three straight lines;” but in music it signifies “a musical instrument.” All second intentions bear a resemblance, in part of their signification, to the primary or first intention.

Many second intentions to the same word.

Care must be taken not to confound the *logical* first and second intention with the *etymological*; for the *etymological* first intention of a word is that meaning which most nearly approaches to the *root* of that word; any deviation in

Etymological first and second intention.

nification of it, as opposed to one more *precise* and *limited*, which it bears in some particular art, science, or system, and which is called its *second intention*. Thus, among farmers, in some parts, the word *beast* is applied particularly and especially to the ox kind; and *bird*, in the language of many sportsmen, is in like manner appropriated to the partridge: the common and general acceptance (which every one is well acquainted with) of each of those two words, is the first intention of each; the other is its second intention.”—Elements of Logic. In fact, any word which is applied in a limited sense, in an argument, will be used in a second intention.

signification from which would be termed its *etymological* second intention.

SECTION IV.

Of singulars. A singular noun^γ is also termed in logic *indivisible*, because it is incapable of being *logically* divided, inasmuch as its signification extends to one object, and *one* only; *i. e.* its object is *numerically* one: but nevertheless whatever can be called *one*, is not therefore necessarily *singular*; for many things, which possess *any common quality*, may (as far that resemblance goes) be considered as one in *sense* though not one in

^γ Singular nouns, which denote any one individual object, cannot be *affirmatively* predicated of anything except themselves, *i. e.* they cannot be the predicate of any affirmative proposition, unless its subject be a word expressive of that same individual object which the singular noun represents; thus, *this university* and *Oxford* are singular nouns, which cannot be predicated of anything but themselves; for we may say, *this university is Oxford*, but we cannot predicate of any other university that it is Oxford. Singular nouns may be used as the predicate of any *negative* proposition, whose subject does not express the same individual object, *e. g. London is not Oxford, &c.*

Common nouns denote a whole class, and any individual in that class; and consequently may be predicated of *all* or of *any one*, of those individuals; thus *university, city*, are common nouns; and we may predicate of *Oxford* that *it is an university*, or that *it is a city*; for *Oxford* is an individual which is comprehended under each of those common nouns.

number; and thus one common name may be assigned to them, which (as far as they resemble each other) will be applicable to any one or to all of them. This operation is termed *abstraction*², Abstraction. which is defined to be "that faculty of the mind Its definition. by which, in the contemplation of many singulars or individuals, it neglects all those points in which the singulars differ from each other, regarding those only in which they agree." The Its result. result of such an operation is *an abstract idea*; i. e. the idea of an universal nature which extends over many individuals, not being *different* in each, but the *same* in all. Hence it is termed *universale*, or *ens unum in multis*. The word

² When in contemplating any individual object, we consider *any one* property or quality which that individual may possess, to the exclusion of all its other qualities, we are said to *abstract* this quality; thus, if in looking at any individual horse, we should regard only the property of *his having four legs*, excluding all thoughts respecting his *colour, height, temper, &c.* we should be employing the faculty of abstraction: but if we contemplate *many* horses, and from finding that they are all four-legged animals, we give to them a *common name*, which may (as far as they agree with each other) be applicable to all or each of them, (as, *quadruped*), we are then employing what is termed *generalization*. Such generalization may obviously be carried to almost any extent by considering such common nouns (as, for instance, *quadruped*), as *singulars*; and by abstracting *their* differences, we shall thus arrive at new aggregates, and at some more universal term: thus by abstraction from *quadruped* we should arrive at the more common term *animal*; so from *animal* we should gain the still more universal term *corporeal being*, and so on.

expressive of such an abstract idea is termed *a*
 A predicable. *predicable*, because such universal nature may
 be affirmatively *predicated* of each of those singulars, and of them all collectively. Such a
 common term^a or predicable is defined to be
 Its definition. "*nomen commune, univocum, secundæ intentionis*;" or, a common, univocal noun of the
 second intention: for this common noun, although applicable to many individuals, is considered as representative of only *one* idea; hence it is univocal. And since a word when thus applied is not used in a vague but limited and definite sense, it is also said to be a word of the second intention.

This abstract nature does not denote any
really existing thing, nor can it be supposed to
 exist, unless combined with some singulars: the
 Its object. motive for conceiving it to exist is merely with a

^a The idea expressed by a common term is (as Dr. Whately observes) "merely an inadequate (or incomplete) notion of an individual; and from the very circumstance of its inadequacy, it will apply equally well to any one of several individuals:" e. g. if I, when considering *Oxford*, were to omit all consideration of any of those circumstances and accidents which are *peculiar* to Oxford, and distinguish it from any other city, the notion which I have thus formed of Oxford, (which is expressed by a common term *city*), is evidently an *inadequate* and *incomplete* notion of it, for such common term is as applicable to any other city as to Oxford; and, therefore, inadequately expresses it, because it does not imply or designate any of its peculiarities.

view to generalization^b and classification. "The object of this operation is the formation of new aggregates, by means either of the generalizing, or of the *synthetical faculties*."—Bentham, p. 57.

SECTION V.

The essence^c of any thing is "that which Essence. makes it to be what it is." If, therefore, it be deprived of its essence, or of any part of it, it no longer exists as it was. This essence is not really-existing, but is an imaginary nature, the notion of which may be resolved into two parts, Its two parts. viz. that part of an essence which is common to it as well as to other essences, which is also called the material part or *genus*; and that part Material part or genus.

^b "Generalization implies abstraction, but it is not the same thing, for there may be abstraction without generalization; when we are speaking of an individual, it is usually an abstract notion that we form; e. g. suppose we are speaking of the present king of France; he must actually be either at Paris or elsewhere; sitting, standing, or in some other posture; and in such or such a dress, &c. Yet many of these circumstances, (which are *separable accidents*, and consequently) which are regarded as *non-essential to the individual*, are quite disregarded by us; and we *abstract* from them what we consider as essential; thus forming an abstract notion of the individual. Yet there is here no generalization."—Whately.

^c Essence is the nature of anything, even though that thing has not any existence: thus a lily in winter has an essence, but in summer it has existence also.

which is *not* common to any other essence, but is *peculiar* to this one essence, and distinguishes it from all others, and constitutes it what it is.

Formal part
or differentia.

This part is called the *formal* or characteristic part, i. e. the *differentia*. Thus *a triangle* is “a plane figure contained by three sides.” The common or material part of the essence of *triangle*, viz. its *genus*, is “a plane figure,” which is common to *squares, circles, oblongs, &c.*; but its being “contained by three sides,” is the characteristic part of its essence, viz. its *differentia*; for it constitutes the distinction between a triangle and any other figure whatsoever; for no figure can be a triangle which is not contained by three sides, nor can any three-sided figure be any thing but a triangle.

Species.

The *whole* of any essence is called *the species*; hence it is evident, that every species is made up by the union of the genus and differentia; for every whole is made up by the union of all its parts; e. g. by uniting the two parts, “a plane figure,” (the genus,) and “contained by three sides,” (the differentia,) we form *triangle*, which is a *species* of figure.

Genus and
differentia
make up the
species.

Qualities
joined to an
essence.

Of two kinds.

To any essence different *qualities* may be observed to be joined; and of such qualities there may be two kinds, for they may either be *necessarily* joined to the essence, or only *contingently*, i. e. *accidentally*. Such as are *necessarily* joined

to any essence are termed *properties*, and such Properties.
 as are only *contingently* or *accidentally* joined
 are called *accidents*; e. g. "the having three Accidents.
 angles" is a property of a triangle, for it *neces-*
sarily accompanies its essence; or, as Dr.
 Whately says, it is "the result of the diffe-
 rentia." So "the being *equilateral, right-*
angled," &c. are accidents to a triangle, for
 such qualities do not *of necessity* belong to
 triangles; the absence of which would not affect
 the essence or species; for "*every accident*
 must be separable from the *species*, else it
 would be a property^d."

^d Properties are those qualities which are predicated of any
 essence as *necessarily* joined to it; but it must not therefore be
 supposed, that no property can be separated from its essence;
 for this may frequently be the case, particularly with such pro-
 perties as may be termed *physical properties*, e. g. the property
 of a man's having *ten fingers, two legs, two arms, &c.*; such
 properties are actually separable from the individuals who
 possess them, for they may be cut off without injuring the
 essence or even existence of such individuals: but this is not
 the case with other properties, which may be termed *ideal pro-*
perties: such properties have not any actual existence, and do
 not admit of any separation from the essence of which they are
 predicated; e. g. *risibility* in a man, and the *having three angles*
 in a triangle; and "such a *property*," Dr. Whately observes,
 "it is often hard to distinguish from the *differentia*; but what-
 ever you *consider* as the most *essential to the nature* of a species,
 with respect to the matter you are engaged in, you must call
 the *differentia*; as *rationality to man*; and whatever you consider
 as rather an *accompaniment* (or result) of that difference, you
 must call the *property*; as the *use of speech* seems to be a result
 of rationality." And, note, (p. 73), "that the difference is not

C

Five heads of
predicables.

From the foregoing considerations, it is manifest that there can be but five heads of predicables; for whatever can be asserted of many things, must be predicated either as their *whole essence*, or as a *part* of their essence, or as *joined* to their essence—whence will arise these five heads^e.

1. *Species*, or the whole essence.
2. *Genus*, or the common part of the essence.
3. *Differentia*, or the formal part.
4. *Property*, or something necessarily joined to the essence.
5. *Accident*, or something accidentally joined to the essence.

These predicables, therefore, are predicated or asserted of those things in which there is supposed to exist that abstract nature of which such

always *one* quality, but is frequently *compounded* of several together, no one of which would alone suffice." For the distinction between a property and an accident, see note n.

• It should be borne in mind, that each of these heads of predicables are *relative* terms; for that which is a *genus* if predicated of some things, will be a *species* when predicated of others, or a *property* or an *accident*, &c.; for "we cannot say *what* predicable any term is, or whether it is any at all, unless it be specified *of what* it is to be predicated: e. g. the term *red* would be considered a *genus* in relation to the terms *pink*, *scarlet*, &c.; it might be regarded as the *differentia*, in relation to *red-rose*; as a *property* of *blood*; as an *accident* of a *house*," &c.—Whately.

predicable is the representative. Thus the *genus* (which is the material or common part of many essences or species) is predicated of many things differing in *species*; i. e. it is predicated of those different species which it *includes* under its more extensive signification. Thus *figure* is predicated of *triangles, circles, squares, &c.* which differ in species. But *species* is predicated of things differing from each other in *number*; i. e. of those *individuals*, each of which possesses an essence signified by the word which expresses the species.

The other three heads of predicables, viz. *differentia, property, and accident*, are predicated of things differing as well in *number* as in *species*; because they have a relation either to a genus or a species. If to a genus, they can be predicated of all the *species* which that genus contains; and if they have a reference to a species, they can be predicated of all the different *individuals* of that species.

Genus and species are commonly said to be predicated in "*quid*;" thus if the question be asked "*Quid est illud?*" the answer must be returned by stating its genus or species. Difference is predicated in "*quale quid*," and property and accident in "*quale*." Hence we may easily form the usual definitions of the five heads of predicables^f.

^f It must be remembered, that the predicable and the

- Definition of genus. *Genus* is a predicable predicated in "*quid*," of many things differing in species, as the *material* or *common* part of their essence.
- Of difference. *Difference* is a predicable which is predicated in "*quale quid*," of many things differing either in number or in species, as the *distinguishing* part of their essence.
- Of species. *Species* is a predicable which is predicated in "*quid*," of many things differing in number, as the *whole* of their essence.
- Of property. *Property* is a predicable which is predicated in "*quale*," of many things differing in species or in number, as *necessarily joined* to their essence.
- Of accident. *Accident* is a predicable which is predicated in "*quale*," of many things differing in species or in number, as *contingently joined* to their essence.
- Genus a logical whole. Genus is called a *logical whole*^s, because it is the most comprehensive term in its signifi-

universal are not one and the same, for the former is the sign expressive of the latter: the predicable is that which is asserted of many, and the universal is *one nature existing in many*.

^s A *logical whole* is that term which has the most *extensive* signification; a *metaphysical whole* is the most *comprehensive* term. Hence genus is a logical whole, for it *contains* the species; but species is a metaphysical whole, inasmuch as it *implies* the genus. Genus expresses a less comprehensive idea than species, for the species denotes the *whole* essence; i. e. a complex idea, formed by the union of the less complex notions of the genus and the difference.

cation, and contains species as its subject parts; viz. includes it under its own more extensive signification; for the genus may be affirmatively predicated of all its contained species, e. g.

$$\text{All } \left\{ \begin{array}{l} \text{Men} \\ \text{Beasts} \\ \text{Birds} \\ \text{Fishes} \\ \text{Insects} \end{array} \right\} \text{ are animals.}$$

Thus *animal* is the logical whole, and *men*, *beasts*, &c. are its subject parts.

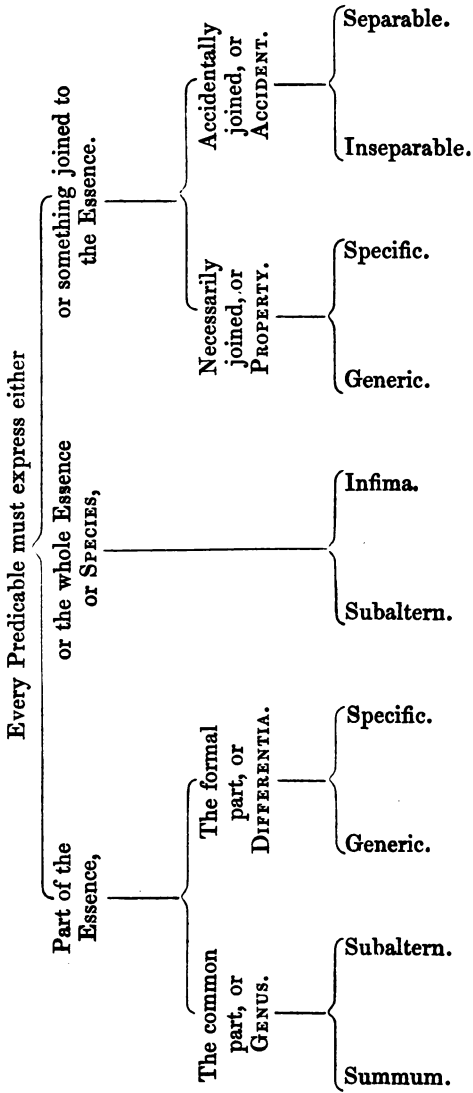
Species, being the whole essence, necessarily *implies* the genus, which is a part of that essence; it is a more complete and comprehensive term than genus, and is therefore termed a *metaphysical* whole; e. g. *man* is a metaphysical whole, and implies *rational animal*.

Species a metaphysical whole.

The difference is said to *divide* the genus, because when added to the genus it forms different species, and thus divides, as it were, the genus into its subject species; and, as the difference when added to the genus makes up the species, hence it is said to *constitute* the species, inasmuch as it completes its essence.

Difference divides the genus and constitutes the species.

The following Table presents at one view the heads of Predicables, with their subdivisions.



SECTION VI.

There are two kinds of genus; viz. *genus summum* and *genus subalternum*. Two kinds of genus.

There are also two kinds of species; viz. *species subalternum* and *species infima*. Two kinds of species.

Summum genus^h cannot be the subject of any cognate genus. It is the highest and most extensive term that can be imagined, and there is not any superior genus under which it may be classed: it is, in short, the most abstract notion that the human mind can conceive, and may be Summum genus.

^h Summum genus, in its strictest sense, is that all-extensive term under which every object of whatever kind may be classed, and of every one of which it may be affirmatively predicated: the word which is generally used to denote such genus is *substance*, or, as some call it, *being*. Such is summum genus in its strict sense; but many other genera are frequently used as *summa genera*, according as may be most suitable to any particular science or system; thus, by an ornithologist, *bird* would be regarded as the summum genus under which he would arrange the different subdivisions of birds: so *fish* would be regarded as the summum genus most applicable to the study of ichthyology; and this is the case with various other sciences.

The general heads, or *summa genera*, to some of which we may refer every term, are denominated the categories, or predicaments; the doctrine of which was first taught by Archytas: they are generally considered as *ten* in number, viz. substance, quantity, quality, relation, place, time, situation, possession, action, suffering: the Greek terms which Aristotle has given them are as follows, οὐσία, πόσον, ποῖον, πρὸς τι, ποῦ, πότε, κείσθαι, ἔχειν, ποιεῖν, πάσχειν. To some one of these heads we may refer every term, according as may best suit our purpose, for the argument in which we may be engaged.

affirmatively predicated of every idea and every object.

Infima
species.

Infima species may be the subject of every cognate genus. It is the first common nature which is the result of any abstraction; it cannot be considered as a genus with reference to any thing, but is considered as composed of individuals only.

Cognate
genera, and
species.

Cognate genera and species are such as result from repeatedly abstracting the differences which are perceived to exist in the same individuals, and regarding those abstract notions in which they agree: thus *corporeal*, *animate*, *sensitive*, &c. are said to be cognate to *man*, and *inanimate*, *insensitive*, &c. cognate to *stones*.

Subaltern
genera, and
species.

There is no *actual* difference between *subaltern genus* and *subaltern species*; the difference is only *relative*: the former may be predicated of a cognate species, and the latter may be the subject of a cognate genus: they are those intermediate genera and species which are supposed to exist between summum genus and any infima species; each of them may be regarded as a *genus* with reference to all the species below it, and as a *species* when referred to the genera above it.

The following table may serve to represent, at one view, what has before been said respecting genus and species, with their subdivisions:

Summum genus is that which can never be regarded as a *species*;

Infima species can never be regarded as a *genus*;

Subaltern genus may be considered as a subaltern species.

Subaltern species may be considered as a subaltern genus.

There are two kinds of difference, viz. *generic* Two kinds of difference: and *specific*.

Generic difference¹ is that which constitutes Generic. subaltern species. It is termed *generic*, because that species which it constitutes may be considered as a subaltern genus; and consequently the generic difference can be affirmatively predicated of every species which is comprehended

¹ The difference and specific property are often difficult to distinguish from each other; but it should be remembered, that a property is only joined to an essence, and results therefore from the difference; whereas the difference is a constituting part of the essence. If then a part of any essence be supposed to be taken away, that essence can no longer remain as it was. The following test, therefore, which we may apply in order to find the difference, will, I believe, in most cases succeed. Since the genus and difference, united, form the species, it follows that, if the difference be supposed to be taken away from any species, that species must revert to its subaltern genus: in fact, the species will not any longer exist; but if a property be supposed to be taken from it, the essence, i. e. the species, will not thereby be injured: this test, however, is by no means unerring, but is frequently applicable. Thus "a proposition" is said to be "a sentence which asserts;" hence any sentence which does *not* assert, (i. e. affirm, or deny), is not a proposition.

under it: hence it is predicated of things which differ from each other in species; e. g. *sensitive* is a generic difference to man, and it may be predicated of all animals as well as of man.

Specific. *Specific* difference is that which constitutes infima species; and it is this kind which is generally meant by the logical difference: it can be predicated of all the individuals contained under the species which it constitutes, and is therefore said to be predicated of things which differ in number, i. e. *numerically*. Thus *rational*, which is the specific difference of man, is predicable of every man, but not of any other animal.

Property of two kinds: *Property* is divided into two kinds, viz. *generic*^k and *specific*. *Generic* property is that which is necessarily joined to, or accompanies the essence of the summum or subaltern genus. *Specific* property is that which flows, or results from the essence of the infima

Generic:

Specific.

^k Generic properties may be predicated of many more individuals than specific properties, for the latter can be predicated only of the different individuals contained under one species, but generic properties may be predicated of different species, and consequently of all the individuals contained under those species. Thus the property, in triangles, that "the three angles are equal together to two right angles," is a *generic* property, and may be predicated of all triangles; but the property that "all equilateral triangles are also equiangular," is a *specific* property, and cannot be predicated of all triangles, but only of that species which is termed "equilateral."

species, and is predicated of *one* species and its different individuals, whereas generic property is predicated of different species. Property has also been divided into four kinds:

Fourfold
division of
property.

1. That which is peculiar to one species, but does not *universally* belong to its individuals.

2. That which is predicable of the whole species, but not of that species alone.

3. That which may be predicated of all the individuals of a species, and of that species only, but not of it *always*.

4. That which may be predicated of one species only, of all its individuals and at all times.

Of these four classes, the *second* is the generic property, and the *last*, the specific.

The first and third classes cannot strictly be termed properties. Every property must be universal, i. e. it must be applicable to all the individuals of a species, and must belong to that species *necessarily*, which in the instance adduced by Aldrich, viz. the fact of a man's being a *grammarian*, cannot be said to be the case, for some men are *not* grammarians: the third class, for the same reason, cannot be termed a property, even admitting its existence.

Accident is also divided into two kinds, viz. *inseparable* and *separable*.

Two kinds of
accident:

The *inseparable* accidents are such as cannot be separated from the individual of whom they

Inseparable:

are predicated: thus, if I predicate of a man that "he took a walk yesterday," his having *taken a walk* would be what is termed an inseparable accident; for though *now* it cannot be separated from his essence, yet it was only *contingently* joined to it, and not *necessarily*.

Separable.

The *separable* accident is such as can be separated from the individual; e. g. if I predicate of a man that he is *standing*, this is a separable accident, for he may sit down.

It should be remembered, that an inseparable accident is predicable only of individuals; for all accidents must be separable from the species, or they would be properties.

SECTION VII.

Division.

*Division*¹ is "the distinct enumeration of the several things signified by a common noun." For as in logic a singular noun is called *indivisible*, so a common noun is called *divisible*, because it admits of *logical* division.

Of two kinds.

There are two kinds of division, i. e. *logical*

¹ The word "division" literally signifies, "the separation of the component parts of anything;" in which case each part is *absolutely* less than the whole divided. But since in logical division the dividing parts are each "in comprehension" greater than the whole divided, hence the word "division," as thus used, is obviously applied in a figurative or secondary sense.

and *physical*, and, although they are perfectly distinct in their nature from each other, yet logical division is *analogous* to physical.

Physical division^m is the division of an individual into its component parts; thus, "a book" might be divided into its *leaves, cover, back, &c.*; and it is by this division that *any* individual object might be divided. Each of the dividing parts in such division is therefore *absolutely less* than the whole divided. Physical division.

Logical division is the division of *common* nouns, and the whole divided can be predicated of each of its dividing partsⁿ. Thus, "book" Logical division.

^m Physical division is the division of *individuals*, i. e. of objects which have real existence: logical division is the division of *ideas*: but since an idea itself has not any real existence, logical division is used upon those words which are the *signs* of ideas: and common nouns (as has been shown above, Sect. III.) are representatives of ideas, and as such will be the only nouns upon which logical division can operate. Any singular noun may be physically divided, because it represents and stands for one individual object, which may be divided into its component parts.

ⁿ A common noun will admit of various modes of division; thus "books" might be divided according to their *matter, size, or language*, so "animals" may be divided into *rational* and *irrational, cold-blooded* and *warm-blooded*. Hence a logician must bear in mind (what Dr. Whately terms) the *principle of division*, with reference to his end in view; for "when any thing is capable of being divided in several different ways, we are not to reckon one of these as the true, or real, or right one, without specifying what the object is that we have in view; for one mode of dividing may be the most suitable for one purpose, and another for another."—Elements of Logic.

might be logically divided into *folios, quartos, octavos, &c.* and it might be predicated of all folios that they were *books*, and of all quartos, that they were *books, &c.* Hence it is manifest, that if the whole divided be a genus, the dividing members must be the species comprehended under it; and if the whole divided be a species, the dividing members must be the individuals contained under that species.

Rules for
division.

There are three rules for good logical division.

1. Let each of the dividing parts, or any of them, contain less (i. e. have a more limited signification) than the whole divided^o.

The dividing
parts imply
the whole.

The words *minus contineant*^p, mean that each

^o Thus if the word *hound* were divided into *greyhound, dog, bloodhound, &c.*, such a division would err against the first rule, for the word *dog* would be more extensive than the whole divided or *hound*: so, if *animal* were divided into *quadruped* and *biped*, this division would err against the second rule, for the union of these two parts would not be so extensive as *animal*, the whole divided; for there are many animals which are neither quadrupeds nor bipeds.

^p A perfect division may be formed by means of the definite and indefinite nouns, e. g. *men* may be divided into *those who are Europeans* and *those who are not Europeans*; *animals*, into *rational* and *irrational*, *bipeds* or *not bipeds*. Such dichotomy, thus produced, by what is called *contradictory bifurcation*, constitutes a perfect division, for the union of such two parts will obviously be equivalent to the whole divided. If the parts of a divided whole be *many* in number, such a division may possibly be as complete and perfect as if it were a dichotomy; but it cannot easily be shown to be so, unless the contradictory bifurcate division be applied to it. An instance of this case will be given in the next section.

of the dividing members must be less *extensive* than the whole divided. For in logical division, each of the dividing parts or members is always more *comprehensive*[¶], i. e. has a more *extensive signification*, than the divided whole: and each of them may thus be considered as *more* than the whole, inasmuch as they each *imply* the whole[†]; for every one of the dividing parts may be regarded as a *species*, with reference to the whole divided as a *genus*: thus each of them is a *metaphysical* whole, when compared with the divided noun, which will be a *logical* whole to all its dividing parts.

2. Let all the parts *collectively* be exactly equal to the whole divided.

3. Let the divided parts be *distinct*, or opposed to each other; i. e. let not one part be contained

¶ Aldrich, chap. i. § 7.

† Thus if we were to divide *rectilineal figure*, we should divide it into *triangle, square, circle, &c.*, and each of these parts would *comprehend* more than the whole; for a *triangle* is not only a *rectilineal figure*, but it is a *three-sided rectilineal figure*. The term *triangle*, therefore, represents a more complex idea than the term *rectilineal figure*. So the terms *square, circle, &c.* are each more comprehensive than the term *rectilineal figure*, because they each *imply* that term. Thus, also, if the whole divided were a *species*, and its dividing parts were *individuals*, each of these parts would be a more comprehensive term than the whole: for every singular term, which represents an *individual*, is a more full and complete term than the *species* which contains it; and, since the *species* may be predicated of each of the *individuals* under it, consequently each of these *individuals* *implies* the *species*, and is therefore a more *comprehensive* term.

under another: e. g. if we were to divide *tree* into *forest tree*, *oak*, *elm*, *plum tree*, *fruit tree*, such parts would be contained in each other, for a forest tree may be an oak or an elm, and an elm or an oak is a forest tree.

SECTION VIII.

Definition. *Definition*^s, as used in logic, is “*an explanatory sentence*, i. e. a sentence which explains any term, so as to separate the *idea represented* by that term from any other idea whatsoever.”

Its object. A word may be unintelligible to a hearer, either from his not at all understanding its meaning, or from its conveying to his mind an idea, different to that which was intended: the object of definition, therefore, is either to convey to the hearer’s mind the idea which the defined term is intended to represent, or else to correct any indistinct notion which may erroneously have been assigned to it.

Classes of definition. Definitions are divided into two classes, viz. *nominal* and *real*.

^s Definition literally signifies “the laying down the boundary of anything:” but it is here used to signify “a sentence which so explains a term, as to separate that term from any other, and thus to lay down (as it were) the boundary or limit of its signification.” Since, therefore, it is here used in a peculiar and metaphorical sense, it must be a word of the second intention.

The *nominal* definition explains only *the signification of the term*^t. Such definitions are ^{Nominal definition.} used when the term which has been uttered does not convey *any idea* to the hearer's mind, viz. when he does not understand the *meaning* of the term, which is therefore explained by making use of some equivalent expression which may be more intelligible: thus you might define *emblem*, that which is *a sign of any thing*; or *essence*, as *universal nature*; or *approximation*, as *a near approach*.

The *real* definition^u is that which declares or ^{Real definition.} explains the *nature of the term*: which professes to explain not only the meaning of the term, but the nature also of the thing signified. Of real definitions there are two species, viz. the *accidental* ^{Of two kinds.} and the *essential*.

^t "Aldrich having given, as an instance of a nominal definition, the absurd one of 'homo, qui ex humo,' has led some to conclude that the nominal definition must be founded on the *etymology*; or at least that such was his meaning; but that it was not, is sufficiently plain from the circumstance that Wallis (from whose work his is almost entirely abridged) expressly says the contrary. Be this as it may, however, it is plain that the etymology of a term has nothing to do with any logical consideration of it."—Elements of Logic.

^u In many cases the *nominal* and *real* essence of anything exactly coincide, viz. the idea conveyed by the word is exactly the same as the nature of the thing: e. g. in mathematics and many other sciences: (see Dr. Whately on this subject). Thus *a triangle* is "that which has three angles;" and "a right-angled triangle" is "that which has one right-angle," are each both nominal and real definitions.

Accidental
definition.

The *accidental* definition is that which defines a term, by *describing or enumerating some of its properties or accidents*; such definitions are also termed *descriptions*, and are more commonly to be met with than any others; for as we are frequently unable to ascertain the natural, or component parts of any thing, and more especially the metaphysical parts, i. e. the genus and difference, description is often the only method by which we are able to define a term.

Essential
definition.

The *essential* definition is that which lays down the constituting parts of the essence, and it is of two kinds, viz. the *metaphysical*, or *logical*, and the *physical*.

Of two kinds.

Metaphysical
definition.

The *metaphysical* definition is that which lays down the *ideal* parts of an essence, viz. the genus and differentia; hence it is obvious, that any term which will admit of being metaphysically defined, must be a species. No *individual*^x, therefore, can be *logically* defined; neither can *sum-mum genus*; for it is the highest of all genera, and cannot therefore be defined by assigning its genus and difference, inasmuch as it has not any superior genus: *description* is the only mode of defining it, i. e. by an enumeration of its properties.

^x An individual cannot be defined but by description, i. e. by enumerating the accidents belonging to such individual, whereby the differences existing between that and any other may be shown.

The *physical* definition is that which lays ^{Physical definition.} down the *real* parts of the essence, i. e. those parts which admit of actual separation; thus *horse* might be *physically* defined as being an animal composed of *head, body, mane, legs, &c.*, and *a book*, as being composed of *cover, back, and leaves*†.

There are three rules for good definition.

Rules for definition.

1. “*Let the definition be adequate to the term defined;*” i. e. the idea conveyed by the definition must be exactly equal to that which is meant to be conveyed by the definitum, or term defined: consequently its signification must not be too extensive, nor too confined. Thus if “a tree” were defined to be “a plant having leaves,” such a definition would be too extensive, for many plants have leaves, which are *not* trees: in this case the definition explains a *whole*, when the term defined is but a *part*. Again, if “a tree” were defined to be “a plant which bears fruit;” such a definition would be too limited, for there are many trees which do not bear fruit;

† The following table presents, at one view, the different kinds of definition, according to Aldrich’s Logic :

DEFINITION.	{	Nominal,	{	Accidental,	{	Metaphysical,
	{	Real.	{	Essential.	{	Physical.

The four infimæ species of definition are *nominal, accidental, metaphysical,* and *physical*. This division of definitions is an example of dichotomy. [See the last section.]

and in this case the definition would have explained only a *part*, when the term defined is a *whole*.

2. "Let the definition be in itself clearer and more plain than the term defined^z;" i. e. the definition must convey an idea which will be clearer and better known to the generality of persons to whom it is addressed, than the idea which is conveyed by the term defined: the words "per se^a" are opposed to "per accidens:" because the term defined may *by accident* be better understood than the words of the definition^b.

It has been frequently objected to metaphysical definition, that it is not clearer (in most cases) than the term defined; and when the term, which is to be defined, is very familiar to the hearer, this certainly is the fact: thus the word *man* is more familiar to the ear, and is *accidentally* better known than the term *rational animal*; but yet the words *rational animal* are, in their nature, more clear and better known than the word *man*, inasmuch as they convey less complicated ideas; and all words which express less complicated ideas, are, in their nature, clearer than those which convey more complex ideas. All definitions of ideas *purely simple*, must of necessity be, at best, *not clearer* than the terms defined; e. g. the definition of "colour," which could hardly be defined so that the definition should be better known than the term itself.

^a See Aldrich, chap. i. § 8.

^b Thus, if a *triangle* were defined to be, "a figure which has its three interior angles together equal to two right angles," such a definition would not be so clear as the word *triangle*, and would err against the second rule: so, "Old age is the evening of life;" "A warrior is the thunderbolt of war;" would err against the third rule, for the words which compose these

3. "Let the definition be included in a just number of proper words;" i. e. the words employed must not be used in a *metaphorical* sense, as such words would probably produce *indistinctness*: so also the number of the words must be suitable; for too much *brevity* would produce *obscurity*, and too great *prolixity*, *confusion*.

definitions are metaphorical: again, if we were to define a *cascade* by saying that it was a *waterfall*, such a definition would be too short. Care, therefore, must be taken, that all definitions be exactly equivalent or adequate to the terms defined, and that they be, in all respects, more clear and intelligible; for since the difference or essence of a definition is that it be *explanatory*, it would cease to be a good definition, if it did not render clear and intelligible those terms which before were not so.

PART II. SECTION I.

Of proposi-
tion.

THE second part of logic treats of *proposition* or *enunciation*; i. e. those complex words which are expressive of the second operation of the mind, or *judgement*.

Proposition
defined.

A proposition is defined to be "*oratio indicativa, congrua et perfecta, verum vel falsum significans, sine ambiguitate*."^a This definition is of a compound nature; for it is partly metaphysical, and partly accidental. A proposition would be more accurately defined to be *oratio indicativa*; i. e. *an asserting sentence*^b. This definition would comprehend the whole essence of proposition; for "a sentence" is its genus, and "asserting," i. e. *affirming*, or *denying*, its difference. The other parts of the former

^a Aldrich, chap. ii. § 1.

^b A proposition being a sentence which asserts, viz. which affirms or denies; it follows, that all exclamations, interrogations, commands, &c. are excluded, and are not regarded as propositions: thus, "Do ye now believe?" "O how amiable are thy dwellings!" "He that made the round world so fast;" are not propositions, since they do not contain any assertion; but "Truth lies in the bottom of a well;" "Tempus fugit;" "Loquor;" "He scattereth the proud in the imaginations of their hearts;" are asserting sentences, and consequently are propositions.

definition are properties, &c. of proposition, and ought not strictly to form a *part* of the definition, but to be deduced from it.

There are four requisites for constituting a legitimate proposition. Four things, requisites for constituting a proposition.

1. That as far as regards the *words*, it must be *a sentence which affirms or denies*^c: which is its whole essence.

2. That as to *sense*, it must *signify something true or false*^d;" i. e. it must declare that which *is* the real fact, or that which *is not* the fact; and this is the *property* of a proposition.

^c Judgement was defined (Part I. Sect. I.) to be "the decision upon the mutual agreement or disagreement of any two objects, when compared with each other;" and the sentence which declares this decision, and expresses judgement, is called "a proposition:" now the agreement or disagreement of any two objects cannot be expressed in words, except by *affirmation* or *negation*; viz. by some assertion; consequently it is necessary, in order to *constitute* a proposition, that it must be a sentence which affirms or denies: therefore its *affirming* or *denying* distinguishes it from any other kind of sentence, and is its *difference*.

^d Judgement is liable to the error of *falsity*, as has been shown before, (Part I. Sect. I.) for a decision may manifestly be false, inasmuch as it may have been decided that two particular objects agree when they do not, or vice versâ, and in such a case the decision or judgement would be false: hence a proposition which expresses such a decision must of necessity assert that which is not really the fact; i. e. it must signify that which is false: and since all propositions must either assert what *is* the fact, or what *is not*, consequently they must all signify something, either true or false; and this is called a specific property of propositions, since it seems to result immediately from their difference, i. e. from their affirming or denying.

3. It must not be an *ambiguous* sentence; viz. it must not admit of dubious construction, for in this case it would be "*orationes*^e;" i. e. it would be more than *one* sentence, because it would admit of more constructions than one.

4. The sentence must not be *ungrammatical*, for such a sentence would be unintelligible, and consequently could not be "declaratory^f."

SECTION II.

Division of propositions.

Propositions are divided according to their *substance*, their *quality*, and their *quantity*.

Substance.

The *substance*^g of a proposition is its genus

^e Aldrich, chap. ii. § 1.

^f These two last rules are self-evident; for if a proposition were *ambiguous*, viz. admitted of being construed in more ways than one, it would be a sort of double sentence: and this ambiguity may be produced by equivocal words, or by a dubious form of expression; e. g. "That is a bull;" "Cræsus Halyn penetrans magnam pervertit opum vim;" both these sentences are ambiguous, and may each be considered in more than one way; consequently they may each be regarded as more than one sentence. On this point, see Elements of Logic, chap. iii. § 10. Again, if a proposition were *ungrammatical* or *mutilated*, such a sentence might be unintelligible, and would not therefore be a legitimate proposition: this may frequently be observed to be the case in proverbs, and such sort of sentences, where, although the ellipsis is not such as to render the meaning unintelligible, yet it cannot strictly be termed an accurate proposition; for it might produce ambiguity.

^g Should not the substance of a proposition be said to be its

or material part of its essence; i. e. its being “a sentence:” and propositions (as regards their substance) are considered as of two kinds: viz. “*categorical*” and “*hypothetical*.” The *categorical* proposition is that which asserts *absolutely*, i. e. “*unconditionally*.” e. g. “Benevolence is not the whole of virtue;” “No man can live for ever.” The *hypothetical* is that which asserts under some condition or

Categorical proposition.

Hypothetical.

whole essence, and not the genus? for every assertion can be expressed either *absolutely* or *conditionally*; hence by regarding the substance of propositions, we divide them into *categorical* and *hypothetical*, the former of which asserts *absolutely*, and the latter asserts under some *hypothesis*, or *condition*. The substance of a proposition is commonly said to be its *genus*, or the *material* part of its essence, viz. that it is *a sentence*; but if this were the case, *commands* and *questions* might also be considered as propositions, which is not the fact. Aldrich says, (chap. ii. § 2.), that to the question “*Quæ est propositio?*” the answer must be, *categorica vel hypothetica*; and this is not answering by considering the *genus*, but the different *species* of propositions; and Aldrich declares “*hæc divisio peti dicitur a substantia propositionis*;” the substance therefore of a proposition is *the character of its assertion*; i. e. whether the assertion be expressed absolutely or not absolutely, viz. conditionally; which are the *only* ways in which any assertion can be expressed; and in dividing propositions in this manner we must regard their *whole essence*, and not only the *genus* or *material* part of their essence; for sentences may be expressed in various ways, besides *absolutely* and *conditionally*: for instance, *commands* and *questions* are sentences, but are not propositions. Dr. Whately considers the substance as the *genus* or *material* part of the essence of propositions, and I consequently feel much diffidence in expressing an opinion which is at variance with an author who has treated the science of logic with such ability.

D

hypothesis: e. g. "I will walk if it does not rain;" "You may either go or remain behind."

Division of
categoricals.

The *categorical* proposition is divided into two kinds; viz. the *pure* categorical and the *modal*.

Pure.

The *pure* categorical proposition is that which asserts simply whether the subject *does* or *does not* agree with the predicate; as, "Nescit vox missa reverti;" "George the Fourth is the king of England."

Modal.

The *modal* categorical^h expresses in what *mode* or manner the subject does or does not agree with the predicate: as, "Such a fact may perhaps be true;" "No man can be perfectly righteous."

The only class of propositions which will be treated of at present will be the *pure* categorical.

Division of
hypotheticals.

The *hypothetical* proposition is divided into either *conditional*, as, "Riches, if badly applied, are a curse, and not a blessing;" or *disjunctive*;

^h Modal propositions may be reduced to pure categoricals, by either considering the word which expresses the mode as united to the predicate, and thus forming a part of it; or sometimes by attaching it to the subject, which may be done when the *mode* only expresses whether the matter of the extremes be necessary, impossible, or contingent: e. g. "A fish necessarily lives in the water;" which means, "All fish live in the water;" "A profligate man may possibly repent and be saved;" viz. "The repentance and salvation of a profligate man is a thing that is possible."

as, "Pleasure should either be taken in moderation, or not at all." "This result is the effect either of truth, which produces consistency without the writer's thought or care, or of a texture of forgeries confirming and falling in with one another by a species of fortuity, of which I know no example." Horæ Paulinæ, c. viii. §. 4.

Another division of propositions is by regard- Quality.
 ing their *quality*, and of quality there may be two sorts; viz. the quality of the expression, or the *essential quality*; which is the differentia; Of two kinds, essential and accidental.
 and the quality of the matter, or the *accidental quality*; which is consequently the property.

Propositions are divided according to their *essential* quality, into *affirmative* and *negative*¹.

¹ The definitions which Aldrich has given of an affirmative proposition, viz. "that which has an affirmative copula;" and of a negative, viz. "that which has a negative copula." are accidental; for the having an affirmative or negative copula, is not the differentia, but a property of such propositions; metaphysically they may be defined thus: affirmative propositions assert the *agreement* of their extremes, and negatives the *disagreement*: the copula serves to indicate this connexion. Care must be taken not to be deceived by the copula; for a proposition may have a negative in it without being a negative proposition: e. g. "He who is not wicked deserves our love," which is an affirmative proposition: the method of detecting this will be, to consider the meaning of the propositions, and what assertion is made relative to the extremes; if the proposition asserts that its extremes *agree*, it is affirmative, for agreement must be expressed by affirmation: but if it asserts that the extremes *differ*, it is negative; for negation alone expresses disagreement.

Affirmative
propositions.

An *affirmative* proposition is that which asserts that its extremes agree with each other; i. e. that the predicate may be asserted of the subject; as, "Oxford is a city containing an university;" "An Englishman will fight in defence of his country."

Negative
propositions.

A *negative* proposition is that which asserts that its extremes disagree; i. e. that the predicate *cannot* be asserted of the subject: as, "No Christian fears the hour of death;" "Nemo mortalium omnibus horis sapit."

Propositions are also divided according to their *accidental* quality, or quality of the matter, into *true* and *false*: and this is said to be the property, inasmuch as it results^k from the essence of the proposition; i. e. *from the difference or assertion*, which must of necessity be either *true* or *false*.

True propo-
sitions.

A *true* proposition is that which asserts what *is* the real fact; as, "The object of logic is to

^k The necessary consequence which results from any assertion is, that it must be either true or false, which is the accidental quality, or *qualitas rei*, as it is commonly termed: to ascertain the truth or falsehood of any proposition is not the office of logic; but it must be proved by a consideration of that science or art to which the subject-matter of the proposition belongs: consequently, as will be shown hereafter, the truth or falsehood of every proposition will depend upon its *matter*, viz. the connexion which naturally exists between its extremes. N. B. When we speak of the *quality* of a proposition, without declaring which kind, the *essential* quality, or *qualitas vocis*, is meant; viz. its being affirmative or negative.

direct the mind in the acquisition of knowledge:"

"England is an island."

A *false* proposition is that which asserts what False propositions. *is not* the fact: as, "Logic is the art of using the reason;" "A murderer is not deserving of punishment."

Propositions may also be divided, by regarding their *quantity*, into *universal*, *particular*, *singular*, and *indefinite*.

The *quantity* of a proposition means "the Quantity. extent" to which the predicate is asserted of the subject.

An *universal* proposition is when the predicate Universal propositions. is asserted of the *whole* of the subject; and since the subject is in this case taken in its whole sense, i. e. "for every thing signified by it;" it is said to be *distributed*¹; and this *distribution* is indicated by some sign of *universality*, as "all," "none," "every one," &c.; e. g. "All bad passions are to be avoided;" "No virtuous act will lose its reward."

A *particular* proposition is that whose predi- Particular propositions.

¹ A term is said to be *distributed* when it is taken in its fullest extent, i. e. when it is intended to comprehend everything to which it is applicable. Thus, "All misers are discontented;" the word "miser" is here *distributed*, for it is intended to comprehend *every miser*; and the proposition is equivalent to "there is not one miser who is not discontented:" but in the proposition, "Some men are avaricious," the word "men" is *not distributed*, because it is not intended to apply to every man; for there may be many men who are not avaricious.

cate is asserted of only *a part* of the subject; and since, in this case, the subject is *not* taken for every thing signified by it, hence it is *not distributed*: and this is indicated by a sign of *particularity* prefixed to it, as “some,” “few,” “many,” &c.; e. g. “Some men are possessed of more judgement than others;” “Not every one that saith unto me, Lord, Lord, shall enter into the kingdom of heaven.”

Singular propositions.

A *singular* proposition is that whose subject is a singular noun; or a common noun with a singular sign: [see Part I. Sect. III.] e. g. “Dionysius was a tyrant;” “That man is a thief;” but since in all cases of singular propositions the predicate is asserted of *the whole* of the subject, hence the subject is *distributed*; and singular propositions are [see the next section] considered as universals.

Indefinite propositions.

With respect to *indefinite* propositions^m, they are such as have common terms for their subjects,

^m Any proposition (except a singular) to whose subject there is not affixed some sign, denoting whether that common noun is to be taken for everything signified by it, or not, must be regarded as *indefinite*; because the extent in which that subject is taken is not limited; but in order to ascertain this extent, we must apply to our common sense, and also to a knowledge of that particular science or art to which the proposition relates: in other words, we must look to the matter, and by that we must be guided: but indefinites need not be classed as a distinct species of propositions; because they *must be* either universals or particulars, since the predicate must be said either of the *whole* or *only of a part* of the subject.

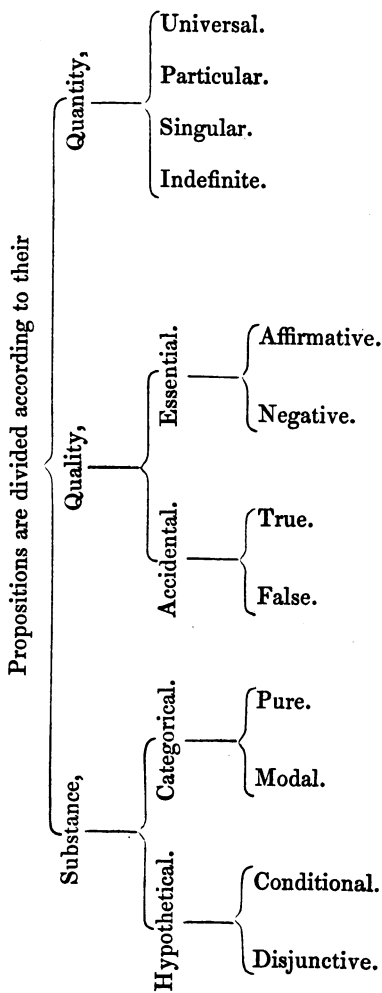
but they have not any sign, either of universality or particularity, whereby we may know whether the subject is to be taken in its fullest sense or not; but inasmuch as it is evident that the predicate must be asserted either *universally* or *partially* of the subject, it is obvious that all indefinite propositions may be classed under universals or particulars, according as their predicate is said of the *whole* or *only a part* of the subject; and this must be ascertained from the *natural connexion* existing between the subject and the predicate, which is called the matter of the proposition; and which will be explained in the next section. It is useless therefore to consider indefinites as a separate class of propositions. Thus it appears that, strictly speaking, propositions, divided by considering their quantity, are of two kinds, viz. universal and particular.

In order to keep this in mind, the following line was formed:

Quæ? Ca. vel Hyp. Qualis? Ne. vel Aff. Quanta? Uni. Par. Ind. Sing.ⁿ

ⁿ The words of this line, when written at full length, are as follows: "Quæ? Categorica vel hypothetica. Qualis? Negativa vel affirmativa. Quanta? Universalis, particularis, indefinita, singularis." The meaning of it may be thus explained: Propositions divided as to substance, (Quæ?) are categorical or hypothetical: as to quality, (Qualis?) they are negative or affirmative: as to quantity, (Quanta?) they are either universal, particular, indefinite, or singular.

The following Table presents at one view the division of Propositions, with their subdivisions.



SECTION III.

In every singular proposition, the predicate is said of the *whole* of the subject, i. e. the subject is taken for every thing signified by it, or is *distributed*; e. g. "Dionysius was a tyrant:" here the *whole* of Dionysius is meant; consequently, in a syllogism, singular propositions are considered as equivalent to universals°.

The *matter* of a proposition is the "extent of ^{Matter.} connexion which naturally exists between the extremes;" and it is of three kinds, *necessary*, *impossible*, and *contingent*.

Necessary matter is when the extremes of a ^{Necessary.} proposition essentially and invariably *agree* with each other, as, "All islands are surrounded by water."

• The quantity of propositions, as far as regards the *words*, is fourfold, viz. universal, particular, singular, and indefinite; but as far as it affects syllogistic argument, and, consequently, regards the judgment, which is expressed by it, it may be considered as of two kinds only, viz. universal and particular; for the singular (as has been shown) is equivalent to the universal, and the indefinite must be either universal or particular, according to the connexion which exists between its extremes, and which is termed the *matter* of a proposition. The word *matter* is an equivocal word, for it may signify either the component parts of a proposition, i. e. the subject, predicate, and copula, or the agreement or disagreement naturally subsisting between the subject and predicate, in which last sense it is here used.

Impossible. *Impossible* matter is when the extremes of a proposition *differ* from each other essentially and invariably, as, “No human institution is wholly without error.”

Contingent. *Contingent* matter is when the extremes of a proposition *partly agree* with each other, and *partly differ*, as, “Some human inventions are beneficial to mankind.”

Indefinites. The quantity of indefinite propositions may be determined by these different kinds of matter; for in necessary and impossible matter, an indefinite may be considered as an universal, and the sign of universality may be prefixed; e. g. “Human inventions are liable to error;” in which case we may say, “*All* human inventions,” &c. and, “Honourable men are not willing to disgrace their characters;” that is, “No honourable men,” &c.; but in contingent matter, i. e. when the extremes only partially agree, an indefinite proposition must be considered as a particular; e. g. “Victories have been more destructive to the conquerors than to the conquered;” that is, “Some victories,” &c.; and, “Works of human invention are steam engines;” that is, “Some works,” &c.

Four classes
of proposi-
tions.

Pure categorical propositions^p being regarded according to their quality and quantity, may be

^p Propositions have been considered according to their substance, quality, and quantity; we now wish to find out of how

considered as of four kinds, viz. “universal affirmative,” “universal negative,” “particular affirmative,” and “particular negative.” And each of these classes is denoted by a particular symbol; thus, A stands for the universal affirmative, E the universal negative, I the particular affirmative, and O the particular negative, which is expressed in the two following verses :

Asserit A, negat E; universaliter ambæ;
Asserit I, negat O; sed particulariter ambo.

Since in every universal proposition the predicate is said of the whole of the subject, hence the subject is distributed in every universal⁹:

Distribution
of terms.

many classes propositions may be considered to be, as far as may serve for syllogistic reasoning. With respect to substance, we shall consider only one class, viz. pure categoricals: and by regarding the quality (viz. the essential quality) and the quantity, it has been shown that there are *two* classes of each; i. e. *affirmative* and *negative*, *universal* and *particular*; hence it is manifest that there cannot be more than these four classes: universal affirmative, universal negative, particular affirmative, and particular negative.

⁹ With respect to the subject of an universal proposition being distributed, it is self-evident that this is the case, it being the differentia of an universal proposition: the fact is equally clear with respect to the distribution of the predicate in the universal negative: but in the *particular* negative it is not so manifest that this is the case: it may, however, be proved thus, “Some men are not logicians.” This proposition asserts, that there is a *certain class of men*, no one of which is a logician, viz. there is some limited number of individuals comprised in the *subject*, from which every individual comprehended under the *predicate* is wholly excluded: or, in other words, the term *logician*, in its

but in negative propositions, the predicate must be distributed, or the proposition could not be true: thus, "No human institution is perfect," would be false, if *any part* even of the term "perfect" agreed with the term "human institution." The distribution, therefore, of the terms of propositions depends upon their *universality* and their *negation*; hence this rule may be formed,

General rule. "All universals distribute the *subject*, and all negatives distribute the *predicate*."

Predicate of an affirmative sometimes distributed.

It sometimes happens that the predicate of an affirmative is distributed^r; but since this circum-

most extensive signification, cannot be predicated of any individual comprised under that class of *men*, which is the subject; consequently it is evident that the term *logician* is here used in its most universal sense, viz. it is *distributed*; and unless it were so distributed, the proposition, "Some men are not logicians," would not be true.

^r The predicate of an affirmative proposition cannot, with *accuracy*, be ever said to be distributed; for although it may accidentally happen that the predicate be of equal extent with the subject, i. e. that the predicate in its fullest sense may be affirmed of the subject, also distributed, yet this fact is by no means *implied* in the *form of expression* of the affirmative proposition: the predicate, therefore, is not "actually distributed," (Whately) "but is *distributable*"; and the point to be considered is, not what *might be* said with truth, but what *actually has been* said." A case somewhat similar to the present occurs in the reduction of one of the modes of syllogisms in Part III. which will be shown hereafter. It often happens that the predicate is of equal extent with the subject of an affirmative proposition, and is therefore *distributable*, as is the case in most mathematical definitions; e. g. a "rectilinear triangle is a plane figure

stance does *not* depend upon the *form of the expression*, but is merely *accidental*, resulting (as Aldrich observes, chap. ii. § 3.) “virtute significati, non virtute signi;” it is not to be considered so as to affect any argument; nor could any inference be drawn which depended on such a circumstance; for the *form of the expression* alone is regarded in logic, the truth or falsehood of a proposition depending upon its subject matter.

SECTION IV.

Two propositions are said to be *opposed* to Opposition. each other, when, the subject and predicate being the same in each, they differ from each other either in *quantity* or in *quality*, or in *both*; and since there are four different classes of propositions which may be formed, each having the same subject and predicate, viz. A, E, I, and O; any two of which are said to be opposed*,

contained by three straight lines:” also in all metaphysical definitions, as, “A proposition is an asserting sentence;” or where the predicate is any specific property of the subject, as, “A proposition is a sentence signifying something true or false:” if, then, any conclusion be deduced from such a case as this, such a conclusion may *materially* be correct, but it must be *inaccurate* according to the rules of logic, because it could not be deduced from the *form of the expression alone*.

* Propositions, when opposed to each other, are said to have the same subject and predicate; and the points in which they

consequently there are four different kinds of opposition; i. e. *contrary*, *subcontrary*, *subaltern*, and *contradictory*.

Contrary. *Contrary* opposition^t is between two *universal* propositions, differing from each other in quality only, viz. between A and E: e. g. "All men are mortal;" "No men are mortal."

Subcontrary. *Subcontrary* opposition is between two *particular* propositions, which differ from each other in quality only, viz. between I and O: e. g. "Some men are logicians;" "Some men are not logicians."

Subaltern. *Subaltern* opposition is between two propositions which differ from each other in *quan-*

are to differ is in quality or in quantity, or in both; but it must be remembered, that when any propositions oppose each other, they are not only to have the same subject and predicate, but those terms are to be used with reference to each other *in exactly the same sense* in both the propositions, or no opposition can subsist between them. This rule, which Aldrich has stated as applying to contradictories alone, (see chap. ii. § 4.) is equally applicable to *all* the other species of opposition; and if this were not observed, the four kinds of propositions might be all true or all false together.

^t The opposition which exists between two singular propositions can only be *contrary opposition*, for the quantity of singulars cannot be hanged, (except by conversion); but since the *matter* of a singular proposition cannot be *contingent*, hence the contrary to a singular forms as perfect an opposition as contradiction; for if a singular be true, its contrary must of necessity be false, and vice versâ; for it will be shown in this section, that contraries cannot be both true or both false together, either in *necessary* or *impossible* matter.

tity only; viz. between A and I, or between E and O:

- e. g. { All human institutions are imperfect;
 { Some human institutions are imperfect.
 or, { No equivocator is a person worthy of credit;
 { Some equivocator is not a person worthy of credit.

Contradictory opposition is between two pure ^{Contradictory.} categorical propositions, differing from each other both in quantity and quality, viz. between A and O, or E and I:

- e. g. { All virtues grace those who possess them;
 { Some virtues do not grace those who possess them.
 or, { No sophistical argument is to be relied on;
 { Some sophistical argument is to be relied on.

N.B. In order that two propositions should be contradictories, (and such cannot be both true nor both false together,) care must be taken that the *terms* of both the propositions are to be used in *exactly the same sense*^u with respect to each other.

^u Aldrich has given this rule in the following words: "Notandum est, ad contradictionem requiri quatuor: nempe loqui de eodem, 1. eodem modo; 2. secundum idem; 3. ad idem; 4. in eodem tempore." (Vide chap. ii. § 4.) All of these requisites may be comprehended in this one general rule, viz. That the subject and predicate of the opposing propositions must be employed in *exactly the same sense* with respect to each other: and this rule applies (as has been shown above) to all the cases of opposition, as well as to the particular one of contradiction. Contradictories are *perfectly* opposed to each other, e. g. "All men are logicians;" "Some men are not logicians:" what the one proposition affirms universally, the other denies partially; again, "No men are dogs;" "Some men are dogs;" in this

Which kind
of opposition
is most com-
plete.

Of all these four kinds of opposition, the contradictory is the most perfect; for contradictories differ from each other in all points, viz. not only in *quality*, (the one being negative and the other affirmative,) but in *quantity* also, for the one is universal and the other particular; therefore it is manifest, that when any proposition is *true*, its contradictory must of necessity be *false*; and, conversely, if any proposition be *false*, the contradictory to it must be *true*.

Truth and
falseness de-
pend upon
the matter.

Since in every proposition the assertion is respecting the relation which the extremes bear to each other, it is obvious that the truth or falsehood of that assertion must depend upon the relation which *naturally does* exist between those extremes, viz. upon the *matter*. The *relation*, which is expressed in a proposition, between its extremes, is that of their agreement or disagreement with each other: the rule, therefore, which may be formed with respect to the truth or falsehood of propositions in the different kinds of matter, is as follows: whenever the assertion of a proposition, respecting the mutual agreement or disagreement of its extremes, coincides with

case, one of these propositions asserts the terms *dogs* and *men* to disagree universally, and the other asserts the *partial agreement* of these very same terms, employed in exactly the same sense with regard to each other: if therefore any one of these propositions be true, its contradictory must be false; and if false, its contradictory must be true.

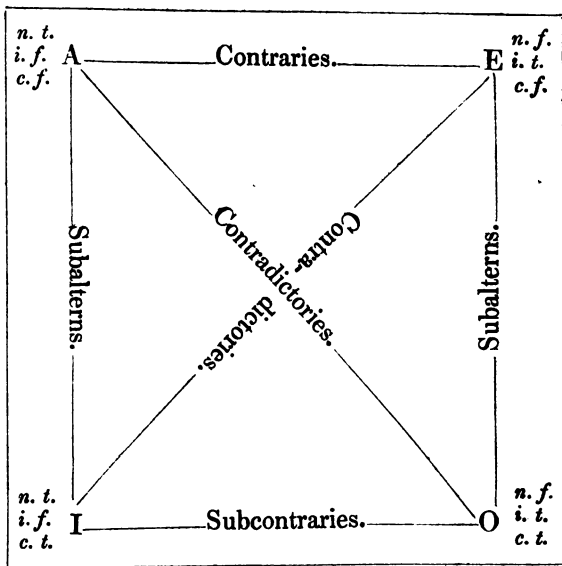
what is known^x by the matter, respecting their *real* connexion, then the proposition is a *true* one, and vice versa: thus, in *necessary* matter, it is known that the extremes *invariably* and *essentially* agree, consequently all *affirmatives* (which assert the agreement of their extremes) will be *true*: but *negatives*, which assert that they *disagree*, are of course *false*: the case is the same with respect to all the different kinds of matter. Hence the following rules will be self-evident:

In necessary matter,	{ Affirmatives,	true.
	{ Negatives,	false.
In impossible matter,	{ Affirmatives,	false.
	{ Negatives,	true.
In contingent matter,	{ Universals,	false.
	{ Particulars,	true.

The following scheme presents at one view Scheme of opposition. the different species of propositions, denoted by their respective symbols, A, E, I, O; the different kinds of *matter*, by the initial letters *n. i. c.*; and the *truth* or *falsehood* of the pro-

^x To discover the matter of any proposition cannot be effected by logic, but depends upon the science or system to which the subject matter of the proposition belongs; thus, "The planets are not stationary;" the extremes of this proposition are asserted to differ; and this assertion will evidently be true, if these extremes *really do* differ; this point, however, could not be discovered by logic; but rather from a knowledge of astronomy, to which science the subject matter belongs.

positions in each matter by the letters *t.* and *f.*
viz. true or false.



By an inspection of this scheme it will be manifest, that the *contraries* cannot be both *true* together, nor the *subcontraries* both *false*, with many other observations: and if the matter be known, the truth or falsehood of any proposition may be easily discovered.

General rules. N. B. (1.) If an *universal* be *true*^y, the *particular* contained under it will also be true: for

^y Thus if it be true that "All human institutions are liable to imperfection," it necessarily must be true that "Some human institutions are liable to imperfection." Again, if it be false

if the predicate may be asserted of the *whole* of the subject, of course it may be asserted of a *part* of it.

(2.) If a *particular* be *false*, the *universal* which contains it will be *false* also: for if the predicate cannot be asserted of a *part* of the subject, à fortiori it cannot be asserted of the *whole* of it; since the *whole* must contain that part.

If the universal be false², or the particular true, the *particular* to the one and *universal* to the other may be either true or false; and unless the matter be known, it cannot be discovered which they are. It would be useless to go through all the various proofs which Aldrich has given to show that A and E cannot be *true* together, but may be both *false*; that

that "Some vicious habits are worthy of receiving commendation," it will evidently be *false* to predicate of *all* vicious habits, that they are worthy of receiving commendation: for as the predicate cannot be said of a *part* of the subject, of course it cannot of the *whole* of it, since the term, "Some vicious habits" is contained under "All vicious habits."

² Let the universal be false, e. g. "All men are acquainted with the science of astronomy;" although the predicate cannot be asserted of the *whole* of the subject, it does not therefore follow that it may not be asserted of a *part* of it; as, "Some men are acquainted with the science of astronomy." In a similar manner it may be shown, that if the particular be true, it does not therefore necessarily follow that the universal must be so; for though the predicate may be asserted of a *part* of the subject, it does not necessarily follow that it may be asserted of the *whole* of it: the example just given will serve as an illustration.

I and O may be both *true*, but cannot be both *false* together, &c. ; for the conclusions are self-evident, and by a knowledge of the rules above given, relative to the truth or falsehood of propositions in the different kinds of matter, these deductions will be manifest.

SECTION V.

- Conversion.** A proposition is said to be converted when its extremes are transposed.
- Of two kinds.** There are two kinds of conversion^a generally used in logic, viz. *simple conversion* and *conversion per accidens*.

^a There is also another kind of conversion, which is not mentioned by Aldrich, but which is of use in logic ; this is called conversion *by contraposition* : Dr. Whately calls it, conversion *by negation* : it is effected by changing the *quality* of the proposition, viz. in the case of O, you may conceive the negative as a *part of the predicate* ; regarding the proposition as I, instead of O ; thus, though the terms are not strictly the *same* as before, yet the meaning of the proposition will not be altered : e. g. "Some men are not-logicians ;" here we may consider the predicate as "*not-logicians*," instead of "logicians," and the proposition will stand thus :

"Some men are not-logicians ;"

viz. "Some men are beings who are not-logicians."

And this proposition being I, may thus be simply converted ;

"Some beings who are not-logicians are men."

By this mode A may be simply converted, when reduced to the form of E, by introducing a double negative in the place of the affirmation ; the meaning of the proposition will not, of course, be altered by such a circumstance : "for," says Dr. Whately,

Simple conversion is the mere transposition of Simple. the extremes of a proposition, without any change of the quantity or quality; e. g. "No species of injustice is tolerable:" converted thus, "Nothing tolerable is a species of injustice." "Some works of art are of human invention," converted to "Some things of human invention are works of art."

Conversion *per accidens*, or (as Dr. Whately Per accidens more properly terms it) conversion *by limitation*, is when the extremes of the proposition are transposed, and the quantity is changed also^b; e. g. "All quadrupeds are animals," converted to, "Some animals are quadrupeds." "No tyrant

"it is the same thing to *affirm* some attribute of the subject, or to *deny* the *absence* of that attribute," e. g.

"Every act of prudence is an act of virtue."

This is exactly equivalent to

"No act of prudence is not an act of virtue."

This being E, may consequently be simply converted; therefore "That which is not an act of virtue, is not an act of prudence;" or, "No act but a virtuous one can be an act of prudence:" i. e.

"A virtuous act alone can be an act of prudence."

Thus by some one of the three modes of conversion, any proposition may be converted; viz. E, I may be converted *simply*, E, A *per accidens*, and A, O by contraposition.

The following lines have been formed by logicians, in order to assist the mind in remembering these rules of conversion.

F E c I simpliciter convertitur, E v A per acci.

F A x O per contra: sic fit conversio tota.

^b Accidental conversion depends upon the laws of subaltern opposition, in which it has before been shown, that if the universal be true, the particular will also be so; but if the universal be *false*, it does not necessarily follow that the particular must

deserves the love and esteem of his subjects," converted to, "Some person who deserves the love and esteem of his subjects is not a tyrant."

Illative
conversion.

The truth of a proposition is not in any way affected by logical conversion; hence if a proposition be true before conversion, it must be so after, viz. its *converse* must also be true; for "*conversio utrobique illativa est*." *Illative conversion* is, when the truth of the converse follows from that of the proposition which has been converted, or *exposita*, as it is termed; and all conversion, as used in logic, must be *illative*.

Rule for
illative con-
version.

Hence we may deduce the following general rule: viz. *No term must be distributed after conversion which was not distributed before it*; for in this case the term which was employed only *partially* in the *exposita*, has been used

be false: hence it is obvious, that if any universal be true, its *accidental converse* will also be true; but if *false*, the accidental converse *may be true*: e. g. if it be true that "No men are quadrupeds," it will also be true that "Some quadrupeds are not men;" but if it be *false*, that "No men are liable to death," it is not necessarily *false* that "Some beings liable to death are not men;" for this assertion is manifestly *true*. Hence it may be seen, that accidental conversion is not so *complete an inference* as simple conversion; for the simple converse of a proposition always follows the *accidental quality* of the *exposita*, viz. if the *exposita* be true or false, its simple converse is the same, (provided it be such a proposition as admits of being simply converted), but the *accidental converse* of a proposition does not follow the accidental quality of the *exposita*, unless the *exposita* be *true*.

^c Aldrich, chap. ii. § 5.

universally in the converse: and it has been proved above, (see last section, p. 67.) that the truth of an *universal* cannot be inferred from that of its *particular*.

From a consideration of this rule it will appear, that A and E may be converted *per accidens*, and E and I simply; and such conversion will be in all cases illative.

The following memorial line was formed in order to keep this circumstance in the student's remembrance:

F E c I simpliciter convertitur, E v A per acci.

viz. E and I are simply converted, E and A per accidens. In order that a proposition may be capable of being simply converted, it is necessary that its extremes should be of equal extent; i. e. that either they should be *both* distributed, as is the case in the universal negative, or *neither* distributed, as in the particular affirmative^d; for, let E be true; e. g. "No vice is commendable:" in this case both of the extremes differ *essentially* from each other; this proposition therefore denotes that *vice* differs from *any commendable*

^d If any proposition, in which *one* term only was distributed, were *simply* converted, it is manifest that, *after* conversion, the *other* term would be distributed; and since, by the hypothesis, this term could not have been distributed before, such conversion cannot be illative: hence it follows, that (unless under some accidental circumstances) neither A nor O can be simply converted.

thing; consequently, any thing that is commendable must differ from vice, or "No commendable thing is vice:" again, let I be true; e. g. "Some members of the university are good logicians." This proposition denotes the *partial* agreement of the two extremes; and since the terms *good logicians*, and *members of the university* agree, it follows that we can predicate of some *good logicians*, that they are *members of the university*: viz. "Some good logicians are members of the university;" or else the original proposition could not be true^e.

A and E per
accidens.

Let A be true, then I, its particular, must be true, and consequently the simple converse of I must be true; but this is the accidental converse of A: therefore A may be converted *per accidens*. That E may also be converted

^e Aldrich proves the simple converse of I to be true in a different manner, (chap. ii. § 5.) thus: if I be *true*, its contradictory (E) must be *false*; therefore the simple converse of that contradictory must also be *false*, consequently the contradictory to that simple converse must be *true*; but this is the simple converse of the original proposition (I) e. g.

I. "Some members of the university are good logicians:"
(true.)

E. "No members of the university are good logicians:"
(false.)

E. "No good logicians are members of the university:"
(also false.)

therefore, (I) "Some good logicians are members of the university," must be true, and this is the simple converse of the original proposition, "Some members of the university are good logicians."

per accidens is self-evident; for since the simple converse of E is true, the particular contained under this converse, must be true also: but this is the converse per accidens of the original proposition E.

O cannot be converted either *simply*^f or *per accidens*; for since only one term is distributed, a term would necessarily be distributed after conversion, which was not so before. O not convertible.

^f “As it was remarked that, in some affirmatives, the whole of the predicate does actually agree with the subject, so, when this is the case, and is granted to be so, A may be illatively converted simply; but this is an accidental circumstance.”—Elements of Logic.

On similar grounds it may be shown, that in *impossible matter*, O may be converted both *simply* and *accidentally*; for since the terms of the proposition must, by the matter, essentially and invariably differ, the universal which contains this particular must in such a case be true; and it has been shown, (see note b), that the *simple* and *accidental* converse of this proposition will both be true; and the *simple* and *accidental* converse of E will thus become the same as the *accidental* and *simple* converse of O: e. g. (let a case be taken in impossible matter;) let O be true. “Some men are not dogs;” then by the *matter*, “No men are dogs,” is true.

Therefore the simple and accidental converse {“No dogs are men.” } are also {“Some dogs are not men.” } both true. But the former of these is the *accidental* converse, and the latter is the *simple* converse of the *exposita*; viz. “Some men are not dogs.” Let the case be proved generally thus: let it be assumed that the matter is impossible, then “Some A is not B,” is true; but by the matter, “No A is B,” is true: hence “No B is A,” and “Some B is not A,” are also true. And these two last propositions are the *accidental* and *simple* converse of “Some A is not B.”

E

PART III. SECTION I.

Of argument. THE third part of logic treats of argument or syllogism, which is the sign of the third mental operation; for *discursus*, or reasoning expressed in words, is *argument*.

Premises. Reasoning (or discourse) having been defined to be the progress of the mind from one or more judgements to another resulting from them, consequently every decomplex word which expresses reasoning, must consist of two parts; that which is proved, and that by means of which it is proved. *That by means of which* any thing is proved is generally called the *antecedent* or *premises*^a; and that which *is proved* is called the *inference* or *conclusion*.

Connexion between the premises, The premises must have a connexion with each other; for if this were not the case, no conclusion could possibly result from them: e. g. "Jupiter was the king of the heathen gods;" "England is the mistress of the sea;" from two

^a The principles, from the truth of which the conclusion is drawn, are supposed to be known, "quasi sine discursu;" as Aldrich observes, (chap. iii. § 1.), at least they must be laid down as hypothetically true; i. e. they must "antecedere" or "præmitti;" for which reason they are termed the antecedent, or the premises.

The inference follows from the force of the premises; hence it is said to be *concluded*, *inferred*, *collected*, or *deduced* from them.

such judgements nothing could be inferred, for there is no connexion existing between them, and they do not in any way depend upon each other: also there must be such a relation between the two premises and the conclusion, that, from a knowledge of the former, the mind must be irresistibly led to the latter.

and between
the premises
and conclu-
sion.

Consequence, as employed in logic, is the mode of showing the dependence which exists between the antecedent and the consequent; i. e. between the premises and the conclusion: there are two kinds of consequence, the *material* and the *formal*.

Consequence.

The *material* consequence^b is when the con-

Material
consequence.

^b Every *material* argument may be reduced to a regular syllogism by supplying the proposition which is omitted; e. g. (to take the example given below), "Diamonds are jewels;" "they are therefore valuable;" in this case a proposition is omitted, the truth of which is so manifest, that it would, in common discourse, be very allowable to leave it to the hearer's judgment; viz. "All jewels are valuable;" the argument, when put into a syllogism, i. e. when reduced to its regular logical form, will stand thus:

"All jewels are valuable;"

"All diamonds are jewels:"

therefore, "All diamonds are valuable."

This reduction may seem unnecessary, because it may be urged, that under its other form the inference was sufficiently obvious; but yet it will be of advantage to reduce any material argument to a syllogistic form, because any error may then be more easily detected; for an argument which cannot be reduced to the above regular and logical form, cannot be legitimate. Just in the same way it is often of use to fill up the ellipses in a sentence, in order to see whether that sentence be grammatical.

sequent is inferred from the antecedent solely by the *matter* of the argument ; i. e. by the *force* or *meaning attached to the terms*: e. g. "Diamonds are jewels ; they are therefore valuable." "No brutes are human ; consequently they are not rational." "Some pleasures are allowable, for they are innocent."

Formal consequence.

The *formal* consequence is when the consequent is inferred from the antecedent, from the *form only of the expression* ; viz. from the disposition of the terms with respect to each other : e. g.

"All virtue is commendable ;"

"Temperance is a virtue :"

therefore, "Temperance is commendable."

"All innocent things are allowable ;"

"Some pleasures are innocent :"

therefore, "Some pleasures are allowable."

The *formal* consequence alone is regarded in logic ; for since it depends solely on the *disposition of the terms* with each other, it cannot ever fail ; but the *material*, which depends only on the *meaning of the terms*, may frequently lead into error^c.

^c For, as Aldrich observes, (chap. iii. § 1.), "Mutatis terminis, et servatâ eorum dispositione, Materialis plerumque fallit, Formalis semper obtinet." Since the material consequence depends entirely upon the power or meaning of the terms, if these terms be changed, the consequence will not hold good, at least it will not result *necessarily* ; but in the formal consequence the inference *does result necessarily* ; and this will stand good, even though the terms be changed, if their *order* be preserved ; and although a conclusion may be *false*, if the terms be changed, yet

A syllogism is an argument in which the terms Syllogism. are so placed with respect to each other, that the conclusion results necessarily from the premises, from the mere *force of the expression*, and without any consideration of the *meaning* of the terms themselves.

Aldrich^d has defined a syllogism to be "*oratio, in qua positis quibusdam atque concessis, necesse est aliud evenire, præter et propter^e ea, quæ posita sunt atque concessa.*" In a syllogism, the truth of the premises being admitted, it will be impossible to deny the conclusion: and even if the terms be changed, the inference will still hold good; e. g. Syllogism defined.

"All islands are surrounded by water;"

"England is an island:"

therefore, "England is surrounded by water."

The truth of this conclusion is so apparent, that it needs not a proof; for the mind, when once convinced of the truth of the two premises, cannot but admit that of the conclusion also; and this inference would be equally apparent, even if the terms were changed, and any symbols were

this circumstance will arise from the falsity of one of the premises, and not from the *mode* of inference; i. e. not from the *force of expression*, which alone is regarded in logic.

^d See Aldrich, chap. iii. § 1.

* "Præter" means that the conclusion must be *distinct* from the premises, and the word "propter" signifies that the conclusion necessarily results by the force of those premises.

substituted in their place, provided that the arrangement of the terms be preserved; e. g.

Every B is A;
Every C is B:
therefore, Every C is A.

This inference is inevitable^f, whatever terms be substituted for the letters A, B, C; and it is to this form that all real arguments may be ultimately reduced, and on their conformity or non-conformity to it *their validity will invariably depend*.

SECTION II.

Of the simple
categorical
syllogism.

There are many kinds of syllogism; but, at present, the simple categorical will be the only one treated of: the *simple categorical* syllogism is that which consists of three pure categorical propositions: the two first of which are termed the *premises*, or *antecedent*, and the third is called the *conclusion*, or *consequent*^g. The

^f The premises must either be known to be true, or be proved to be so, before any inference can be drawn from them. Logic undertakes to ascertain the validity of an argument, only so far as the *form of expression* is concerned. The premises, therefore, (in all the examples which may be adduced in this treatise), will be considered as hypothetically true, unless where the contrary is particularly specified.

^g The conclusion or consequent is frequently, in common conversation, stated *before* the premises; this may also be observed in most authors: in such a case the antecedent is connected

conclusion, before it forms a part of the syllogism, and therefore has not been proved, is called the *question* or *problem*, because its truth is as yet uncertain: but after it has been proved, and forms a part of the syllogism, it is no longer uncertain, and is then termed the conclusion: e. g.

Question or Problem.	}	" Is George the Fourth to be obeyed?"
Antecedent or Premises.		
	}	" All good kings are to be obeyed ;"
		" George the Fourth is a good king :"
Conclusion. . .		" George the Fourth is to be obeyed."

The object of a syllogism is, to prove whether the two extremes of the question agree or disagree with each other; and this cannot be done, Object of a syllogism.

to the consequent by some *causal* conjunction, as, *because, for, since, &c.*: e. g. " Blessed are the poor in spirit, *for* theirs is the kingdom of heaven." " The proof which arises from this perception is not to be deemed occult or imaginary, *because* it is incapable of being drawn out in words, or of being conveyed to the apprehension of the reader in any other way than by sending him to the books themselves." [Horæ Paulinæ, ch. xvi. § 5.] This sentence may thus be reduced to a regular syllogistic form:

" A proof which is not capable of being drawn out in words, or of being conveyed to the apprehension of the reader in any other way than by sending him to the books themselves, is not to be deemed occult or imaginary ;"

" The proof which arises from this perception is a proof of this kind :"

Therefore, " The proof which arises from this perception, is not to be deemed occult or imaginary."

but by comparing *each* of them with *some one* and *the same* third term. The following rules are those which are laid down in Aldrich's Logic^h as the syllogistic canons; viz. those canons on which the whole force of syllogistic reasoning is founded.

Syllogistic
canons.

1. *Quæ conveniunt in uno aliquo eodemque tertio, ea conveniuntⁱ inter se.*

2. *Quorum unum convenit, alterum differt uni et eidem tertio, ea differunt inter se: e. g.*

"All men are liable to do wrong;"

(1.) "I am a man:"

therefore, "I am liable to do wrong."

Again :

"No science can be learned without application;"

(2.) "Logic is a science:"

therefore, "Logic cannot be learned without application."

3. *Quæ non conveniunt in uno aliquo eodemque tertio, ea non conveniunt inter se.*

If there be two terms, such that no third term *can* be brought forward which may agree with *both of them*, they evidently cannot have any

^h Chap. iii. § 2.

ⁱ Two terms are said to *agree* with each other, when nothing exists in the one that does not also exist in the other, regard, of course, being paid to the *extent* in which the terms are used: the agreement or disagreement of terms, when expressed in logical propositions, is not *contingent*, but *absolute*: the different *degrees* of their agreement or disagreement not being regarded in syllogism: thus, "Some men are philosophers." Although both these terms are undistributed, yet their agreement is asserted *absolutely* in the proposition, and not *contingently*.

thing in common with each other; it will therefore be impossible to *prove* that they agree^k.

4. *Quorum neutri inest quod non sit in alio, ea non differunt inter se.*

If there be any two terms which so exactly agree with each other, that there is not any idea comprised in the *one* which is not *also* comprised in the *other*, it will be impossible to prove that these two terms differ from each other; for manifestly no third term could be adduced with which *one* of these terms would agree, and from which the *other* could differ^l.

5. *Quæ non probantur convenire in uno aliquo eodemque tertio, ea non probantur convenire inter se. Dubitari enim potest utrum detur ejusmodi tertium, et dubitatio ista non tollitur.*

6. *De quibus non probatur, convenire unum eidem alicui tertio, cui alterum differt, ea non probantur differre inter se. Dubitari enim potest, utrum detur ejusmodi tertium, h. e. utrum*

^k Thus, let there be two terms, "Men" and "Plants;" and since no third term can be adduced which will agree with both these terms, it will consequently be impossible to prove their agreement; i. e. to prove that "Men are plants."

^l Again, let there be the two terms, "animal," and "sensitive being:" there is not any idea comprised in the one which is not also comprised in the other; therefore they must entirely agree with each other, for in this case no third term could be adduced with which *one* of these terms would agree, and from which the *other* could differ.

alterutri insit quod non est in reliquo; et dubitatio ista non tollitur.

No two terms can be proved to agree or differ, unless by comparing them with some one and the same third term: if, therefore, no third term be adduced with which they are proved either both to agree, or one to agree with and the other to differ from, it is not proved whether they agree with or differ from each other: for since no third term has been used to compare them with, there remains a doubt whether any such term can *possibly* be adduced^m; and until this doubt be removed, their agreement or disagreement with each other cannot possibly be inferred.

It is upon the two first of these rules that the validity of all simple categorical syllogisms depends: they may thus be rendered in English:

The two chief canons.

1. *If any two terms agree with one and the same third term, they agree with each other.*

2. *If of two terms one agrees with one and the*

^m The categories which have been mentioned above, [see p. 31, note h], "will serve (as Dr. Whately observes) the purpose of marking out certain tracks, as it were, which are to be pursued in searching for middle terms in each argument respectively; it being essential that we should generalize on a right principle, with a view to the question before us; or, in other words, that we should abstract that portion of any object presented to the mind which is important to the argument in hand."—Elements of Logic.

same third term from which the other differs, these two terms differ from each other.

It is upon the former of these that the validity of all *affirmative* conclusions depends, and on the latter, of all *negative*: of these rules Dr. Whately speaks thus: "No categorical syllogism can be faulty which does not violate these canons; none correct which does: hence on these two canons are built the rules or cautions which are to be observed with respect to syllogisms, for the purpose of ascertaining whether those canons have been strictly observed, or not."

SECTION III.

Rule 1. *In every syllogism there are three terms, and three only.* Three terms in a syllogism.

For every syllogism proves some conclusion, viz. proves the agreement or disagreement of two terms; and these two terms are not proved to agree or differ, unless by comparing them with *some one* and *the same* third term: the two terms, therefore, and the third, make three; hence no syllogism can have more than three terms. The following sentence, therefore, is not a syllogism:

√ "Hector slew Patroclus;"
 "Achilles slew Hector:"
 "Achilles slew Patroclus."

In this apparent syllogism there are four termsⁿ; which are as follows: "Hector;" "the person who slew Patroclus;" "Achilles;" and "the person who slew Hector."

Major, minor,
and middle
terms.

N. B. Of these three terms, the predicate of the conclusion is called the *major term*; and the subject of the conclusion is called the *minor term*; the *third* term, with which the *major* and *minor* terms are each separately compared, is called the *middle*: this term is called by Aristotle the *argument*. These names were assigned, because in an universal affirmative proposition, the predicate is commonly a more extensive term than the subject: whence arose the names of *major* and *minor*; so also the middle term is commonly in direct syllogisms (as will be seen hereafter) more extensive than the *minor*, but not so extensive as the *major*: whence it received the name of *middle*.

Three propo-
sitions in a
syllogism.

Rule 2. *In every syllogism there are three propositions, and only three^o.*

ⁿ If the terms of these propositions were written at full length, the utter want of connexion between the two premises would be more apparent:

"Hector was the person who slew Patroclus:"

"Achilles was the person who slew Hector."

These two propositions have no connexion with each other, but are two distinct and wholly unconnected assertions; consequently no inference could be deduced from them.

^o As there are but *three* terms which are to be compared together, i. e. the major, minor, and middle, it is manifest, that

For there are *two premises* in which the *major* and *minor* terms are each separately compared with the middle, and there is the *conclusion*, in which the major and minor terms are compared with each other: and the *two* premises with the conclusion make *three* propositions.

N. B. That premiss in which the major term is compared with the middle, is called the *major premiss*; and that in which the minor is compared with the middle, is called the *minor premiss*.

N. B. (1.) The major premiss is sometimes termed "the proposition^p," and the minor is called "the assumption." The proposition and assumption.

only *three* comparative combinations can be made of *three* terms taken two and two together; viz. the major with the middle, the minor with the middle, and the minor with the major: and since no two terms can be compared but by a proposition, hence there cannot be more than *three* propositions in a syllogism.

^p The major premiss is called "the proposition," by way of eminence, because when a syllogism is in its most perfect form, the major premiss is generally some well-known and universal principle which is not likely to be disputed; it is the *minor* premiss that is most liable to objection, because, generally speaking, it is an assertion, the truth of which is *assumed*, with particular reference to the question which is to be proved, hence the name "assumption;" e. g.

"All islands are surrounded by water;"

"England is an island:"

therefore, "England is surrounded by water."

In this example, the major premiss, "All islands are surrounded by water," is a well-known general truth; whereas "England is an island" is not a universal principle, as the major is, though *accidentally* it may be as well known; but yet,

(2.) The *middle term* must not enter the *conclusion*, for, in such a case, there would not be any inference drawn, since the two extremes of the question would not have been compared together: in fact, the last proposition would be but a conversion of one of the others; e. g.

“ No good logicians resort to sophistical arguments;”

“ All who are acquainted with the science of reasoning accurately are good logicians:”

therefore, “ None who resort to sophistical arguments are good logicians.”

This is not a syllogism, for no inference is made; the conclusion being but the simple converse of the first proposition, the truth of which in no way depends upon that proposition which apparently is the minor premiss⁹.

Ambiguous
middle.

Rule 3. *The middle term must not be ambiguous.*

The middle term being *ambiguous*, means that it must not be an *equivocal* term, which would admit of two meanings; for since in such a case the term would be employed in two dif-

in order to prove that “ England is surrounded by water,” it must be *assumed* that “ it is an island.”

⁹ Aldrich observes, (chap. iii. § 3.), “ Medium non ingredi-tur conclusionem, alias idem per idem probaretur; *adeoque non essent tres termini.*” I cannot see how the fact of the middle term being in the conclusion can affect the *number* of the terms, for surely in the *two premises alone* there are always *three* terms. There would be what is commonly termed “ argumentum in circulo;” but would this have any influence on the *number* of the terms?

ferent senses in the premises, the extremes of the question would not be really compared with *one and the same* third term; there would, in fact, be *two* distinct middle terms, viz. there would be *four terms*^r employed: e. g.

“ All spirits are inflammable;”

“ A ghost is a spirit:”

therefore, “ A ghost is inflammable.”

The word “ spirit ” is here evidently used in a different sense in each proposition, consequently the two extremes of the conclusion are not compared with the *same* third term.

Rule 4. *The middle term must be distributed:*

For if the middle term be not distributed in either of the premises, the extremes of the conclusion will be compared with it, when employed only in *a part* of its signification; consequently,

Middle not distributed.

^r This rule is evidently but a branch of the first; for an ambiguity of the middle will, in all cases, be equivalent to employing *two* middle terms; and thus the extremes would not be compared with *one and the same* third, which, as was before shown, is necessary to be done: all equivocal words will produce this kind of ambiguity; e. g.

“ A club is a society of men;”

“ A thick stick is a club:”

therefore, “ A thick stick is a society of men.”

Again:—The following apparent argument contains four terms, because of the ambiguity of the middle.

“ That which peculiarly characterizes man from any other animal, is the faculty which he possesses of roasting eggs; for the peculiar characteristic of man is *reason*, and there is *reason* in roasting eggs.”

since the two terms are each compared with *a part* of the middle, there is no reason for knowing that they have been each compared with the *same* part; hence one of the extremes may have been compared with *one part* of the middle, and the other with *another* part of it; e. g.

“Lead is a metal;”

“Gold is a metal:”

therefore, “Gold is lead.”—Again:

“Some quadrupeds are winged;”

“A horse is a quadruped:”

therefore, “A horse is winged.”

In these examples the middle term is not *distributed*, and there are therefore, in reality, *four* terms.

One distribu-
tion of the
middle is
sufficient.

Rule 5. *If the middle term be once distributed, it will be sufficient.*

For if one extreme has been compared with the *whole* of the middle, and the other with a *part* of it, they will, in reality, have been compared with the *same term*^s; e. g.

* The first canon is, that when two terms both agree with *one* and *the same* third term, they agree with each other: now this cannot be shown to be the case, unless that third term be *once* taken in its most extensive signification; for if one extreme agrees with *all* the middle, and the other with a *part* of it, they do in fact agree with the *same term*, and therefore agree with each other: and this may be shown by the following argument, which will be *true*, provided it be admitted that *the same part* of the middle is compared with both extremes; e. g.

“All metals are fusible;”

“Lead is fusible:”

therefore, “Lead is a metal.”

" All valuable knowledge is worth obtaining ;"

" A correct knowledge of logic is valuable knowledge :"
therefore, " A correct knowledge of logic is worth obtaining."

In this case, since one of the extremes agrees with the *whole* of the middle, and the other with a *part* of it, they both must entirely agree with *that part* of the middle ; and they therefore do, in reality, both agree with one and the same third term[†].

Rule 6. *A term must not be distributed in the conclusion which has not been distributed in the premises.*

This is termed an *illicit process* of the major Illicit process.

Now if it be granted, that the two extremes, " metals," and " lead," are compared to the third term " fusible," and to the *same part* of it, then this consequence may be *materially* inferred ; but this cannot be *proved*, unless the middle be *once* taken in its most extensive sense, in which case it will be manifest, that the *same part* will have been compared with *both* of the extremes, and *this part* of the middle may be considered as *one single term*, with which both the extremes have been compared ; the case is similar where one extreme agrees with the *same part* of the middle from which the other differs ; e. g.

" Some men are not sophists ;"

" Some men are good logicians :"

therefore, " Some good logicians are not sophists."

In this case the inference will be *materially true*, if it be admitted that the *same class of men* is meant in both premises ; but, as before, this cannot be *proved*, unless the middle term be *once distributed* : hence the above arguments are incorrect in form, though true in sense, i. e. *materially*.

[†] In all perfect arguments, the middle term ought not to be more than once distributed ; this will appear more evidently hereafter.

or minor term : and to employ a term universally in the conclusion, which was only *partially* employed in the premiss, must, of course, be erroneous ; for the universal cannot be inferred from the particular : in fact, (as Dr. Whately observes,) there would be four terms ; e. g.

“ Every virtuous act is worthy of commendation ;”

“ Profane swearing is not a virtuous act :”

therefore, “ Profane swearing is not worthy of commendation.”

This conclusion could not be inferred from such premises, for the major term is illicitly distributed ; and though the proposition may be true, yet its truth cannot be inferred from the premises : there are, in fact, *two major terms*^a instead of one ; viz. “ *Some acts worthy of commendation,*” and “ *All acts worthy of commendation.*”

Again :

“ All countries surrounded by sea are insular ;”

“ Some barren lands are countries surrounded by sea :”

therefore, “ All barren lands are insular.”

Here is an illicit process of the minor ; the

^a This rule, as well as the two preceding, may be considered as branches of the *first* ; viz. that in every syllogism there must not be more than *three terms* : for an *undistributed* term and the same *distributed*, cannot be called *one term* : besides, to draw an inference from any term *partially* employed to the same term employed *universally*, is the same thing as inferring the universal from the truth of the particular, which is illicit, as has been shown above, (Part ii. § 4.), for a distributed term bears the same proportion to the same undistributed, as the universal to its particular.

argument is therefore false, for the same reasons as the preceding.

Rule 7. *No inference can be drawn from negative premises.* Negative premises.

For in this case a middle term is brought forward, from which both extremes differ; and this fact does not afford any grounds for inferring that these two terms either agree with, or differ from each other^x; e. g.

“ No real Christians are hateful to God ;”

“ A Mahometan is not a real Christian.”

No conclusion can be drawn from such premises; the extremes may either agree or differ, but these premises will not prove their agreement or disagreement.

Rule 8. *If one premiss be negative, the conclusion must be negative.* If one premiss be negative, the conclusion must be negative.

For since one premiss be negative, the other must (by the last rule) be affirmative; consequently one of the extremes agrees with the middle, and the other disagrees with it: hence it must be inferred that they differ from each other, and this disagreement cannot be expressed

^x Let any two terms both *differ* from another third, these terms cannot be said to *agree* together; for, if so, they would both *agree* with the third: neither can it be inferred that they *differ* from each other; for in such a case, one would agree with the third term, and the other differ from it; and both these cases are contrary to the hypothesis.

but by negation; i. e. the conclusion must be *negative*¹; e. g.

“ No species of injustice is tolerable ;”

“ An unjust law is a species of injustice :”

therefore, “ An unjust law is not tolerable.”

If the conclusion be negative, one premiss must be so.

Rule 9. *If the conclusion be negative, one of the premisses must be negative.*

Since the conclusion is *negative*, the extremes differ from each other; consequently one of them must have differed from the middle, and this disagreement must have been expressed by a negative premiss²; e. g.

¹ It should be remembered, that affirmative propositions assert the agreement, and negatives the disagreement, of their extremes: and since, in this case, one of the premisses is negative and the other affirmative, one of the extremes is asserted to agree with the middle, and the other to differ from it; consequently it must be inferred that they differ from each, and this cannot be expressed but by a negative conclusion.

² It was before observed, (Part II. Sect. II.), that many propositions were apparently negative when they were not so; this is the case when the negative does not really apply to the copula, but is, in fact, a part of one of the extremes: with such propositions a syllogism may seem to err against these three last rules, though in reality it will be correct; e. g.

“ Those who are not dishonest deserve our esteem ;”

“ The virtuous man is not dishonest :”

therefore, “ The virtuous man deserves our esteem.”

Here one of the premisses may seem to be negative; whereas they are, in fact, both affirmatives, and the syllogism is perfectly correct. Again,

“ He who does not understand optics is not a complete mathematician ;”

“ Many who read mathematics do not understand optics :”

therefore, “ Many who read mathematics are not complete mathematicians.”

“ No men of generous hearts remember injuries ;”

“ Englishmen are men of generous hearts :”

therefore, “ Englishmen do not remember injuries.”

Rule 10. *No inference can be drawn from particular premises.* Particular premises.

For one of the premises must be negative, in order that the middle may be distributed; consequently the other premiss must (by Rule 7.) be affirmative: in these premises, therefore, only one term is distributed, which must be the middle: but since (owing to the negative premiss) the conclusion must be *negative*, the major term will be distributed in the conclusion, which was not distributed in the premises; consequently there will be an *illicit process* of the major^a; e. g.

In this case, as before, the minor premiss appears to be negative, though in reality it is affirmative; hence, in looking for negative premises, we must see whether the premises are really negative, or only apparently such; in which latter case they may be likely to lead into error.

^a This rule, with respect to particular premises, is only a branch of some preceding ones: thus, if the premises were both *particularly affirmative*, they would err against the fourth rule, for the middle term would not be distributed; e. g.

“ Some sciences are worth knowing ;”

“ Some arts are worth knowing :”

therefore, “ Some arts are sciences.”

Here the middle being undistributed, no conclusion can correctly be drawn. Again,

“ Some men are not good logicians ;”

“ Some sophists are not good logicians.”

From such premises no inference can be drawn (by Rule 7.), for they are both negative:—again, if these premises be taken,

“ Some brave men are not good officers ;”
 “ Some Englishmen are good officers :”
therefore, “ Some Englishmen are not brave men.”

In this example there is an illicit process of the major term.

If one premiss
 be particular,
 the conclu-
 sion must be
 so.

Rule 11. *If one of the premises be particular, the conclusion must be particular.*

The fault of drawing an universal conclusion, when one of the premises is particular, will be an illicit process of the minor term, as will be evident from the three following examples ^b :

“ All useful learning is praiseworthy ;”
 “ Some poetry is not praiseworthy :”
therefore, “ No poetry is useful learning.”—Again,

one negative and the other affirmative, there would be an illicit process of the major, as is shown in the text: hence, in all cases of particular premises, there must be a violation of either Rules 4, 6, or 7.

^b Three classes of premises may be formed, of which *one* is particular, viz. AI, EI, and AO, (for EO cannot be correct by Rule 7.) In the first case, it is manifest, that only one term will be distributed, which must be the middle: hence no term must be distributed in the conclusion; therefore the conclusion must be *particular* affirmative. Again, in the second case (viz. EI) two terms are distributed, whereof one must be the middle; therefore *one* only must be distributed in the conclusion: but the conclusion must be negative, (because of the negative premiss), and, in order to distribute but one term, it must be *particular* negative. The last case (viz. AO) may be proved exactly in the same way as the second, and the conclusion in this case also must be a *particular* negative. This eleventh rule, therefore, is but a branch of the sixth: for if an universal conclusion be drawn from one particular premiss, there will be an illicit process of the minor.

“ All meteors are vapours ;”

“ Some luminous bodies are vapours :”

therefore, “ All luminous bodies are meteors.”—Again,

“ No works of human invention are perfect ;”

“ Some machines are works of human invention :”

therefore, “ No machines are perfect.”

Rule 12. *A particular conclusion may be drawn from universal premises.*

A particular conclusion from universal premises.

Whenever an universal conclusion can be drawn from universal premises, it will of course be allowable to infer a *particular*; for the truth of the particular may be inferred from that of the universal: but it will not, in all cases, be possible to infer an universal conclusion from two universal premises, and in such a case the conclusion must be particular; e. g.

“ No branch of useful knowledge is attainable without some labour ;”

“ Every branch of useful knowledge is worthy of being attained :”

therefore, “ Something which is worthy of being attained is not attainable without some labour.”

In this instance, if the conclusion were inferred universally, it is manifest that there would be an illicit process of the minor term^c.

^c These twelve rules are wholly founded upon the two first syllogistic canons; consequently recourse must be had to these canons, in order to prove any one of them; and when any violation of these rules takes place, there is not, in reality, any comparison made of the two extremes with *one* and the *same* third term, with which they both agree, or with which one agrees, and from which the other differs.

On the nameless moods.

An universal conclusion should always be inferred from universal premises, provided it be possible, without an illicit process; for although the particular conclusion must be true, if the universal is, yet the truth of the particular does not immediately result from the force of the premises, but rather from the truth of the universal: hence such form of inference is inaccurate, though not false^d.

The above twelve rules are comprised in the following four lines, in order to assist the memory:

“Distribuas medium; nec quartus terminus adsit:”

“Utraque nec præmissa negans, nec particularis:”

“Sectetur partem conclusio deteriolem:”

“Et non distribuât, nisi cum præmissa, negetve.”^e

It is obvious that the number of these rules may be very much lessened; e. g. the third,

^d The following syllogisms are therefore inaccurate, though not strictly incorrect:

“All works of art are of human invention;”

“All machines are works of art:”

therefore, “Some machines are of human invention.”

Again: “All crocodiles are amphibious animals;”

“No horses are amphibious animals:”

therefore, “Some horses are not crocodiles.”

Again: “All virtuous acts are the deeds of good men;”

“The deeds of good men are not wicked deeds:”

therefore, “Some wicked deeds are not virtuous acts.”

In the above syllogisms the conclusion ought to be universally drawn; the particular conclusions are therefore inaccurate, though not faulty.

^e See Aldrich, chap. iii. § 3.

fourth, fifth, and sixth, are contained under the first: so that these rules may all be comprised under the five following:

1. *There must not be more than three terms in any syllogism.* This rule includes Rules 1, 3, 4, 5, 6, 10, and 11.

2. *In every syllogism there are but three propositions.*

3. *The premises must not be both negative.*

4. *If one premiss be negative, the conclusion must be so, and vice versâ.* This includes Rules 8 and 9.

5. *A particular conclusion may be deduced from universal premises^f.*

SECTION IV.

By the above-mentioned rules, it may be determined how many moods may be formed by means of the four propositions A, E, I, O, so as to be useful for syllogism.

^f In examining a syllogism, in order to see whether it be correct or not, we must apply to these twelve rules, for no syllogism can, *in form*, be incorrect, which does not violate any one of these. The following order will perhaps be found to be the most convenient for applying them. (1.) Count the terms and propositions. (2.) Look to the distribution of the middle. (3.) Illicit processes. (4.) Apply the three rules concerning negatives, viz. Rules 7, 8, and 9. Lastly, see whether the conclusion is particular, when the universal might have been inferred according to Rule 12.

F

A *mood* is defined to be “legitima determinatio propositionum secundum quantitatem et qualitatem^s.” When the three propositions of a syllogism are designated in their proper order, according to their *quantity* and *quality*, this is declaring the *mood* of the syllogism; e. g.

“Every bad habit should be avoided;”

“Nothing that should be avoided is commendable:”
therefore, “No commendable thing is a bad habit.”

This syllogism is said to be in the *mood* AEE.

The number
of moods.

As there are four propositions which are used in syllogism, viz. A, E, I, O, and as any *three* of these, when combined, form a mood, it may thus be proved, that the whole number of permutations, which can possibly be formed, will be *sixty-four*^h: for each of these four propositions may be used as a major premiss, and each of

^s See Aldrich, chap. iii. § 4.

^h This is nothing more than a mere arithmetical calculation; for the number of permutations which can be formed of any four things taken three and three together, is $4 \times 4 \times 4 = 64$. The following is a list of all the moods:

AAA*, AAE, AAI*, AAO. AEA, AEE*, AEI, AEO*. AIA, AIE, AII*, AIO. AOA, AOE, AOI, AOO*.

EAA, EAE*, EAI, EAO*. EEA, EEE, EEI, EEO. EIA, EIE, EII, EIO*. EOA, EOE, EOI, EOO.

IAA, IAE, IAI*, IA O. IEA, IEE, IEI, IEO. IIA, IIE, III, IIO. IOA, IOE, IOI, IOO.

OAA, OAE, OAI, OAO*. OEA, OEE, OEI, OEO. OIA, OIE, OII, OIO. OOA, OOE, OOI, OOO. Those moods which do not violate any of the twelve rules, and which consequently are useful for syllogism, are marked with an asterisk.

these major premises will admit of four different minors, (viz. A, E, I, or O,) therefore there may be formed four times four, or sixteen pairs of premises: so also every pair of premises may have four different conclusions, (viz. A, E, I, or O,) therefore the number of moods which can possibly be formed from the four different propositions, will be four times sixteen, or sixty-four.

Of all these sixty-four moods, it is manifest that *many*, in fact the greater part, will err against some one or more of the above-mentioned rules¹; e. g. AAO, which errs against the ninth, and OOE, which violates the sixth, seventh, tenth, and eleventh; and by an examination of all the moods, it will be found that out of the sixty-four, there will remain but eleven which will be useful for syllogism, viz. AAA, AAI, AEE, AEO, AII, AOO, EAE, EAO, EIO, IAI, OAO. Aldrich has given IEO, as one of the moods,

How many
useful for syl-
logism.

¹ By Rule 7. Sixteen are excluded, for having both premises negative.

By Rule 8. Twelve are excluded, for having *affirmative* conclusions, with a negative premiss.

By Rule 9. Four are excluded, for having *negative* conclusions, without any negative premiss.

By Rule 10. Twelve are excluded, for having both premises particular.

By Rule 11. Eight are excluded, for having universal conclusions, with a particular premiss.

There is also one excluded by the sixth rule, for having an illicit process of the major term, viz. IEO. [See the end of this section.]

“ ad syllogismum utiles^k :” “ which can be used in a legitimate syllogism :” but this mood must be necessarily and essentially faulty, and never *can* be used in any legitimate syllogism ; for the major term will be distributed in the negative conclusion, which was *not* distributed in the major premiss, which is a particular affirmative, and does not distribute any term ; consequently, with such a mood as IEO, there must in all cases be an illicit process of the major¹.

SECTION V.

The figure of a syllogism.

The figure of a syllogism depends upon the situation of the middle term, with reference to the extremes of the question ; (i. e. *the major and the minor terms.*)

Four figures.

There are only *four* figures ; for since there are but three terms to be compared together in a syllogism, and the middle term is confined to

^k See Aldrich, chap. iii. § 4.

¹ Thus the following argument is incorrect :—

√ “ Some learned men are much addicted to prejudice ;”
 “ None who are much addicted to prejudice are men
 of powerful minds :”

therefore, “ Some men of powerful minds are not learned :”
 for in this apparent syllogism, there is an illicit process of the major term, “ learned :” and this must be the case, however the order of the terms of the argument be changed, viz. in every figure ; hence this mood is necessarily and essentially incorrect.

the premises, it is manifest, that the middle could not be placed in more than *four* different situations with respect to the major and minor terms.

In the *first* figure, the middle term is the First figure. *subject* of the major premiss, and the *predicate* of the minor.

In the *second* figure, the middle term is the Second figure. *predicate* of both premises.

In the *third* figure, the middle term is the Third figure. *subject* of both premises.

In the *fourth* figure, the middle term is the Fourth figure. *predicate* of the major premiss, and the *subject* of the minor^m.

It is to be remembered, that, of the premises, Order of the premises. the major premiss ought properly to be placed *first*, and the minor *second*; for otherwise the

^m For the sake of illustrating the different positions of the middle term, with respect to the extremes, the following syllogism is given with its terms disposed according to all the figures.

1st Fig. "No sophists are logicians;"
 "Some men are sophists:"
 "Some men are not logicians."

2nd Fig. "No logicians are sophists;"
 "Some men are sophists:"
 "Some men are not logicians."

✓ 3rd Fig. "No sophists are logicians;"
 "Some sophists are men:"
 "Some men are not logicians."

✓ 4th Fig. "No logicians are sophists;"
 "Some sophists are men:"
 "Some men are not logicians."

first figure might appear to be the *fourth*, and the *fourth* might be taken for the *first*. The major premiss is that in which the major term is compared with the middle, wherever it happens to be placed; so the minor is that which contains the minor term, whether it comes *first* or *second*.

Scheme of
the figures.

The following scheme presents, at one view, the four different figures; in which A represents the major term, C the minor, and B the middle:

1st Fig.	2nd Fig.	3rd Fig.	4th Fig.
B, A.	A, B.	B, A.	A, B.
C, B.	C, B.	B, C.	B, C.
C, A.	C, A.	C, A.	C, A.

In this scheme, the terms of the propositions are only denoted, without stating their *quantity* or *quality*ⁿ.

Each figure
contains six
moods.

Of these figures, each contains six moods, which will not violate any of the twelve rules given above: it is obvious, therefore, that the same mood must be allowable in different figures; e. g. IAI, and AAI, in the *third* and *fourth* figures, and EAE, EIO, in the *first* and *second*, with many others, so also it may be found, by examination, that a mood, which will be allowable in one figure, will violate some rule if used

ⁿ By means of this scheme, it will be easy to discover in what figure any syllogism may be, as well as to make a syllogism in any particular figure, by determining the quantity and quality of the different propositions, and by taking care not to violate any one of the twelve rules given in the last section.

in another; thus AAA is allowable in the *first* figure, but if it were used in the *third* or *fourth*, the result would be an illicit process of the minor°. Although each figure admits of six Nameless moods. moods, yet several of these are useless, inasmuch as their conclusions are *particular*, when the universal might have been inferred: e. g. EAO, in the *first* figure.

“ Nothing which belongs to man is perfect;”

“ Every art is that which belongs to man :”

hence, “ *Some art is not perfect.*”

Here an universal conclusion might have been inferred; therefore the particular (though valid) is *useless* and *inaccurate*. Of these moods there are five in number, out of the twenty-four, which may be used in all the figures; for the nineteen, which remain, (excluding these five,) certain names have been formed by logicians, which serve to denote the mood and figure; for, as it was before observed, the same mood (without

° Thus, in the third figure :

“ All felons are thieves;”

“ All felons are amenable to the law :”

therefore, “ All who are amenable to the law are thieves.”

Again, in the fourth figure :

“ All thieves are felons;”

“ All felons are amenable to the law :”

therefore, “ All who are amenable to the law are thieves.”

In both these examples, it will be seen that there is an illicit process of the minor term.

regarding the figure^p) is used in *different* figures, hence the vowels, which denote the mood, would not alone point out the figure. The following lines denote the moods which are used in the four figures, signified by their respective names:

Names of all
the moods.

(Fig. 1.) BARbArA, CElArEnt, DArII, FErIO que prioris:

(Fig. 2.) CEsArE, CAmEstrEs, FEstInO, BAroKO, secundæ;

(Fig. 3.) Tertia DArAptI, DIsAmIs, DAtIsI, FElAptOn, BOkArdO, FErIsOn habet: quarta insuper addit,

(Fig. 4.) BrAmAntIp, CAmEnEs, DImArIs, FEsApO, FrEsIsOn.

In the above lines, the *three* vowels denote the mood; i. e. the propositions of which the syllogism consists: the other letters serve to show the figure, as well as being of other uses, as will be shown hereafter. The five^q moods, whose conclusions are *particular, when they might have been universal*, have not any names affixed to them; for, in a strict argument, they are not

^p Thus, AAI, IAI, and EAO, are allowable in the third and fourth, and EIO in all the figures; hence it would be impossible to designate the particular figure by mentioning the *vowels* only, which constitute the mood; besides, these names are of great use in *reduction*, as will be seen hereafter.

^q Whatever mood has an universal conclusion, must of course contain a nameless mood under it; and since there cannot be more than *five* moods, in which an universal conclusion can be inferred from universal premises; (viz. Barbara, Celarent, Cesare, Camestres, and Camenes,) hence it is obvious, that there cannot be more than *five* nameless moods; viz. one under each, AAI and EAO in the first figure, EAO and AEO in the second, and AEO in the fourth.

considered as accurate, and they are certainly of no practical use.

SECTION VI.

From the first and second of the syllogistic canons, it follows that these twenty-four moods are conclusive; but of all the four figures the first is the most evident; for it is the clearest and most natural, and to it Aristotle's "*Dictum de Omni et Nullo*," is immediately applicable. The first figure the clearest.

The axiom which the schoolmen term the "*Dictum de Omni et Nullo*," is that test which may ultimately be applied to all legitimate arguments; and by their conformity or non-conformity to it, their validity will in all cases depend. It is thus explained by Aldrich.
 "*Quod prædicatur universaliter de alio, (i. e. de termino distributo,) sive affirmative, sive negative, prædicatur similiter de omnibus sub eo contentis;*" viz. "*That which is predicated of a term distributed, whether affirmatively or negatively, may, in like manner, be predicated of every thing contained under it.*" There needs An axiom.
 no proof to establish the truth of this rule, for it is self-evident, and may therefore be justly termed an axiom.

† Chap. iii. §. 6.

The four moods of the first figure, viz. *Barbara*, *Celarent*, *Darii*, and *Ferio*, are, under their present form, immediately applicable to this *dictum*; e. g.

“ A good king should be obeyed by his subjects;”

“ George the Fourth is a good king :”

therefore, “ George the Fourth should be obeyed by his subjects.”

In this syllogism^a, the major term is predicated of the middle *distributed*, consequently (by the above axiom) the major can be predicated of any term which the middle contains; (i. e. of which the middle can be predicated;) but in the minor premiss, the middle term is predicated of the minor, consequently the major may be predicated of the minor: thus the dictum of Aristotle is *immediately* applicable to all the four moods of the first figure; and this circumstance depends solely on the position of the middle term, with respect to the major and minor; in other words, upon the *figure*, whence the moods of this figure were termed by Aristotle, “ the *perfect* moods;”

The perfect moods.

^a The case is exactly similar where the conclusion is negative; e. g.

“ No man can serve two masters;”

“ You are a man :”

therefore, “ You cannot serve two masters.”

Here the major term is *negatively* predicated of the middle distributed; therefore it can be *negatively* predicated of any term comprehended by that middle; but in the minor premiss it is asserted, that the minor is comprehended under the middle; hence the major can be *negatively* predicated of the minor.

because they do not require any change in order to make their conclusions more evident^t: the schoolmen called them, "the *direct* moods;" because their conclusions can be *directly* inferred from the premises.

The moods of the second, third, and fourth figures, are, (owing to the position of the middle term,) not so evident as those of the first; for Aristotle's dictum cannot be *immediately* applied; though ultimately this may be effected; and when this is done, the syllogism is said to be *reduced*, i. e. brought into the form of the first figure. It is on this account that these moods were termed "imperfect" and "indirect;" for the *dictum* The imperfect moods. cannot be immediately applied to them without their undergoing some change in the order of their terms; i. e. without arranging those terms in such a manner that the moods, instead of being in the second, third, or fourth figures, are changed into the first; and when this is effected, these moods are said to be "*perfici*," "*revocare*," or "*reduci*."^u

Reduction may therefore be defined, "the Reduction. changing of any imperfect mood, and bringing it into the more perfect form of the first figure:" so

^t They are also called "perfect," because nothing more is *implied* in the premises, than is necessary to prove the conclusion, which is not the case with the other moods, which are therefore termed "imperfect."

^u See Aldrich, chap. iii. § 6.

that the necessity of the inference may become more apparent.

Of two kinds. There are two kinds of reduction; viz. *ostensive reduction*, and *reductio ad impossibile*.

Ostensive reduction.

Ostensive reduction is the *direct* mode^x of proof; viz. it shows that the conclusion *is* true, by changing the order of the terms of the reduced syllogism, and drawing from either the *same* conclusion as before, or the *converse* of it.

It is obvious that in ostensively reducing a syllogism we must not introduce any terms different from those in the reduced syllogism, nor any new proposition: all that we have granted to us is, that the *premises* of the syllogism, which we wish to reduce, are *true*; hence we may, of

^x There are two modes by which all conclusions may be proved, viz. the *direct* and the *indirect*. The *direct* mode is where the original conclusion is shown to be true, by placing those principles (from which it is deduced) in such a manner that the conclusion results from them *necessarily*; so that the mind cannot but immediately admit the truth of the conclusion, after having admitted the truth of the premises. The *indirect* mode is that in which the conclusion is *assumed to be false*, and then showing that from this assumption some palpable absurdity must result; the necessary consequence of this is, that the *assumption must be false*: hence the conclusion (which was *pro formâ* assumed false) must in reality be true. The latter of these modes generally strikes the student's mind most forcibly, and is in most cases the easiest. Thus, in order to prove any rule, the best way is to *violate* the rule, and trace the consequences of such violation to their source: the result will then become apparent, and the validity of the rule will be established.

course, *transpose* them, or *convert them illatively*; (for if any proposition be granted *true*, it is allowable [see Part II. Sect. V.] to infer the *truth* of its converse :) and it is by making use of this liberty, when necessary, that *all* imperfect syllogisms may be *ostensively* reduced⁷. It was principally for this purpose that the names were invented to all the different moods; and in each of those names it must be remembered, that the three vowels denote (as was before remarked) the mood: the initial consonants, viz. B, C, D, F, show to what mood in the first figure the syllogism is to be reduced; i. e. *that mood whose initial consonant is the same*. The letters S and P denote that those propositions to which

Use of the names of the moods.

⁷ Dr. Whately has shown that all the imperfect moods may be reduced *ostensively*: the two moods which are usually reduced by *reductio ad impossibile*, and which are called *Baroko* and *Bokardo*, he has changed to *Fakoro* and *Dokamo*; and he has shown that they may be reduced ostensively by means of conversion by contraposition, (see Part II. Sect. V.) I will take his own example in *Baroko*:

- ✓ "Every true patriot is a friend to religion;"
- "Some great statesmen are not friends to religion:"
- "Some great statesmen are not true patriots:"

reduced to *Ferio*, by converting the major *by negation*, (contraposition,) thus:

- ✓ "He-who-is-not-a-friend-to-religion is not a true patriot;"
- "Some great statesmen are not-friends-to-religion:"
- "Some great statesmen are not true patriots."

In the same manner he has shown that *Bokardo* may be reduced ostensively to *Darii*, by converting the major premiss by contraposition, and then *transposing* the premisses.

they are *affixed* must be converted either *simply* (S) or *per accidens* (P): M denotes that the premises must be transposed, and K shows that the syllogism must be reduced by *reductio ad impossibile*, which will be explained hereafter.

Examples of reduction.

These rules being borne in mind, the reduction of a syllogism is a mere mechanical operation^z;

e. g.

CAm "Every man of sense is anxious to gain useful information;"

Es "No idle man is anxious to gain useful information:"

trEs "No idle man is a man of sense."

In this syllogism, *m* shows that we must transpose the premises, and *s* denotes the simple conversion of both the minor premiss and the conclusion; and if these things be done, the syllogism will be found to be in the first figure, and in the mood *Celarent*, as the letter *c* in *Camestres* denotes^a.

^a It must be remembered that these letters are intended to apply to the vowels which *precede*, and *not* to those which *follow* them: thus, in *Datisi* the minor premiss is to be simply converted, and *not* the conclusion; and in like manner with all the other moods: so also the letter *k* applies to the preceding vowel in *Baroko* and *Bokardo*, and *not* to the vowel that follows it.

^a All imperfect moods, although their conclusions are true, are forced to imply more than they express in their premises, in order to prove the necessity of their conclusions: thus, in *Ferison*, e. g.

✓ "No Mahometans are Christians;"

"Some Mahometans are men of good understanding:"
therefore, "Some men of good understanding are not Christians."

CE "No person who is anxious to gain useful information is an idle man ;"

IA "Every man of sense is anxious to gain useful information :"

rEnt "No man of sense is an idle man."

Again, *Disamis* may be reduced to *Darii*, thus:

✓DIs "Some musicians are mad ;"

Am "All musicians are men :"

Is "Some men are mad."

DA "All musicians are men ;"

rI "Some mad beings are musicians :"

I "Some mad beings are men."

In these two examples, the simple converse of the original conclusion is shown to be true by applying it to the dictum of Aristotle, viz. by reducing the original syllogism to the first figure ; and since the converse of its conclusion is shown to be true, the truth of the original conclusion itself may be *implied*^b.

In order to prove this conclusion true, it will be necessary to convert the minor premiss simply, thus :

"No Mahometans are Christians ;"

"Some men of good understanding are Mahometans :"

therefore, "Some men of good understanding are not Christians."

This syllogism, which is in the first figure, viz. *Ferio*, may be immediately applied to the "dictum de omni et nullo," and its conclusion is therefore correctly inferred ; but the simple converse of the minor was *implied* (though not *expressed*) in the original syllogism.

^b Again, *Camenes* may be reduced to *Celarent*, by transposing the premises, and simply converting the conclusion, thus, e. g.

✓"All useful arts are worth learning ;"

"Nothing that is worth learning is of no value :"

therefore, "That which is of no value is not a useful art."

reduced thus to *Celarent* :

Reductio ad
impossibile.

The process of *reductio ad impossibile* is as follows: in the two moods, to which it is usually applied, (viz. Baroko and Bokardo,) substitute the contradictory of the conclusion for the particular negative premiss: and from the two universal affirmative premises thus formed, draw a conclusion in Barbara. This conclusion will be false, because it will contradict a premiss which was hypothetically true, consequently it may be inferred that the contradictory of the original conclusion must be *false*, and therefore the conclusion itself must have been *true*: this will be more fully treated of in the next section.

SECTION VII.

Validity of
ostensive
reduction.

The *validity of ostensive reduction* is manifest; for the premises of the syllogism being hypothetically true, they must be equally true when either transposed or illatively converted^c; and

“ Nothing that is worth learning is of no value;”

“ All useful arts are worth learning:”

therefore, “ No useful arts are of no value.”

And, note, that whenever the premises of any syllogism are transposed in its reduction, the conclusion must necessarily be converted; for since the major *premiss* is made the minor, so also the major *term* must be made the minor.

^c In order to reduce Bramantip *ostensively* it is necessary to convert the conclusion *accidentally*, e. g.

“ All true patriots have their country's welfare at heart;”

“ All who have their country's welfare at heart are friends to religion:”

therefore, “ Some friends to religion are true patriots.”

the conclusion of the syllogism, *when reduced*, is either the *same* as the original one, or is only

This syllogism, which is Bramantip, may thus be reduced to Barbara :

“ All who have their country’s welfare at heart are friends to religion ;”

“ All true patriots have their country’s welfare at heart :”
therefore, “ All true patriots are friends to religion.”

The reason why in this mood the conclusion (I) may be *accidentally* converted is, that the major term *has been distributed* in the major premiss, and therefore is *distributable* in the conclusion : although, owing to the figure, it cannot *be* distributed. It has been laid down, (in Rule 6, Sect. III. of this Part,) that “ a term must not be distributed in the conclusion, if it has not been distributed in its premiss ;” and it should be remembered also, that “ a term ought not to be *undistributed* in the conclusion, if it *has been distributed* in its premiss :” not that there will be any incorrectness in the syllogism, if the term *be undistributed* in the conclusion ; but such a mode of argument is very inaccurate and unscientific ; for (in the case of Bramantip) more is assumed with respect to the major term in the premises than can *possibly be inferred* in the conclusion ; consequently this mood is the worst of *all* the moods, it being the *only* one in which this inaccuracy occurs. It may be observed, that when, from accidental circumstances, it is known that the predicate of I is *distributable*, it follows that the matter of the proposition must be *necessary* : hence, in all such cases, I may be converted both *simply* and *per accidens* ; and such conversion will, under these circumstances, be *illative*. In the same manner it has been shown (p. 73, note f,) that in *impossible* matter, O may be converted both *simply* and *per accidens*. It must not, however, be supposed that the *conclusion*, which is drawn from two universal affirmative propositions, will in *all* cases be in *necessary* matter, because it is so in Bramantip ; for in Darapti the matter of the conclusion is generally *contingent*, though in Bramantip it is invariably *necessary* ; but this depends, as was shown before, on the distribution of the major term in its premiss, and not because both the premises are universal affirmative.

its illative converse; and in the latter case it is obvious that the truth of the original conclusion may be inferred from the truth of its converse, which is the conclusion of the syllogism when reduced: hence this reduction is termed "*ostensive*," because it *shows directly* that the original conclusion is true; e. g.

- CA "All men are liable to err;"
 mE "No being who is liable to err is perfect:"
 nEs "No perfect being is a man."

This syllogism, which is in the fourth figure, may be reduced to the first, by transposing the premises, and *simply* converting the conclusion, thus:

- CE "No being who is liable to err is perfect;"
 lA "All men are liable to err:"
 rEnt "No man is perfect."

In the first figure, the simple converse of the original conclusion is shown to be true; hence it may be inferred that the original conclusion itself must likewise be true.

Of reductio
 ad impossi-
 bite.

Reductio ad impossibile is the indirect mode of proof; which is, to admit the falsity of a conclusion, and show that by arguing from such falsity, an absurdity or impossibility will result: this mode of reduction is not usually applied to any moods, except Baroko and Bokardo, but it must not therefore be supposed that it is not equally applicable to any others; for, in fact, *all*

moods may be reduced by *reductio ad impossibile*, as well as ostensively^d. All moods may be thus reduced.

^d Since there are two modes of reduction, viz. *ostensive* and *ad impossibile*, and as it has been shown that every mood may be reduced by *ostensive* reduction, it may not perhaps be uninteresting to observe, how the *reductio ad impossibile* may also be applied to all the moods, although it is generally employed for *Baroko* and *Bokardo* only: the process of *reductio ad impossibile* is to assume the conclusion to be false, and then trace the consequence of this assumption; which will, in all cases, be some palpable absurdity. Thus let a case be taken in *Ferison*:

“ No men of bad principles are to be trusted; ”

“ Some men of bad principles are pleasant companions : ”
therefore, “ Some pleasant companions are not to be trusted. ”

This syllogism may thus be reduced to *Darii*, by employing *reductio ad impossibile* :

“ All pleasant companions are to be trusted; ”

“ Some men of bad principles are pleasant companions : ”
therefore, “ Some men of bad principles are to be trusted. ”

In this reduction the conclusion was assumed to be *false*, and its contradictory was therefore assumed to be *true*; and from this contradictory, united to the original minor premiss, a new conclusion was drawn in *Darii*: this conclusion is manifestly *false*, because it contradicts the original major premiss, consequently (as is the case in *Baroko* or *Bokardo*) it must necessarily follow that the contradictory of the original conclusion (which was assumed true) is in reality *false*; hence the original conclusion itself must be *true*.

If *reductio ad impossibile* be employed for all the different moods, it will be found that in this manner all their conclusions may be shown to be true; for the new conclusion will either contradict an original premiss, or else some proposition, the truth of which is deducible from that premiss; such as the *particular* contained by it, or its *simple* or *accidental* converse; thus in *Fesapo*,

“ No unjust act is commendable; ”

“ Every commendable act deserves reward : ”
therefore, “ Some act deserving of reward is not an unjust act. ”

Its validity. The *validity of reductio ad impossibile* may be shown thus: Every conclusion must be either true or false: let it be assumed to be *false*, then its contradictory must be *true*; let, therefore, its contradictory be taken as a new premiss, and to it let one of the original premises be joined; place these premises in such a manner that the middle term may stand as in the first figure; then draw the conclusion from them: and it will be found that this new conclusion will contradict an original premiss^e, which was granted true;

It may be shown that this conclusion cannot be *false*, by reducing it to Barbara, thus:

“ Every act deserving of reward is an unjust act ;”

“ Every commendable act deserves reward :”

therefore, “ Every commendable act is an unjust act.”

This conclusion contradicts the *accidental converse* of the original major premiss, and must therefore be *false*; for since the major premiss is hypothetically true, hence it follows, by the laws of conversion, that its accidental converse must also be *true*, therefore the contradictory of this accidental converse must be *false*: from this fact, it may, as before, be inferred that the original conclusion cannot be *false*, i. e. it must be *true*.

By adopting some measures similar to the above, it may be shown that *every mood* may be reduced by *reductio ad impossibile*; and although this is of no practical use, yet it may be beneficial to the student in logic to practise himself in employing this kind of reduction to the different moods, whereby he will make himself perfectly acquainted with the different figures, and the manner of proving a conclusion true, by reducing it to the first figure, at the same time applying the rules of contradictory opposition.

* In the two moods, Baroko and Bokardo, for which *reductio ad impossibile* is usually employed, the new conclusion contradicts an original premiss, but if this reduction be used for

consequently the *new* conclusion must be *false*; now, as the *form* of the argument is correct, the error must lie in one of the premises; and it is manifest which one of the premises it must be, for one of them is an *original* one, which was hypothetically *true*, therefore the new premiss, which was *assumed* to be *true*, must, in reality, be *false*; viz. the *contradictory* of the original conclusion has been proved to be *false*, therefore the *original conclusion itself must be true*; e. g.

- BAr "Every wise man is contented;"
 Ok "Some men are not contented:"
 O "Some men are not wise."

This syllogism may thus be reduced to Barbara :

- "Every wise man is contented;" (*granted true.*)
 "Every man is wise:" (*assumed true.*)

therefore, "Every man is contented."

This conclusion is manifestly *false*, because it is the contradictory of the original minor[†]

any of the other moods, it will be found, as was observed in the last note, that the new conclusion will not always contradict an original premiss, but sometimes a proposition, the truth of which is *deducible* from an original premiss; such as the *particular* contained under it, or its *simple* or *accidental* converse; which will be equally efficacious towards proving that the original conclusion cannot be *false*.

[†] In the two moods, Baroko and Bokardo, the contradictory of the conclusion must be substituted for the *particular negative* premiss, keeping the universal premiss in its original situation; with respect to the other moods which may be reduced by this mode, the contradictory of the conclusion must be made the

premiss; (which is hypothetically true;) and since the *form* is correct, one of the premisses must be *false*: this cannot be the *major*, for it was *granted true* in the original syllogism; therefore the minor premiss, viz. "Every man is wise," (which was *assumed* to be true,) must in reality be *false*; consequently the contradictory to this minor premiss must be *true*; but the contradictory to

"Every man is wise," is,
"Some men are not wise:"

and this is the original conclusion, which has thus been proved to be *true*^ε.

major or *minor* premiss, according as may be necessary for forming the syllogism in the first figure; by referring, however, to the memorial lines given in note d, p. 115, no mistake can possibly arise from this circumstance; for the contradictory of the conclusion must be substituted for that premiss which next *precedes* the letter *k*, keeping the other premiss in its original situation.

ε Again, to give another example in Bokardo,

✓ "Some good acts are not duly rewarded;"

"All good acts deserve to be rewarded:"

therefore, "Some acts which deserve to be rewarded are not duly rewarded:"

reduced to Barbara thus,

"All acts which deserve reward are duly rewarded;"

"All good acts deserve reward:"

therefore, "All good acts are duly rewarded."

This new conclusion must be *false*, because it contradicts the original major premiss; therefore the major premiss *from which it was drawn*, must be *false*; therefore its contradictory (which is the original conclusion) must be *true*.

SECTION VIII.

It has already been shown that syllogisms may be formed in twenty-four moods ; viz. six in each figure : and in some one of these moods any conclusion may be inferred which can be drawn from a simple categorical syllogism^h.

The same mood cannot always be used in every figure, see p. 102. without violating some one of the twelve rules given in Part III. Sect. III ; hence certain special rules, or rather cautions, have been laid down with respect to all the figures, by a due observance of which a syllogism may be made in each figure without violating any rule.

The special rules.

Special Rules of the First Figure.

Rule 1. *The minor premiss must be affirmative.* Minor premiss affirmative.

For, if not, let it be negative, then the major premiss must (by Rule 7ⁱ.) be affirmative, and

^h The number of moods in which any conclusion may be drawn are as follows :

A² may be proved in one mood only, viz. *Barbara*.

E may be proved in four moods, viz. *Celarent, Cesare, Camestres, and Camenes*.

I may be proved in seven moods, viz. *Darii* and AII in the first figure, in *Darapti, Disamis, Datist, Bramantip* and *Dimaris*.

O may be proved in twelve moods, viz. *Ferio* and EAO in the first figure ; in *Festino, Baroko, and EAO, AEO* in the second ; in *Felapton, Bokardo, and Ferison* in the third ; and in *Fesapo, Fresison, and AEO* in the fourth figure.

ⁱ The rules which are here alluded to are the twelve rules laid down in the third section of this Part.

will not distribute the major term; (because the major in this figure is the predicate of its premiss;) but the conclusion must (by Rule 8.) be negative, and will distribute its predicate, viz. the major term; and this term was shown not to have been distributed before; hence there will be an illicit process of the major: consequently the minor premiss *must not be negative*, i. e. it must be affirmative^k. Q. E. D.

Major pre-
miss univer-
sal.

Rule 2. *The major premiss must be universal.*

For, let it be particular, then its subject, which is the middle term, is not distributed; and by the last rule the minor premiss must be affirmative, consequently its predicate (which is the middle term) is not distributed; and it was shown not to be distributed in the major premiss: therefore the middle is *undistributed*. Therefore the major premiss *must not be particular*, i. e. it must be *universal*¹. Q. E. D.

^k Thus, for example :

“ Every true Christian is a lover of his God ;”

“ No atheist is a true Christian :”

therefore, “ No atheist is a lover of his God.”

This conclusion, although apparently correct, cannot be deduced from such premises; for the major term is distributed in the conclusion, which was *not* distributed in its premiss.

¹ Consequently the following argument is incorrect, because the middle term is not distributed :

“ Some high-bred horses are not fleet ;”

“ All racers are high-bred :”

therefore, “ Some racers are not fleet.”

*Rules of the Second Figure.***Rule 1. *One premiss must be negative.***One premiss
negative.

For in the second figure the middle term is the predicate of both premisses; consequently, if both were affirmative, the middle would not be distributed: therefore they must *not* be both affirmative, i. e. one premiss must be negative^m. Q. E. D.

Rule 2. *The conclusion must be negative.*Conclusion
negative.

Since one of the premisses must, by the last Rule, be negative; hence (by Rule 8.) the conclusion also must be negativeⁿ. Q. E. D.

Rule 3. *The major premiss must be universal.*Major pre-
miss univer-
sal.

The conclusion, as has before been shown, must be *negative*; therefore the major term will be distributed in the conclusion; therefore it must also be distributed in the major premiss: but since in this figure it is the *subject* of its premiss, hence this premiss must *not be parti-*

^m Thus, e. g.

“Every mail coach runs on four wheels;”

“Every barouche runs on four wheels;”

therefore, “Every barouche is a mail coach.”

This conclusion is manifestly false; for the middle term, being the predicate of two affirmative premisses, is not distributed.

ⁿ Thus the following form of argument is incorrect, (by the 8th Rule of Sect. III.) because the conclusion is affirmative, one of the premisses being negative:

“Every true patriot loves his country's welfare;”

“Some great statesmen do not love their country's welfare:”

therefore, “Some great statesmen are true patriots.”

G

cular, or the major term would *not* be distributed, and there would be an illicit process of the major; therefore the major premiss must be *universal*^o. Q. E. D.

Rules of the Third Figure.

Minor pre-
miss affirma-
tive.

Rule 1. *The minor premiss must be affirmative.*

For, if not, let it be *negative*, then the conclusion must (by Rule 8.) be *negative*, and in it the major term will be *distributed*; but since the major premiss (by Rule 7.) must be affirmative, and the major term is the predicate of its premiss, therefore it is *not distributed*; consequently there is an illicit process of the major: therefore the minor premiss must not be *negative*, i. e. it must be *affirmative*^p. Q. E. D.

Conclusion
particular.

Rule 2. *The conclusion must be particular.*

For since, by the last rule, the minor premiss must be affirmative, therefore the minor term

° Hence the following apparent syllogism is incorrect, for there is an illicit process of the major:

“Some pretenders to religion are deceitful;”

“No virtuous persons are deceitful:”

therefore, “Some virtuous persons are not pretenders to religion.”

^p This case is similar to the first special rule of the first figure; e. g.

“Every religious man is to be trusted;”

“No religious man is a hypocrite:”

therefore, “No hypocrite is to be trusted.”

This form of argument is incorrect, for there is an illicit process of the major term.

(which in this figure is the predicate of its premiss) will not be distributed; consequently it must not be distributed in the conclusion: but if the conclusion were *universal*, the minor *would* be distributed; therefore the conclusion *must not be universal*; i. e. it must be *particular*⁹. Q. E. D.

Rules of the Fourth Figure.

Rule 1. *The major premiss must not be O.*

Major pre-
miss not O.

For, if otherwise, let the major premiss be O, then the major term will not be distributed in its premiss; but (by Rule 8.) the conclusion must be negative, and the major term *will* be distributed; therefore there will be an illicit process of the major: therefore the major premiss *must not be O*^r. Q. E. D.

⁹ Thus, e. g.

“ Every good deed is commendable;”

“ Every good deed is a virtuous act:”

therefore, “ Every virtuous act is commendable.”

In this apparent syllogism the minor term, “ virtuous act,” is distributed in the conclusion, and not in the premises; consequently there is an illicit process of the minor: and it may be observed, that since the minor premiss is affirmative, the minor term cannot be distributed in its premiss in any mood in the third figure; hence the conclusion must be particular.

^r Hence the following form of argument is not correct:

“ Some men of good understanding are not led astray by prejudice;”

“ All who are led astray by prejudice are liable to commit frequent mistakes:”

therefore, “ Some who are liable to commit frequent mistakes are not men of good understanding.”

Minor pre-
miss not O.

Rule 2. *The minor premiss must not be O.*

For, if otherwise, let the minor premiss be O, then (by Rules 7 and 10.) the major premiss must be A, and the middle term (which is the *predicate* of the major and *subject* of the minor premiss) will *not* be distributed; therefore the minor premiss *must not be O*^a. Q. E. D.

Conclusion
not A.

Rule 3. *The conclusion must not be A.*

For, if otherwise, let the conclusion be A; then (by Rules 8 and 11.) the premises must both be A; but in the conclusion, the minor term will be distributed, which was *not* distributed in its premiss: therefore there will be an illicit process of the minor: therefore the conclusion *must not be A*^t. Q. E. D.

In this case it is manifest that there is an illicit process of the major term.

^a Thus, e. g.

“ Every just man is a subject worthy of admiration :”

“ Some who are subjects worthy of admiration are not to be despised :”

therefore, “ Some who are to be despised are not just men.”

In this case the middle is not distributed; consequently such a form of argument is not admissible.

^t In order to draw an universal affirmative conclusion, the premises must *both* be universal affirmative, thus :

“ Every good razor is sharp ;”

“ Every sharp instrument is a dangerous weapon in unskilful hands :”

therefore, “ Every dangerous weapon in unskilful hands is a razor.”

This apparent syllogism is manifestly incorrect, for there is an illicit process of the minor term.

The following Table presents, at one view, all the special rules, with their proofs.

Figure.	Rules.	Proofs.
1	Minor premiss affirmative Major premiss universal	Or, illicit process of the major. Or, middle not distributed.
2	One premiss negative Conclusion negative Major premiss universal	Or, middle not distributed. Because of the negative premiss. Or, illicit process of the major.
3	Minor premiss affirmative Conclusion particular	Or, illicit process of the major. Or, illicit process of the minor.
4	Major premiss not O Minor premiss not O Conclusion not A	Or, illicit process of the major. Or, middle not distributed. Or, illicit process of the minor.

To find a
middle term.

Hence it is manifest with what middle term any conclusion may be proved; e. g. To prove a *particular affirmative* conclusion, a middle must be brought forward, which is wholly contained by one extreme, and which itself contains a part of the other, (as in the *first figure*,) or, by a middle term which represents that of which both the extremes are qualities, (as in the *third figure*,) or, lastly, by a middle which comprehends one extreme, and is itself comprehended under that class of which the *other* extreme is a part, (as in the *fourth figure*“.)

N. B. (1.) A nameless mood ought not to be brought forward to prove a conclusion; for, since the conclusion is *particular*, when it ought to

“ Care should be taken that more be not laid down in the premises, than is *absolutely necessary* to prove the conclusion; for this would give an opponent an opportunity of raising an objection, when it might easily be avoided; e. g.

“ All planets are more distant than the moon;”

“ All planets can be seen from the earth:”

therefore, “ Some bodies which can be seen from the earth are more distant than the moon.”

In this syllogism, an objection might be raised against the minor premiss, because it might be argued, that possibly “ some planets could *not* be seen from the earth;” and this objection might be obviated by making the minor premiss *particular*, without any detriment to the syllogism; hence, in this argument, more is laid down in the premises than is *necessary* for proving the conclusion; it is on this account that *Darapti* and *Felapton* are not so accurate as either *Disamis*, *Datisi*, *Bokardo*, or *Ferison*; so in the fourth figure, *Bramantip* and *Fesapo* are less accurate than *Dimaris* and *Fresison*; because the premises need not be *both universal*, in order to prove a *particular* conclusion.

have been *universal*, hence more has been laid down in the premiss than was necessary for proving the conclusion.

(2.) Of all the four figures, the *fourth* is the worst, for it is the most unnatural of all, and in it the middle is (by implication) predicated of itself, thus^x:

“ Every wise man is contented ;”

“ Every contented man is happy :”

therefore, “ Some happy men are wise.”

In this syllogism, the middle term *contented*, is predicated of *every wise man*; this, in the conclusion, is predicated of the minor, *happy man*; and this minor, *happy man*, is predicated in the minor premiss of the middle *contented*: consequently the middle is, by implication, predicated of itself^y.

^x Dr. Whately has shown that, *beginning at the conclusion*, it will appear that the *major* term seems to be predicated of *itself*; thus, the major is predicated of the minor, the minor of the middle, and the middle of the major; i. e. apparently the major is predicated of itself.

^y This will be more manifest if expressed thus shortly: the middle is predicated of the major, the major of the minor, and the minor of the middle; thus it is implied, that the middle is predicated of the middle: this must of course be superfluous, and it is principally on this account that the fourth figure appears so unnatural; for the conclusion does not seem to result *necessarily* from the premises; hence it is scarcely ever used in argument: in fact, it is of no practical use whatsoever.

SECTION IX.

Different
kinds of argu-
ments.

There are many other kinds of arguments, which are not correct syllogisms, yet may easily be brought into the regular form, such as the following:

Of enthy-
meme.

1. The enthymeme is a defective syllogism, which consists of one premiss and a conclusion; e. g.

“Diamonds are jewels; they are therefore valuable.”

“God is a spirit; therefore he is eternal.”

An enthymeme may easily be reduced to a regular syllogistic form; for since the conclusion and one premiss are given, the three terms may be known, and the omitted premiss may be supplied: thus, in the above example, the major, “All jewels are valuable,” is omitted, (see p. 75, note b.) and, if supplied, the syllogism will be regular², thus:

² In common discourse the usual mode of expressing an argument is by means of the enthymeme; it being unnecessary to adduce both the premises, when *one* is so evident that it may very fairly be left to the hearer's judgement; e. g.

“When we find a book quoted, or referred to by an ancient author, we are entitled to conclude that it was read and received in the age and country in which that author lived.” This sentence is an enthymeme, in which the major premiss is suppressed, but which may easily be supplied as follows: “Every book quoted, or referred to by an ancient author, must have been read and received in the age and country in which that author lived.” The sentence may thus be reduced to a

" All jewels are valuable ;"

" Diamonds are jewels :"

therefore, " Diamonds are valuable."

Again :

" Every spirit is eternal ;"

" God is a spirit :"

therefore, " God is eternal."

In both these examples, the major premiss is suppressed; for, as was before observed, the major premiss is, generally speaking, some universal and incontrovertible principle, which is so evident that it is left to the hearer's judgement; but the minor premiss is most commonly expressed, because it has more particular reference to the question which is to be proved^a; (see p. 85, note p.)

An enthymeme is sometimes condensed into one sentence, which is called an enthymematic sentence; viz. when the premiss is united in one proposition with the conclusion; e. g. " All

regular syllogism in Barbara: this may be effected in most enthymemes without much difficulty, whether their conclusions be negative or affirmative.

^a Although the major premiss is generally suppressed in most enthymemes, yet there are some enthymemes in which the *minor* premiss is found to be omitted; this may happen when the minor premiss is very evident, or when much stress is meant to be laid upon the *major*; e. g. " Every tyrannical king deserves to be deposed by his subjects; therefore Nero deserved to be deposed by the Romans." The minor premiss which is suppressed, may be thus supplied:

" Nero was a tyrannical king ;"

and thus the argument is reduced to the regular syllogistic form.

machines, being of human manufacture, are liable to imperfections." This argument may be thus expanded into a regular syllogism :

" All things of human manufacture are liable to imperfections ;"

" All machines are of human manufacture :"

therefore, " They are liable to imperfections^b."

Induction.

2. Induction is the inferring an universal conclusion from a great number of particular facts ; i. e. when any fact has been ascertained with respect to a great many individuals of a class, by *induction*, we infer that the same fact is predicable of *all* that class^c.

^b The following are some examples of enthymematic sentences : " Is an enterprise fraught with evil, such as the present, likely to prosper ?" This question may thus be reduced to a syllogistic form :

" An evil enterprise is not likely to prosper ;"

" The present enterprise is evil :"

therefore, " The present enterprise is not likely to prosper."

Again : " Useful knowledge is too difficult of attainment to be within the reach of the idle."

This sentence may be thus syllogistically expressed :

√ " Nothing which is difficult of attainment is within the reach of the idle ;"

" All useful knowledge is difficult of attainment :"

therefore, " Useful knowledge is not within the reach of the idle."

This is a regular syllogism in Celarent.

^c Thus Dr. Whately, in the preface to his " Elements of Logic," proves by means of an inductive argument, that " Mankind universally bear their testimony, though unconsciously and often unwillingly, to the preferableness of systematic knowledge to conjectural judgements." He shows that this is the case in many sciences, which he enumerates, proving

Thus by *induction* we may infer that *all* bodies are liable to fall towards the centre of the earth, because we perceive this fact to exist the same, under similar circumstances, in all bodies upon which we make the experiment. This inference is, as Dr. Whately very justly observes, “ a syllogism in Barbara, with the *major* suppressed; that being always substantially the same, as it asserts, that ‘ what belongs to the individual or individuals we have examined, belongs to the whole class under which they come^d.’ ” The above example may thus be reduced to a syllogistic form, in Barbara :

“ That quality which is perceived to exist in many bodies, is likely to exist in all;” Example of induction.

“ The liability to fall towards the centre of the earth, is a quality which is perceived to exist in many bodies:”

Therefore, “ The liability to fall towards the centre of the earth, is a quality which is likely to exist in all bodies^e.”

It is by *induction* that almost all elementary

that every man “ Gives the preference to unassisted common sense only in those cases where he himself has nothing else to trust to, and invariably resorts to the rules of art, wherever he possesses the knowledge of them.” He then infers the universal conclusion, that “ Systematic knowledge is preferable to conjectural judgement.”

^d See Elements of Logic.

^e The great error into which induction is likely to lead us, is a too great haste in drawing the conclusion; viz. the inferring an universal conclusion, when the facts enumerated are not sufficient in number to authorise such an inference: in order to make a correct induction, the number of facts must be very great; and the greater the number, the more perfect will be the induction.

principles are proved: indeed, they do not admit of any other mode of proof; and a *perfect* induction is as decisive an argument as even demonstrable evidence: thus, when a stone is thrown into the air, I am as convinced that it will fall to the ground, (even though I should not see it,) as if it were demonstrated to me by the most incontrovertible evidence^f.

Example.

3. The *example* is, when from a knowledge that any fact has occurred, we infer that the same event will take place with respect to some other *unknown* fact.

Difference between example and induction.

There are two points in which the example differs from induction.

(1.) With respect to the *premises*; for in *induction* the facts from which we draw the universal conclusion must be very many in number; whereas in *example*, we may draw our conclusion from one single fact.

(2.) With respect to the *conclusion*; for in *induction* the conclusion is *universal*, and the

^f It is by *induction* that all axioms are known, such as, "Things that are equal to the same are equal to each other;" "A whole is greater than its parts;" and all other mathematical axioms: whence it may be observed, that induction is that mode of argument which is adapted to the discovery of any principles or facts which are not previously known. Thus, Aristotle, in his *Ethics*, proves by induction that all virtue consists in a mean; for he shows that this is the fact with respect to each of the virtues, which he enumerates, and consequently infers the universal conclusion with respect to them all.

inference drawn is, that the same fact will *always* happen the *same* under similar circumstances; but in *example* this is by no means the case, for the conclusion does not infer the *certainty* of any fact occurring in the same manner as the one similar fact from which we draw our conclusion, but merely the *probability* of such an occurrence^ε; and the *degree* of this probability will of course depend on the *number* of similar facts which are adduced, in order to show that the particular fact in question will *probably* occur. The more facts that we can adduce, the more does the example approach the induction, and the greater degree of probability will its conclusion possess.

4. The sorites is a number of syllogisms, in Sorites.

^ε The inference drawn by *example* sometimes is such as produces but a small degree of probability; for fables, similes, and allegories, are comprehended under it. It is called by Aristotle, "oratorical induction." Artabanus makes use of this kind of argument when endeavouring to dissuade Xerxes from invading Greece, saying, that Darius had failed in his expedition against the Scythians, and that the Grecians were more warlike men than the Scythians, consequently that his expedition would probably be attended with more dangerous consequences than the expedition of Darius.

This mode of argument is very frequently employed; indeed it is almost the only mode which, under many circumstances, it is possible to adopt, such as in contingencies, which might not admit of any positive proof: in such cases, it should be remembered, that the greater the number of facts is, which are adduced in support of the subject in question, the greater will be the degree of probability of its occurrence.

which the conclusion of each is made a premiss of the next, and so on, till we arrive at the last ; but in the sorites these syllogisms are not given at full length, for the *conclusion* of each syllogism is suppressed ; so that the form of the sorites becomes a number of propositions, in which the *predicate* of each becomes the *subject* of that which follows : thus, e. g. " Every good man lives in the fear of God ;" " Every man who lives in the fear of God is virtuous ;" " Every virtuous man is contented ;" " Every contented man is happy : " *therefore*, " Every good man is happy^h."

This sorites may thus be placed in a regular syllogistic form :

- (1.) " Every man who lives in the fear of God is virtuous ;"
 " Every good man lives in the fear of God : "
therefore, " Every good man is virtuous."
- (2.) " Every virtuous man is contented ;"
 " Every good man is virtuous : "
therefore, " Every good man is contented."

^h A sorites is nothing more than a number of condensed syllogisms, which may easily be expanded, so as to be in the regular form : it does not require any reduction, for it is already in the *first* figure, although it may appear to be in the fourth, because the premises are transposed. " It is to be observed," says Dr. Whately, " that the enthymeme is *not syllogistic* ; i. e. its conclusiveness is not apparent from the mere form of expression, without regard to the meaning of the terms ; because it is from *that* we form our judgement as to the truth of the suppressed premiss. The sorites, on the other hand, is strictly syllogistic."—Elements of Logic.

(3.) "Every contented man is happy;"

"Every good man is contented:"

therefore, "Every good man is happy."

Thus it may be observed, that the sorites is a series of syllogisms in the first figure, in which the premises are transposed.

Hence it follows, that in a sorites only one premiss can be *negative*¹; for in this case one of its syllogisms would have both of its premises negative; neither can any more premises than *one* be *particular*; for then, as before, one of its syllogisms would have both its premises particular.

Only one premiss negative and one particular.

5. The prosyllogism is a proposition which is attached to one of the premises, as it were incidentally, to confirm the strength of that premiss; in fact, the premiss, to which the prosyllogism is attached, is the *conclusion* of an enthymeme, of which the prosyllogism itself is the premiss; e. g.

Prosyllogism.

"Every virtuous act is worthy of commendation;"

"Every act of charity, (if it proceeds from a mind actuated by proper principles,) is a virtuous act:"

therefore, "Such acts of charity are worthy of commendation."

¹ Thus the following sorites is incorrect:

"Every man is endued with the faculty of reasoning; No animal endued with this faculty is a brute; No brute has the power of speaking; Every being who has the power of speaking has also the power of communicating to others his ideas: therefore, Every man has the power of communicating to others his ideas." It will also be easy to show that the *negative* premiss, which is allowable in a sorites, must be the *last* premiss; and the *particular* premiss (if there be one) must be the *first*: these rules will be manifest by trying examples.

Sometimes
used as a pre-
miss.

The prosyllogism is not uncommonly used instead of that premiss of which it is the proof^k; and from this circumstance the syllogism, though correct, would seem to have too many terms: thus, in the following example.

✓“Charity covereth a multitude of sins;”

“A multitude of sins is a load of evil:”

therefore, “Charity covereth a load of evil.”

This syllogism may, at first sight, appear to be faulty, because there are apparently five terms; but it may be shown to be correct, thus:

“That which covereth a multitude of sins covereth a load of evil: (for a multitude of sins is a load of evil;)”

“Charity covereth a multitude of sins:”

therefore, “Charity covereth a load of evil.”

^k This is frequently put into practice, in order to condense the argument; the same circumstance may be frequently observed in the sorites, where two or three prosyllogisms are sometimes employed instead of their premises; e. g. “The sun is a created thing; those who worship a created thing are guilty of idolatry; those who are guilty of idolatry act under mistaken notions: *therefore*, those who worship the sun act under mistaken notions.” This sorites may easily be brought into an accurate syllogistic form, (though its *present* form is not strictly regular,) as follows:

“Those who worship a created thing are guilty of idolatry;”

“Those who worship the sun worship a created thing,
(for the sun is a created thing:)”

therefore, “Those who worship the sun are guilty of idolatry.”

“Those who are guilty of idolatry act under mistaken notions;”

“Those who worship the sun are guilty of idolatry:”

therefore, “Those who worship the sun act under mistaken notions.”

Thus the prosyllogism, "a multitude of sins is a load of evil," is substituted for the major premiss, the truth of which it was intended to confirm.

6. It is a common practice to *suppress the conclusion*¹ at the end of any argument; and this is very frequently done in common conversation, as well as in argumentative writings; for the conclusion being known from the question, it would be useless to express it at the close of every argument. This practice is not confined to *opponents*^m only, but is done by all who are engaged in discussing any subject.

Suppressed
conclusion.

The following arguments are given by way of practising the student in detecting the errors which may be found in apparent syllogisms: those which are correct may be reduced, if necessary:

1. Some good men are happy ;
All virtuous men are good ;
Some virtuous men are happy.

2. Every mail coach keeps good time ;
Every good musician keeps good time ;
Every good musician is a mail coach.

¹ The conclusion of an argument is supposed to be known by means of the question, or problem, which is to be proved; hence formally to state the conclusion at the close of an argument, would be of no use, and would only produce tautology.

^m See Aldrich, chap. iii. § 9.

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3. No human being is perfectly happy ;
No horse is a human being ;
No horse is perfectly happy.
4. No man can servè two masters ;
I am a man ;
I cannot serve two masters.
5. Many men have many minds ;
You are a man ;
You have many minds.
6. Reason is the peculiar characteristic of man ;
There is reason in roasting eggs ;
The peculiar characteristic of man consists in the
faculty which he possesses of roasting eggs.
7. A true friend is not often to be met with ;
That which is not often met with is generally
valuable ;
A valuable thing is a true friend.
8. Nothing is more rare than disinterested friendship ;
That which is more rare than disinterested
friendship is precious ;
Nothing is precious.
9. Nemo mortalium omnibus horis sapit ;
Ego sum mortalis ;
Non omnibus horis sapio.
10. Qui sapit pauca loquitur ;
Pauca loquor ;
Sapio.
11. No profane swearers are to be believed on their
oath ;

All men who are to be believed on their oath are
worthy of being received as witnesses ;
No men who are worthy of being received as
witnesses are profane swearers.

12. All tulips are beautiful flowers ;
No thistles are tulips ;
No thistles are beautiful flowers.
13. No liar is worthy of credit ;
All liars are dishonourable ;
No dishonourable man is worthy of credit.
14. Three and two are five ;
Three and two are odd and even ;
Five is odd and even.
15. All men are animals ;
I am an animal ;
I am a man.
16. All astronomers are men ;
Some philosophers are astronomers ;
All philosophers are men.
17. Some men are wise ;
All men are animals ;
Some animals are wise.
18. Some quadrupeds cannot fly ;
I cannot fly ;
I am not a quadruped.
19. No brute is a man ;
No dog is a man ;
Every dog is a brute.

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20. Omnis equus est bestia ;
Omnis justus est æquus ;
Omnis justus est bestia.
21. Nothing mortal is incorruptible ;
The soul of man is incorruptible ;
The soul of man is immortal.
22. Dionysius was a tyrant ;
Buonaparte was a Dionysius ;
Buonaparte was a tyrant.
23. Six and five are even and uneven ;
Eleven are six and five ;
Eleven are even and uneven.
24. Every sword is an instrument of war ;
No ploughshare is a sword ;
No ploughshare is an instrument of war.
25. Some countries are hot ;
Some countries are cold ;
Some cold countries are also hot.
26. No quadrupeds are bipeds ;
A man is not a quadruped ;
A man is not a biped.
27. Finis rei est illius perfectio ;
Mors est finis vitæ ;
Mors est vitæ perfectio.

28. To kill a man is a sin ;
To hang a murderer is to kill a man ;
To hang a murderer is a sin.
29. Whatever is immaterial is incorruptible ;
An angel is immaterial ;
An angel is not corruptible.
30. Some razors are not sharp ;
All sharp things are apt to cut ;
Some things apt to cut are not razors.
31. All philosophers are men ;
All philosophers are rational ;
All rational beings are men.
32. Some men are astronomers ;
No astronomers are fools ;
Some fools are not men.
33. All men are corporeal ;
No angels are men ;
No angels are corporeal.
34. All men breathe ;
I breathe ;
I am a man.
35. Some Christians are pious ;
All pious men are good ;
All good men are Christians.

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36. All created things are corruptible ;
The Deity is uncreated ;
The Deity is incorruptible.
37. Some cities are fortified ;
Oxford is a city ;
Oxford is fortified.
38. All true Christians are lovers of God ;
Some lovers of God are Englishmen ;
Some Englishmen are true Christians.
39. Nemo mortalium omnibus horis sapit ;
Ego nunquam sapio ;
Ego non sum mortalis.
40. Sophocles was a Greek tragedian ;
Euripides was not Sophocles ;
Euripides was not a Greek tragedian.
41. All statesmen are men of learning ;
All men of learning are wise ;
All wise men are statesmen.
42. Charity covereth a multitude of sins ;
A multitude of sins is a load of evil ;
Charity covereth a load of evil.
43. Every good man is a worthy character ;
Every good man is a religious man ;
Every religious man is a worthy character.

44. Humanum est odisse quem læseris ;
Irasci est humanum ;
Irasci est odisse quem læseris.
45. Every turbulent demagogue is to be feared ;
Every turbulent demagogue should be kept in
order by the force of the law ;
All who are to be feared should be kept in order
by the force of the law.
46. Every art is useful ;
Logic is an art ;
Logic is not useful.
47. That which is not true relates what is not the
fact ;
A falsehood does not relate what is the fact ;
A falsehood is not true.
48. He that calls you an animal speaks the
truth ;
He that calls you a goose calls you an
animal ;
He that calls you a goose speaks the truth.
49. Some penknives are sharp ;
Some razors are not sharp ;
Some razors are not penknives.
50. A watch is a machine intended for showing the
time ;
A sentinel is a watch ;
A sentinel is a machine intended for showing
the time.

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51. That which is worth gaining cannot be attained
without labour ;
All useful knowledge is worth gaining ;
No useful knowledge can be attained without
labour.
52. The thoughts of men are unfathomable ;
The depth of the sea is unfathomable ;
The depth of the sea is the same as the thoughts
of men.
53. A tree is not a sentient being ;
No man is a tree ;
A man is a sentient being.
54. A tale is a short history ;
The limb of some animal is a tail ;
The limb of some animal is a short history.
55. All fire burns ;
Ice is not fire ;
Ice does not burn.
56. Some cities are not fortified ;
All fortified places are fortresses ;
Some fortresses are not cities.
- ✓57. All papists believe the pope to be infallible ;
The pope is a man ;
All papists believe a certain man to be infallible.
58. No man is infallible ;
The pope is a man ;
The pope is not infallible.

- ✓ 59. Love is a species of madness ;
 You are in love ;
 You are mad.
60. Every beautiful object is worth beholding ;
 A fine view is worth beholding ;
 A fine view is a beautiful object.
61. Gallus est homo ;
 Volucris quidam est Gallus ;
 Volucris quidem est homo.
62. Every Englishman will fight for his country ;
 All those who will fight for their country are
 brave men ;
 All brave men are Englishmen.
63. An art is a collection of rules leading to some
 certain end ;
 Logic is a collection of rules leading to some
 certain end ;
 Logic is an art.
64. Emulation deserves to be promoted ;
 Emulation may lead to the production of evil
 passions ;
 Every thing which may lead to the production of
 evil passions deserves to be promoted.
- ✓ 65. He that spareth the rod hateth his child ;
 An affectionate parent does not hate his child ;
 An affectionate parent does not spare the
 rod.

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66. Every book is liable to error ;
Every book is a human production ;
All human productions are liable to error.
67. Some detestable vices are not abhorred as they
deserve ;
Malice is a detestable vice ;
Malice is not abhorred as it deserves.
68. He that has a good understanding leads a truly
Christian life ;
All who lead a truly Christian life may be deemed
really wise ;
All who may be deemed really wise are men of
good understanding.
69. Virtue graces those who possess it ;
Those who possess it are to be envied ;
Virtue graces those who are to be envied.
70. Every amiable person gains the affections of his
neighbours ;
Those gain the affections of their neighbours who
are charitable ;
Every charitable person is amiable.
71. Six and two are eight ;
Five and three are eight ;
Five and three are six and two.
72. Some animals are birds ;
All winged beings are animals ;
Some winged beings are birds.

73. Those who are apparently religious, and really are not so, are not to be trusted ;
Hypocrites are not to be trusted ;
Hypocrites are those who are apparently religious, and really are not so.
74. No spirits are mortal beings ;
All immortal beings are incorruptible ;
No mortal beings are spirits.
75. Every wise man bridles his tongue ;
Those who do not bridle their tongue are liable to be involved in quarrels ;
Those who are liable to be involved in quarrels are not wise.
76. Every innocent thing is allowable ;
Some pleasures are allowable ;
Some pleasures are innocent.
77. Every innocent thing is allowable ;
Some pleasures are not innocent ;
Some pleasures are not allowable.
78. Nothing is more to be dreaded than a false friend ;
Many false friends are pleasant companions ;
Many pleasant companions are to be dreaded.
79. Those who are not acquainted with the rules of logic are not good logicians ;
Schoolboys are not acquainted with the rules of logic ;
Schoolboys are not good logicians.

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80. Every conceited man is vain ;
Every vain man is a fool ;
All fools are conceited.
81. A definition is intended to explain ;
An illustration is intended to explain ;
An illustration is a definition.
- ✓ 82. No man can serve two masters ;
A dog is not a man ;
A dog can serve two masters.
83. Water is ornamental ;
Rain is water ;
Rain is ornamental.
84. No quadruped has the power of flying ;
A man is not a quadruped ;
A man has not the power of flying.
85. Some species of gases are inflammable ;
Balloons are filled with gas ;
Balloons are inflammable.
86. Every good king deserves the love of his subjects ;
George the Fourth is a good king ;
George the Fourth deserves the love of his subjects.
87. No brute degrades itself by eating or drinking to excess ;
Some men do thus degrade themselves ;
Some men are not brutes.

88. Idleness generally leads to a bad end ;
Hard labour is not idleness ;
Hard labour does not lead to a bad end.
89. Those who work hard deserve reward ;
Those who work on the treadmill work hard ;
Those who work on the treadmill deserve reward.
90. All meteors are vapours ;
Some vapours are luminous ;
Some luminous bodies are meteors.
91. A dutiful son loves his parents ;
A spendthrift is not a dutiful son ;
A spendthrift does not love his parents.
92. He who lives beyond his income is thoughtless ;
Many men at Oxford live beyond their income ;
Many men at Oxford are thoughtless.
93. A brute is not an immortal being ;
All immortal beings are incorporeal ;
No incorporeal beings are brutes.
94. That which is naturally an inherent quality
cannot be changed by the power of art ;
It is a natural quality inherent in animals to
love themselves ;
This quality cannot be changed by the power of
art.

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95. He who is worthy of confidence ought to be possessed of prudence ;
He who is possessed of prudence is also possessed of every virtue ;
He who is possessed of every virtue is worthy of confidence.
96. No man of honour is addicted to equivocation ;
He who is guilty of equivocation is not to be trusted ;
He who is not to be trusted is not a man of honour.
97. Many languages are difficult to learn ;
Greek is a language ;
It is difficult to learn.
98. A sorrowful countenance is by no means the characteristic of a religious man.
A sorrowful countenance indicates a heart not at ease ;
That which indicates a heart not at ease is not the characteristic of a religious man.
99. Those who are inexperienced in the ways of life, and are under the influence of their passions, are not fit to study moral philosophy ;
Such are all young men ;
They, therefore, are not fit to study moral philosophy.

100. Every prudent parent governs his family properly, and is anxious for the welfare of its members ;
Many parents do not act thus ;
Many parents are not prudent.
101. All human institutions are imperfect ;
The laws of England are a human institution ;
The laws of England are not perfect.
102. A mean artifice is beneath the notice of a man of strict honour ;
Calumny is beneath the notice of a man of honour ;
Calumny is a mean artifice.
103. The characters of some men, though of the most detestable description, are unknown to the rest of the world ;
Many things which ought to be revealed are unknown to the rest of the world ;
Some things which ought to be revealed are the characters of some men.
104. Many men have common sense ;
Some men have uncommon sense ;
Some who have uncommon sense have also common sense.
105. No man can have two opinions on the same subject ;
Some men are not very wise ;

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Some who are not very wise, have not two opinions on the same subject.

106. Some persons, although men of the greatest learning, have committed errors ;
All persons, who are men of sense, are not so liable to err as those who are foolish ;
Some who are not so liable to err as those who are foolish, have nevertheless committed great errors.

107. Some animals live upon the blood which they obtain from others ;
All animals are sensitive beings ;
Some sensitive beings live upon the blood which they obtain from others.

√ 108. All men are bound to act according to the strictest rules of virtue ;
No brutes are men ;
No brutes are bound to act according to the strictest rules of virtue.

√ 109. All minerals are produced under ground ;
Potatoes are produced under ground ;
Potatoes are minerals.

110. All vices ought to raise the indignation of every good man ;
A praiseworthy act is not a vice ;
A praiseworthy act ought not to raise the indignation of any good man.

111. No human virtue is wholly free from imperfections ;
 Many benefits have accrued to mankind by means of human virtues ;
 Many benefits have accrued to mankind by means of things not wholly free from imperfections.
112. He that is placed in the highest sphere of life is not more exempt from death than he that is placed in the lowest ;
 Not even the lowest man should forget that he is mortal ; *therefore,*
 He that is placed in the highest sphere ought not to forget that he is mortal.
- ✓113. John is taller than Richard ;
 Richard is taller than Thomas ;
 John is taller than Thomas.
114. An unintentional insult should be immediately forgiven ;
 An act which demands immediate forgiveness is sometimes a good act ;
 Some good act is an unintentional insult.
115. He who wastes his time is ignorant of its value ;
 No man who employs himself in the acquisition of useful knowledge, wastes his time ;
 Such a man, therefore, is not ignorant of its value.

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116. He who is wise in his own conceit is generally a fool ;
A fool is most commonly troublesome ;
Some troublesome people are wise in their own conceit.
117. Those who suspect others without just reason are liable to suspicion themselves ;
Those who are liable to suspicion are frequently no better than they should be ;
Those who suspect others are frequently no better than they should be.
118. Some good intentions are not strictly consistent with prudence ;
Every good intention is worthy of commendation ;
Some acts which are worthy of commendation, are not strictly consistent with prudence.
119. No vegetable is a mineral ;
All minerals are subterraneous productions ;
No subterraneous productions are vegetable.
120. A true friend is an honest man ;
An honest man is an estimable character ;
Some honest man is a true friend.
121. Every wilful transgression of the laws deserves proper punishment ;
Proper punishment has generally a good effect ;
Every wilful transgression of the laws has generally a good effect.

122. Nothing is more disagreeable than the selfishness discernible in some persons; for the selfish man is so wholly taken up with himself, that he cares but little for the inconvenience to which he exposes others.
- ✓123. Haste makes waste, waste makes want, want makes a rich man poor; *therefore*, Haste makes a rich man poor.
124. Friends should not be purchased by presents; for a friendship established on such a foundation will most commonly end when the power of making those presents shall cease.
125. What being can be more wretched than the miser? he is always in want and is never satisfied.
- ✓126. Blessed are the poor in spirit, for theirs is the kingdom of heaven.
127. George the Fourth is a good king, a good king is deserving of esteem, (for good kings are scarce,) those who deserve esteem are worthy of our love; *therefore*, George the Fourth is worthy of our love.
128. The ascent in a balloon is not attended with any very considerable danger or difficulty, for Mr. Green has, within a few years, made upwards of sixty ascents, and has, on all occasions, landed without serious injury.

- ✓129. "Now controversy being almost always either the offspring or the parent of party, it is not wonderful that a love of disputation should almost always either give occasion to, or exasperate, party spirit." — Dr. Whately's Bampton Lectures.
- ✓130. "That there *are* subjects connected with religion, which it is unprofitable or worse than unprofitable to discuss, no one would venture to deny; and it is no less undeniable, that among these are to be reckoned such as are neither laid open to us by revelation, nor are comprehensible by our reason: but men are, in general, far less ready practically to conform to this maxim, than to admit its truths."—Ibid.

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