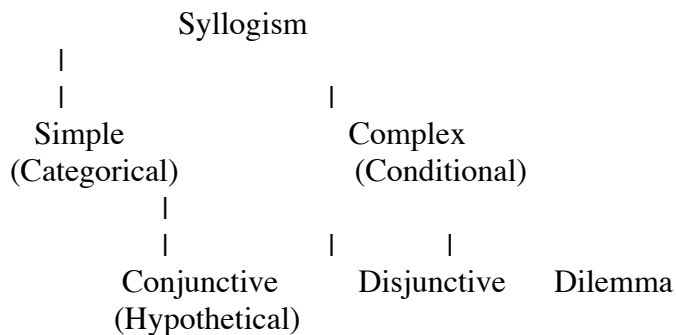CHAPTER XX.

Of Complex Syllogisms.

Section 731. A Complex Syllogism is one which is composed, in whole or part, of complex propositions.

Section 732. Though there are only two kinds of complex proposition, there are three varieties of complex syllogism. For we may have

  (1) a syllogism in which the only kind of complex proposition employed is the conjunctive;

  (2) a syllogism in which the only kind of complex proposition employed is the disjunctive;

  (3) a syllogism which has one premiss conjunctive and the other disjunctive.

The chief instance of the third kind is that known as the Dilemma.

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                Syllogism
    |
    |                     |
  Simple              Complex
 (Categorical)       (Conditional)
        |
        |           |         |
     Conjunctive   Disjunctive   Dilemma
    (Hypothetical)
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The Conjunctive Syllogism.

Section 733. The Conjunctive Syllogism has one or both premisses conjunctive propositions: but if only one is conjunctive, the other must be a simple one.

Section 734. Where both premisses are conjunctive, the conclusion will be of the same character; where only one is conjunctive, the conclusion will be a simple proposition.

Section 735. Of these two kinds of conjunctive syllogisms we will first take

that which consists throughout of conjunctive propositions.

The Wholly Conjunctive Syllogism.

Section 736. Wholly conjunctive syllogisms do not differ essentially from simple ones, to which they are immediately reducible. They admit of being constructed in every mood and figure, and the moods of the imperfect figures may be brought into the first by following the ordinary rules of reduction. For instance--

  Cesare.   Celarent.

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If A is B, C is never D.   \    / If C is D, A is never B.
If E is F, C is always D.   | = |  If E is F, C is always D.
.'. If E is F, A is never B. /    \ .'. If E is F, A is never B.
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If it is day, the stars never shine.\  /If the stars shine, it is never day.
If it is night, the stars always   \=/ If it is night, the stars always
shine.                        / \ shine.
.'. If it is night, it is never day /  \.'. If it is night, it is never day.
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  Disamis.   Darii.
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If C is D, A is sometimes B. \    / If C is D, E is always F.
If C is D, E is always F.    | = |  If A is B, C is sometimes D.
If E is F, A is sometimes B. /    \ .'. If A is B, E is sometimes F.
                        .'. If E is F, A is sometimes B.
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If she goes, I sometimes go.   \    / If she goes, he always goes,
If she goes, he always goes.    | = |  If I go, she sometimes goes.
.'. If he goes, I sometimes go. /    \ .'. If I go, he sometimes goes.
                        .'. If he goes, I sometimes go.
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The Partly Conjunctive Syllogism.

Section 737. It is this kind which is usually meant when the Conjunctive or Hypothetical Syllogism is spoken of.

Section 738. Of the two premisses, one conjunctive and one simple, the conjunctive is considered to be the major, and the simple premiss the minor. For the conjunctive premiss lays down a certain relation to

hold between two propositions as a matter of theory, which is applied in the minor to a matter of fact.

Section 739. Taking a conjunctive proposition as a major premiss, there are four simple minors possible. For we may either assert or deny the antecedent or the consequent of the conjunctive.

Constructive Mood.	Destructive Mood.
(1) If A is B, C is D.	(2) If A is B, C is D.
A is B.	C is not D.
.'. C is D.	.'. A is not B.
(3) If A is B, C is D.	(4) If A is B, C is D.
A is not B.	C is D.
No conclusion.	No conclusion.

Section 740. When we take as a minor 'A is not B ' (3), it is clear that we can get no conclusion. For to say that C is D whenever A is B gives us no right to deny that C can be D in the absence of that condition. What we have predicated has been merely inclusion of the case AB in the case CD.

[Illustration]

Section 741. Again, when we take as a minor, 'C is D' (4), we can get no universal conclusion. For though A being B is declared to involve as a consequence C being D, yet it is possible for C to be D under other circumstances, or from other causes. Granting the truth of the proposition 'If the sky falls, we shall catch larks,' it by no means follows that there are no other conditions under which this result can be attained.

Section 742. From a consideration of the above four cases we elicit the following

Canon of the Conjunctive Syllogism.

To affirm the antecedent is to affirm the consequent, and to deny the consequent is to deny the antecedent: but from denying the antecedent or affirming the consequent no conclusion follows.

Section 743. There is a case, however, in which we can legitimately deny the antecedent and affirm the consequent of a conjunctive proposition,

namely, when the relation predicated between the antecedent and the consequent is not that of inclusion but of coincidence--where in fact the conjunctive proposition conforms to the type u.

For example--

  Denial of the Antecedent.
  If you repent, then only are you forgiven.
  You do not repent.
  .'. You are not forgiven.

  Affirmation of the Consequent.
  If you repent, then only are you forgiven.
  You are forgiven.
  .'. You repent.