# Book 2: Chapter 3

# Propositions of Relation.

Section 1. Introductory.

A Proposition of Relation, of the kind to be here discussed has, for its Terms, two Specieses of the same Genus, such that each of the two Names conveys the idea of some Attribute not conveyed by the other.

[Thus, the Proposition "Some merchants are misers" is of the right kind, since "merchants" and "misers" are Specieses of the same Genus "men"; and since the Name "merchants" conveys the idea of the Attribute "mercantile", and the name "misers" the idea of the Attribute "miserly". each of which ideas is not conveyed by the other Name. But the Proposition "Some dogs are setters" is not of the right kind, since, although it is true that "dogs" and "setters" are Specieses of the same Genus "animals", it is not true that the Name "dogs" conveys the idea of any Attribute not conveyed by the Name "setters". Such Pro- positions will be discussed in Part II.]

The Genus, of which the two Terms are Species, is called the 'Universe of Discourse,' or (more briefly) the Univ.'

The Sign of Quantity is "Some" or "No" or "All".

[Note that, though its Sign of Quantity tells us how many Members of its Subject are also Members of its Predicate, it does not tell us the exact number: in fact, it only deals with three numbers, which are, in ascending order, "0", "1 or more", "the total number of Members of the Subject".]

It is called "a Proposition of Relation" because its effect is to assert that a certain relationship exists between its Terms.

Section 2. Reduction of a Proposition of Relation to Normal form.

The Rules, for doing this, are as follows:–

(1) Ascertain what is the Subject (i.e., ascertain what Class we are talking about);

(2) If the verb, governed by the Subject, is not the verb "are" (or "is"), substitute for it a phrase beginning with "are" (or "is");

(3) Ascertain what is the Predicate (i.e., ascertain what Class it is, which is asserted to contain some, or none, or all, of the Members of the Subject);

(4) If the Name of each Term is completely expressed (i.e. if it contains a Substantive), there is no need to determine the 'Univ.'; but, if either Name is incompletely expressed, and contains Attributes only, it is then necessary to determine a 'Univ.', in order to insert its Name as the Substantive

(5) Ascertain the Sign of Quantity;

(6) Arrange in the following order:– Sign of Quantity, Subject, Copula, Predicate.

[Let us work a few Examples, to illustrate these Rules.

*(1) "Some apples are not ripe."*

(1) The Subject is "apples."
(2) The Verb is "are."
(3) The Predicate is "not-ripe * * ." (As no Sub- stantive is expressed, and we have not yet settled what the Univ. is to be, we are forced to leave a blank.)
(4) Let Univ. be "fruit."
(5) The Sign of Quantity is "some."
(6) The Proposition now becomes "Some | apples | are | not-ripe fruit."

*(2) "None of my speculations have brought me as much as 5 per cent."*

(1) The Subject is "my speculations."
(2) The Verb is "have brought," for which we substitute the phrase "are * * * that have brought".
(3) The Predicate is " * * * that have brought &c."
(4) Let Univ. be "transactions."
(5) The Sign of Quantity is "none of."
(6) The Proposition now becomes "None of | my speculations | are | transactions that have brought me as much as 5 per cent."

*(3) "None but the brave deserve the fair." To begin with, we note that the phrase 'none buit the brave" is equivalent to "no not-brave."*

(1) The Subject has for its Attribute "not-brave." But no Substantive is supplied. So we express the Subject as "not-brave * * *."
(2) The Verb is "deserve," for which we substitute the phrase "are deserving of".
(3) The Predicate is " * * * deserving of the fair."
(4) Let Univ. be "persons."
(5) The Sign of Quantity is "no."
(6) The Proposition now becomes "No | not-brave persons | are | persons deserving of the fair."

*(4) "A lame puppy would not say "thank you" if you offered to lend it a skipping-rope."*

(1) The Subject is evidently "lame puppies," and all the rest of the sentence must somehow be packed into the Predicate.
(2) The Verb is "would not say," &c., for which we may substitute the phrase "are not grateful for."
(3) The Predicate may be expressed as " * * * not grateful for the loan of a skipping-rope."
(4) Let Univ. be "puppies."
(5) The Sign of Quantity is "all."
(6) The Proposition now becomes "All | lame puppies | are | puppies not grateful for the loan of a skipping-rope."

*(5) "No one take in the Times, unless he is well-educated."*

(1) The Subject is evidently persons who are not well-educated ("no one" evidently means "no person"). (2) The Verb is "take in," for which we may substitute the phrase "are persons taking in."
(3) The Predicate is "persons taking in the Times."
(4) Let Univ. be "persons."
(5) The Sign of Quantity is "no."
(6) The Proposition now becomes "No | persons who are not well-educated | are | person taking in the Times."

*(6) "My carriage will meet you at the station."*

(1) The Subject is "my carriage." This, being an 'In- dividual,' is equivalent to the Class "my carriages." (Note that this Class contains only one Member.)
(2) The Verb is "will meet", for which we may substitute the phrase "are * * * that will meet."
(3) The Predicate is " * * that will meet you at the station."
(4) Let Univ. be "things."
(5) The Sign of Quantity is "all."
(6) The Proposition now becomes "All | my carriages | are | things that will meet you at the station."

*(7) "Happy is the man who does not know what 'toothache' means!"*

(1) The Subject is evidently "the man &c." (Note that in this sentence, the Predicate comes first.) At first sight, the Subject seems to be an 'Individual'; but on further consideration, we see that the article "the" does not imply that there is only one such man. Hence the phrase "the man who" is equivalent to " all men who".
(2) The Verb is "are."
(3) The Predicate is "happy * * * ."
(4) Let Univ. be "men."
(5) The Sign of Quantity is "all."
(6) The Proposition now becomes "All | men who do not know what 'toothache' means | are | happy men."]

*(8) "Some farmers always grumble at the weather, whatever it may*

*be.”*

(1) The Subject is “farmers.”
(2) The Verb is “grumble,” for which we substitute the phrase “are * * * who grumble.”
(3) The Predicate is ” * * * who always grumble &c.
(4) Let Univ. be “persons.”
(5) The Sign of Quantity is “some.”
(6) The Proposition now becomes “Some | farmers | are | persons who always grumble at the weather, whatever it may be.”

*(9) “No lambs are accustomed to smoke cigars.”*

(1) The Subject is “lambs.”
(2) The Verb is “are.”
(3) The Predicate is ” * * * accustomed &c.”
(4) Let Univ. be “animals.”
(5) The Sign of Quantity is “no.”
(6) The Proposition now becomes “No | lambs | are | animals accustomed to smoke cigars.”

*(10) “I ca’n’t understand examples that are not arranged in regular order, like those I am used to.”*

(1) The Subject is “examples that,” &c.
(2) The Verb is “I ca’n’t understand,” which we must alter, so as to have “examples,” instead of “I,” as the nominative case. It may be expressed as “are not under- stood by me.”
(3) The Predicate is ” * * * not understood by me.”
(4) Let Univ. be “examples.”
(5) The Sign of Quantity is “all.”
(6) The Proposition now becomes “All | examples that are not arranged in regular order like those I am used to | are | examples not understood by me.”

Section 3. A Proposition of Relation, beginning with “All”, is a Double Proposition.
A Proposition of Relation, beginning with “All”, asserts (as we already know) that “All Members of the Subject are Members of the Predicate”. This evidently contains, as a part of what it tells us,

the smaller Proposition "Some Mem- bers of the Subject are Members of the Predicate".

[Thus, the Proposition "All bankers are rich men" evidently contains the smaller Proposition "Some bankers are rich men".]

The question now arises "What is the rest of the information which this Proposition gives us?"

In order to answer this question, let us begin with the smaller Proposition, "Some Members of the Subject are Members of the Predicate," and suppose that this is all we have been told; and let us proceed to inquire what else we need to be told, in order to know that "All Members of the Subject are Members of the Predicate".

[Thus, we may suppose that the Proposition "Some bankers are rich men" is all the information we posses; and we may proceed to inquire what other Proposition needs to be added to it, in order to make up the entire Proposition "All bankers are rich men".]

Let us also suppose that the 'Univ.' (i.e. the Genus, of which both the Subject and the Predicate are Specieses) has been divided (by the Process of Dichotomy) into two smaller Classes, viz.

(1) the Predicate; (2) the Class whose Differentia is contradictory to that of the Predicate.

[Thus, we may suppose that the Genus "men," (of which both "bankers" and "rich men" are Specieses) has been divided into the two smaller Classes, "rich men", "poor men".]

Now we know that every Member of the Subject is (as shown at p. 6) a Member of the Univ. Hence every Mem- ber of the Subject is either in Class (1) or else in Class (2).

[Thus, we know that every banker is a Member of the Genus "men". Hence, every banker is either in the Class "rich men", or else in the Class "poor men".]

Also we have been told that, in the case we are discussing, some Members of the Subject are in Class (1). What else do we need to be told, in order to know that all of them are there? Evidently we need to be told that none of them are in Class (2); i.e. that none of them are Members of the Class whose Differentia is contradictory to that of the Predicate.

[Thus, we may suppose we have been told that some bankers are in the Class "rich men". What else do we need to be told, in order to know that all of them are there? Evidently we need to be told that none of them are in the Class "poor men".]

Hence a Proposition of Relation, beginning with "All", is a Double Proposition, and is 'equivalent' to (i.e. gives the same information as) the two Propositions
(1) "Some Members of the Subject are Members of the Predicate";
(2) "No Members of the Subject are Members of the Class whose Differentia is contradictory to that of the Predicate".
[Thus, the Proposition "All bankers are rich men" is Double Proposition, and is equivalent to the two Propositions (1) "Some bankers are rich men"; (2) "No bankers are poor men".]
Section 4. What is implied, in a Proposition of Relation, as to the Reality of its Terms?
Note that the rules, here laid down, are arbitrary, and only apply to Part I of my "Symbolic Logic."
A Proposition of Relation, beginning with "Some", is henceforward to be understood as asserting that there are some existing Things, which, being Members of the Subject, are also Members of the Predicate; i.e. that some existing Things are Members of both Terms at once. Hence it is to be understood as implying that each Term, taken by itself, is Real.
[Thus, the Proposition "Some rich men are invalids" is to be understood as asserting that some existing Things are "rich invalids". Hence it implies that each of the two Classes, "rich men" and "invalids", taken by itself, is Real.]
A Proposition of Relation, beginning with "No", is henceforward to be understood as asserting that there are no existing Things which, being Members of the Subject, are also Members of the Predicate; i.e. that no existing Things are Members of both Terms at once. But this implies nothing as to the Reality of either Term taken by itself.
[Thus, the Proposition "No mermaids are milliners" is to be understood as asserting that no existing Things are "mer- maid-milliners". But this implies nothing as to the Reality, or the Unreality, of either of the two Classes, "mermaids" and "milliners", taken by itself. In this case as it happerns, the Subject is Imaginary, and the Predicate Real.]
A Proposition of Relation, beginning with "All", contains (see Section 3) a similar Proposition beginning with "Some" Hence it is to be understood as implying that each Term, taken by itself, is Real.
[Thus, the Proposition "All hyÃ_nas are savage animals" contains

the Proposition "Some hyÃ_nas are savage animals". Hence it implies that each of the two Classes, "hyÃ_na" and "savage animals", taken by itself, is Real.]

Section 5. Translation of a Proposition of Relation into or more Propositions of Existence.

We have seen that a Proposition of Relation, beginning with "Some," asserts that some existing Things, being Members of its Subject, are also Members of its Predicate. Hence, it asserts that some existing Things are Members of both; i.e. it asserts that some existing Things are Members of the Class of Things which have all the Attributes of the Subject and the Predicate.

Hence, to translate it into a Proposition of Existence, we take "existing Things" as the new Subject, and Things, which have all the Attributes of the Subject and the Predicate, as the new Predicate.

Similarly for a Proposition of Relation beginning with "No".

A Proposition of Relation, beginning with "All", is (as shown in Section3) equivalent to two Proposition, one beginning with "Some" and the other with "No", each of which we now know how to translate.

[Let us work a few Examples, to illustrate these Rules.

(1) "Some apples are not ripe." Here we arrange thus:– "Some" . . . . . . . . . . Sign of Quantity. "existing Things" . . . . . . Subject. "are" . . . . . . . . . . . . Copula. "not-ripe apples" . . . . . . Predicate. or thus:– "Some | existing Things | are | not-ripe apples."

(2) Some farmers always grumble at the weather, what- ever it may be." Here we arrange thus:– "Some | existing Things | are | farmers who always grumbe at the weather, whatever it may be."

(3) "No lambs are accustomed to smoke cigars." Here we arrange thus:– "No | existing Things |are | lambs accustomed to smoke cigars."

(4) "None of my speculations have brought me as much as 5 per cent." Here we arrange thus:– "No | existing Things | are | speculations of mine, which have brought me as much as 5 per cent."

(5) "None but the brave deserve the fair." Here we not, to begin with, that the phrase "none but the brave" is equivalent to "no not-brave men." We then arrange thus:– "No | existing Things | are | not-brave men deserving of the fair."

(6) "All bankers are rich men." This is equivalent to the two

Propositions "Some bankers are rich men" and "No bankers are poor men." Here we arrange thus:– "Some | existing Things | are | rich bankers"; and No | existing Things | are | poor bankers."