LOGICAL IMPLICATION.

The point raised by Mr. MacColl in the January number has a certain interest for Formal Logic, and its bearing upon the views of Mr. Russell shows how easily a formal point may become more than formal. Perhaps a further remark with regard to it may be useful. Taking the instance given by Mr. MacColl, the essential steps seem to be the following:—

He is either a doctor or not a doctor, and he is either red-haired or not red-haired (1).

He is either a doctor or not a doctor or red-haired or not red-haired (2).

(He is either a doctor or not red-haired) or (not a doctor or red-haired) (3).

Either (if he is red-haired he is a doctor) or (if he is a doctor he is red-haired) (4).

Mr. MacColl seems to deny the legitimacy of the transition from (3) to (4); and this is a view that may very well be taken. But are not the other steps at least equally open to question? The transition from (1) to (2) seems to depend on the principle that the weaker 'or' can always be inferred from the stronger 'and'. For purely formal purposes (whatever exactly these are) this principle may be true; but if anything more than a formal use is to be made of such a process, it might be well to remember the saying of Mr. Bradley, 'I confess I should despair of human language, if such distinctions as separate "and" from "or" could be broken down'.¹ Again, it may be doubted whether the transition from (2) to (3) is legitimate. The former affirms that there are four alternative possibilities, one of which must be true. The latter, on the other hand, seems to affirm that there are two alternative possibilities; but leaves it uncertain what the two possibilities are. This compound disjunction surely does not convey the same meaning as the simple one. The implication of the former is that, if three of the alternatives are rejected, the fourth must hold. The implication of the latter is that, if one of the alternatives is rejected, a second must hold; but that it remains uncertain what the two alternatives are that are thus related. Personally I am inclined to think that the really serious fallacy is in this transition from (2) to (3). To take another illustration, if I say 'It is either white or black, or else it is either red or green,' I do not mean quite the same thing as when I say 'It is either white, black, red or green'. Or again, if I say 'a figure is either round or not-round and it is either square or not-square,' it is surely not legitimate to infer 'It is either round or not-square, or else it is either square or not-round'.

The general moral of the discussion appears to be that we should never be sure that what seems to be a formal change is purely formal. In particular, it leads us to see that the implications of a double disjunction have not yet been sufficiently brought out by logicians.

J. S. MACKENZIE.

THIRD INTERNATIONAL PHILOSOPHICAL CONGRESS. HEIDELBERG, 1908

The Third International Philosophical Congress is to take place at Heidelberg from the 1st to the 5th September. On Monday, 31st August, there will be an Evening Reception, and an excursion has been arranged for the afternoon of Saturday, 5th September.

There are to be four General Sitzings of the Congress, and it will be

¹ *Principles of Logic*, book i., chap. iv.