

DOUBLE ACCUSATIVES AND VALID INFERENCE

Alexander BROADIE

Propositions featuring a construction of the kind that traditional grammar books term «double accusative» present an interesting problem of symbolisation. In this paper I should like to state the problem and to offer a solution which is effective for one common type of double accusative.

(1) John is painting a door

can be seen as constructed by the insertion of an argument in each argument place of the two place predicate «— is painting—». Expressed in the notation of the predicate calculus, (1) is $Ex(Dx \ \& \ Fax)$. In (1) «a door» is a logical unit in the sense that it can be replaced by a single bound variable. This formal feature of (1) corresponds to the fact that in answer to the question «What is John painting?» we can reply «A door».

(2) John is painting a door blue

differs interestingly from (1), the chief difference lying in the fact that in (2) «a door blue» cannot be replaced by a single bound variable – in answer to the question «What is John painting?» we cannot say «A door blue». If it makes sense to give «A door blue» in answer to anything it can only be to a pair of questions, for example, «What colour is John painting what?» Employing the traditional terminology we can say that the chief syntactical difference between (1) and (2) is that while (1) contains a single accusative (2) contains a double accusative.

How, then, should (2) be symbolised? The first proposal we shall consider is that just as (1) is composed of a two place predicate with an argument in each argument place, so (2) is composed of a three place predicate with an argument in each available place. Perhaps, therefore, (2) should be symbolised as $Ex(Dx \ \& \ Faxb)$. However, many logicians would resist the employment of a predicate term with a variable number of argument places, and would prefer to say that if

indeed (2) contains a three place predicate then the fact that (1) and (2) contain the same verb «is painting» does not justify the use of the predicate letter «F» in the symbolisation of (2) if that letter is chosen for the symbolisation of (1). (2) should be symbolised as, say, $Ex(Dx \& Gaxb)$.

The obvious criticism to make of this proposal is that it is surely the same «is painting» that occurs in both propositions, and in that case it seems misguided to use a different predicate letter in (2) from that used in (1), particularly as using different predicate letters would serve only to obscure the fact that (1) is implied by (2). If it is not the same «is painting», we are tempted to ask, how can (2) imply (1)? That is to say, formalisation cannot be carried out without regard to what the propositions being formalised are saying, and since the verb occurs univocally in both propositions one and the same predicate letter must occur in the two formalisations.

This consideration could be made the basis of an argument to the effect that the rule that a predicate should take a fixed number of argument places must, at least for certain cases, be relaxed. But a second, quite different proposal could be put forward, namely, that propositions (1) and (2) both have a three place predicate though only (2) displays the three places perspicuously by providing an argument for each argument place. Thus (1) could be understood as an elliptical way of saying «John is painting a door somewhat». Since (2) already says who is painting what and what colour he is painting it, it does not need to be augmented by a quantifier expression.

This move has the two merits that it would ensure that the same predicate letter could be used in the formalisation of both propositions, and that the inference of (1) from (2) could readily be proved. But against these two merits should be balanced the drawback that the suggested solution ascribes to the predicate of (1) a third argument that it does not in fact seem to have.

We might, then, consider a third proposal regarding the problem of the symbolisation of (2). This third one is in a sense the opposite to that just considered, for whereas the second proposal involved treating (1) as containing a three place predicate thereby squaring it with (2), the new proposal requires that (2) be treated as containing a two place predicate thereby squaring it with (1). The latest proposal is that (2) should be seen as constructed by the insertion of (1) in the one

argument place of a sentence forming adverbial operator operating on a sentence. Thus, employing brackets in the conventional way to indicate the order of construction of the proposition, (2) can be expressed as:

(3) Bluely (((paints) John) a door)

or as:

(4) Bluely (((paints) a door) John).

An adverb, *Adv*, which is a sentence forming operator operating on a sentence, is of one or other of two kinds; either (a) $Adv(p) \therefore p$ is a valid inference, or (b) it is not. The first class of cases includes «necessarily», «last year» and «in the palace». The second class includes «possibly» and «allegedly». The proposal is, then, that the second accusative in the double accusative construction in (2) should be treated as an adverb of the kind (a).

This suggestion, like the preceding one, has the merit that it ensures that in the symbolisation of (1) and (2) the same predicate letter is used. But, like the previous one, it has the drawback that it is an ad hoc proposal based less on an analysis of (2) than on a recognition of the need to ensure that the predicate letters employed in the symbolisation of (1) reappear in the symbolisation of (2) and also that (1) can be validly inferred from (2). And just as the second proposal requires that there be ascribed to (1) a three place predicate though the predicate of (1) does not seem to have a third argument, so in the third proposal «blue» is being treated as an adverb when it has all the appearances of being the name of a colour. Another solution must, then, be sought.

The proper analysis of (2) has the elusiveness of the analysis of any action sentence. I might, for example, describe John as painting a door blue though what he is now doing is painting on a white undercoat, and I say he is painting the door blue because I know he intends that the door be blue by the time he has finished painting it. This suggests that as a first step in the symbolisation of (2) we could say that it should be expressed as:

(5) $Ex(x \text{ is a door} \ \& \ \text{John is painting } x \ \& \ \text{John intends that when he has finished painting } x \ x \text{ will be blue}).$

Clearly, on this new interpretation the predicate letters which appear in the symbolisation of (1) reappear in the symbolic form of (2), and the inference of (1) from (2) can be shown to be valid. Also these two desiderata are achieved without any ad hoc rewriting of (2) which is designed specifically to secure those desirable ends.

But (2) can be understood otherwise. John may be blind, or at least colour blind, and have no idea or an incorrect idea of the colour of paint he is using on the door, and it might all the same be true of him that he is painting a door blue. In that case the first step towards a symbolisation of (2) could take us to:

- (6) $\text{Ex}(x \text{ is a door} \ \& \ \text{John is painting } x \ \& \ \text{when John has finished painting } x \ x \text{ will be blue}).$

Once again, the predicate letters used in the symbolisation of (1) can reappear in the symbolisation of (2), and (1) can be shown to be a valid inference from (2). Also such a symbolic translation avoids the implausibility of the second and third proposals.

It is not, however, to be supposed that all propositions containing a double accusative construction admit of the same forms of analysis as the ones just presented for (2). Although in at least some cases the same desiderata have to be satisfied, they cannot be satisfied in the same way. For example,

(7) The people elected Reagan president
implies

- (8) The people elected Reagan

and we should wish the predicate letter symbolising «elected» in the symbolisation of (8) to reappear in the symbolisation of (7), but the formal expression of (7) cannot be along precisely the lines of (5) or (6).

Nevertheless it should be clear from the foregoing discussion that a satisfactory way to deal with the problem of the symbolisation of propositions containing the double accusative construction can be found, at least for some cases, by rewriting the proposition in question in such a way that no double accusative construction occurs in the rewrite.