

## PLATO'S METHOD OF DIVISION

Our main difficulty with Plato's method of division is that we don't know what is being divided or what it is being divided into. And until we know these things, we don't know very much about the method of division.

Professor Moravcsik rightly focusses on these questions and does us the service of laying out for our examination several clear models of what the method may be, as well as the texts onto which these models have to be imposed. By examining both the internal structure of these models and their compatibility with Plato's texts we should begin to achieve a better understanding of the method of division.

In my comments I will ignore what Moravcsik calls the 'crude' model, and concentrate on the 'clean' and 'intensional mereology' (hereafter 'I.M.')

models. At the risk of proliferating models beyond necessity, I will also introduce, for each of these models, a variant which I think deserves serious consideration. In contrast to the clean model I will present one which I think is 'cleaner' still, and as a rival to the I.M. model I will offer a version which I hope avoids what seem to me to be difficulties in Professor Moravcsik's formulation.

### I. WHAT GETS DIVIDED?

There are immediately two possibilities: what gets divided may be an extensional entity, or it may be an intensional entity. Moravcsik's clean model has a class, presumably an extensional entity, as what I will call the dividend (i.e., what gets divided); the *parts*, then, (i.e., what the dividend gets divided into) will also be extensional entities – subclasses of the dividend class. Alternatively, what gets divided may be an intensional entity (a Form itself, rather than its extension); and the parts will also be intensional entities. Some of the parts will be Forms, but some, it seems, will not. This creates a problem which I will return to later.

The clean model treats the dividend as an extensional entity and the

*part-of* relation as the *subclass-of* relation. But it is not the only possible model which has these features. The dividend class on the clean model is a class of Forms, i.e., the extension of a second-order predicate. But we might, instead, treat the divided class as a class of particulars, i.e., as the extension of first-order predicate. If we treat the divided class as a class of particulars, division will still involve distinguishing subclasses of the dividend class, and the *part-of* relation will still be the *subclass-of* relation. And as with the clean model, proper division will be division into a subclass which is the extension of a Form. We divide *into parts* (subclasses) according to Forms (*kat' eidē*). The only difference between the models is over the question of what the dividend class is a class of.

## II. THE SUPERCLEAN MODEL

I'll call this alternative to the clean model the *superclean* model. According to it, to define 'sophistry' or 'the sophist' is to enumerate all those Forms *F* such that:

- (i) the extension of 'sophist' is included in the extension of *F*, and
- (ii) the extension of *F* is included in the extension of the original dividend Form, in this case, the Form *technē*.

(It may be that the superclean model is merely a more precise articulation of the crude model – I don't find the crude model in Cornford clear enough to tell.)

## III. OBJECTION TO THE SUPERCLEAN MODEL

Against the superclean model it might be urged that Plato divides *Art* into the various arts, not into the various artists or art-works. So a part of the dividend, *technē*, cannot be a class of artists or a class of artworks, but must be a class of *arts*. And an individual art is presumably a Form in which artists (or artworks – how can we decide which?) participate. So the dividend class must be a class of Forms, rather than a very general class of particulars.

## IV. REPLY

But how good is this objection? It is only as good as the claim that we are dealing, in division as practiced in the *Sophist*, with second- rather than

first-order predicates. But how is this established? Consider Professor Moravcsik's argument:

Mr. X might be a sophist; but what we are accounting for is not Mr. X and his cohorts, but the art of sophistry, of which they partake. ... [We] name properties of the art of sophistry, and not properties of individuals. E.g., sophistry is an acquisitive art – according to some of the divisions – but Mr. X is clearly not; he partakes of an art which in turn is acquisitive. Neither predication, nor Plato's participation relation are transitive, starting with particulars.

I do not find this argument convincing. Professor Moravcsik thinks that Mr. X cannot participate in the Form *Acquisitive Art*<sup>1</sup> because he is a man and not an art. But how then can Mr. X participate in the Form *Sophistry*? For surely Mr. X is not a sophistry. (If it is objected that the Form Mr. X partakes of is *Sophist*, not *Sophistry*, the reply is that *Sophist* is not an art either – if one thinks it is, then Mr. X cannot participate in it.) Of course, we do want to allow that Mr. X participates in the form *Sophistry*, and in virtue of this participation he is a practitioner of that art, i.e., a sophist. If *Sophistry* is an acquisitive art, then Mr. X participates in the Form (if there be one) *Acquisitive Art*, and in virtue of this participation is a practitioner of that kind of art, i.e., an acquisitive artist. ('Acquisitive artist', like 'good cobbler', does not, in general, admit of simplification.) In short, I see no reason why we cannot treat all the predicates alike, presumably as first-order predicates. If Mr. X can partake of *Sophistry* and be thereby nothing more than a sophist, then he can partake of *Art* without being thereby anything more exalted than an artist.

#### V. FURTHER COMMENTS ON THE SUPERCLEAN MODEL

In favor of the superclean model is the fact that in it, unlike the clean model, there is no confusion between class membership and class inclusion. Recall that on the clean model, each division yields a subclass of the dividend class, until we reach the final division, which yields a member of the dividend class. (*Acquisitive Art* is a class of arts; *Sophistry* is not a class of arts, but an art.). So 'part', on the clean model, has to cover both the notion of class-inclusion and the notion of class-membership. But on the superclean model, parts are *always* subclasses. The extension of *Art* (=the class of artists) is divided into subclasses, one of which would be, e.g., the extension of *Acquisitive Art* (=the class of acquisitive

artists), and finally into the extension of *Sophistry* (= the class of sophists). Further division is possible, of course, for there are kinds of sophistry, too, but none is wanted, since it was *Sophistry* that was to be defined.

Of course, the other three of Moravcsik's objections to the clean model also militate against the superclean model. But there may be plausible rejoinders to these objections. For example, we may say that when Plato talks of dividing or cutting a Form he *just means* dividing its extension into subclasses according to Forms of which those subclasses are the extensions. This brings up an interesting consideration. If dividing a form *A* is just dividing its extension into subclasses, it would seem to follow that if two Forms are extensionally equivalent, to divide the one is to divide the other.

It seems to me terribly difficult to decide just which way this consideration cuts. One would have thought that when Plato was dividing the Form *Difference* into parts, he was not also dividing the rest of the *megista genē* into parts. And if he was not, the superclean model must be abandoned. On the other hand, there is an argument at *Soph.* 257D–E which seems to require just this thesis of extensionality of division. There it is argued, in effect, that since *Not-Beautiful* is a part of *Difference*, it is therefore a part of *Being*. Now *Difference* and *Being* are extensionally equivalent but intensionally distinct. So the only way the conclusion will follow is if we assume that a part of *Difference* is just a subclass of the extension of *Difference*. For given this, a part of *Difference* will also be a subclass of the extension of *Being*, and hence a part of *Being*.

I hope I have given sufficient reason for treating the superclean model as a serious candidate. To push it through all the way one would have to hold, I think, that Plato uses *eidōs* in a systematically ambiguous way, sometimes meaning Form, sometimes meaning extension of a Form. (Better: *eidōs* sometimes has an intensional sense, and sometimes an extensional sense.) This may be supported on the grounds that Plato is ambiguous in just this way in using the names of individual Forms; the ambiguity in the name of each *eidōs* may perhaps have carried over to the technical term *eidōs* itself.

#### VI. CRITICISM OF THE I.M. MODEL

Rather than pursue the superclean model any further, I want now to turn

my attention to the I.M. model. In this model, extensions are abandoned altogether. A Form is an intensional entity which may have two sorts of parts: what Moravcsik calls *parts'* and *parts"*. A *part'* is always a Form, but a *part"* need not be.

Now the success of this model requires, at least, the adequacy of the definitions of the two sorts of part, for they form the backbone of the model. Unfortunately, I find neither of the definitions adequate. I will first consider the notion of *parts"*.

When he confronts his favored model with the difficult *eidōs/meros* distinction in *Pol.* 263A–B, Moravcsik says that the question of whether each *meros* (of some *genos*) is an *eidōs* can be represented in the model in this way: is each *part"* of a Form *A* also an *eidōs*? But curiously, he does this without ever having defined '*x* is a *part"* of *A*' in setting up the model. So how are we to understand the question? What *has* been defined is the conjunction '*X* is a *part"* of *A* and *x* is an *eidōs* of *A*', and this has been defined to mean '*x* is a kind of *A*'. But to deal with 263A–B, we must also make sense of '*x* is a *part"* of *A* and *x* is *not* an *eidōs* of *A*'. But what sense are we to make of this? *X*, in such a case, must be in every way *like* a kind of *A* except for not being a kind. At one point (p. 175) Moravcsik seems to give 'collection of *parts'* of *A*' as a gloss on '*part"* of *A*'. But what is a *collection* of *parts'*? This smacks of extensionality – a collection of *parts'* is, perhaps, a set or class of *parts'*. But then a *meros* which is not an *eidōs* will turn out to be a *class* of Forms which have no specific unity. If so, a *meros* which is an *eidōs* turns out to be a *class* of Forms which do have a specific unity – presumably, a class of Forms such that there is some Form that they, and only they, partake of. And if such a *meros* really *is* an *eidōs* (as opposed to merely *having* an *eidōs*), then an *eidōs*, as well as a *meros*, turns out to be a class of Forms.

But now the I.M. model has come dangerously close to collapsing into the clean model. For on the clean model, a *meros* was treated as a class, and the I.M. model was supposed to be able to avoid this. Further, the I.M. model not only treats *meros* as ambiguous, it also seems to have to treat *eidōs* as ambiguous: sometimes *eidōs* means *Form*, sometimes it means *class of Forms*. At this point I feel some inclination to go back to the superclean model, which need take only *eidōs* ambiguously, and ambiguously in a different, and what seems to me to be a more plausible, way (sometimes meaning *Form*, sometimes *extension of a Form*).

Not only does the I.M. model contain no definition of *part*''; it contains what seems to be an inadequate definition of *part*'. The definition, you will recall, is this:  $x$  is a *part*' of  $A = x$  has  $A$  as a property and  $x$  is itself a Form and  $A$  does not have  $x$  as a property. Note that the third conjunct is required if the *part*' of relation is to be asymmetrical and irreflexive; for otherwise, self-predicative Forms would be *parts*' of themselves, and the *megista genē*, e.g., would be *parts*' of one another. But the trouble is that the definition does not rule out quite enough. As it stands, the definition will allow generic Forms to have quite unexpected and unwanted *parts*'. The intent of the definition, Moravcsik makes clear, is for a *part*' of a generic Form to be a specific sub-Form of that Form. Thus, "an art is a *part*' of the Form Art; and... the *parts*' of Science are the various sciences" (p. 175). So in the case of the *megista genē*, one would expect the *parts* of, e.g., *Difference* to be the various Forms of difference (i.e., the Forms specifying the various ways of being different).<sup>2</sup>

But Moravcsik's definition will allow any Form which shares non-reciprocally in *Difference* to be a *part*' of *Difference*. Thus, the *Even*, for example, is a Form which has the property of difference (since everything does) and *Difference* does not have the property of being even. So *Even* would have to be allowed as a *part*' of *Difference*. Indeed, every Form that *Difference* does not share in would count, according to the proposed definition, as a *part*' of *Difference*. Similarly, the *Large* would have to be thought of as a *part*' of *Rest*. But nowhere does Plato give any indication that he thought of such Forms as standing in the *part of* relation, in any sense of '*part*'. The trouble, of course, is that while the *parts* of  $A$  may be Forms which have  $A$  (non-reciprocally) as a property, this is only incidental to their being *parts* of  $A$ .

These defects in the I.M. model seem to me to make it unacceptable as it stands. But if the letter is wrong, the spirit may still be right; in what follows I will try to develop another model, similar to the I.M. model, but free of the defects of the latter.

#### VII. A NEW I.M. MODEL

The following assumptions and stipulations will be operative in the model to be sketched. (1) We assume that there are *intensions*, however this is to be understood. (Perhaps *intensions* will be the *senses* of predicates.) (2)

Some intensions are Forms, and some are not. (Thus, while there will be an intension for every predicate, there will not be a Form for every predicate.) (3) A *part (meros)* of an intension is itself an intension. (4) *Genē* and *eidē* are both Forms (cf. *Soph.* 222D, 227D, 228E). (5) Each *eidos* of a *genos* is a part (*meros*) of that *genos*; but not every *meros* of a *genos* is an *eidos* of that *genos* (cf. *Pol.* 263B). (6) The *part of* relation will be defined in terms of entailment.

## VIII. MACHINERY OF THE NEW I.M. MODEL

- (1) Let 'A', 'B', etc., be predicate variables.
- (2)  $A$  is the intension of A, etc.
- (3)  $E(A)$  is the extension of A. ( $E(A) = \hat{x}Ax$ )
- (4) The arrow will represent entailment between intensions;  
 $A \rightarrow B$  iff  $\square (x)(Ax \supset Bx)$
- (5)  $A$  is a part of  $B =_{df} A \rightarrow B \ \& \ \neg (B \rightarrow A)$
- (6) Note that while  $A \rightarrow B$  entails  $E(A) \subset E(B)$ , the converse does not hold.
- (7)  $A$  is an *eidos* of  $B$  iff
  - (a)  $A$  is a part of  $B$ , and
  - (b)  $A$  is a Form.

(How we decide when 7(b) is true poses a problem which I shall discuss in Section XI below.)

IX. DIVISION AND COLLECTION ON THE NEW  
I.M. MODEL

The method aims at giving the *logos* of some *eidos*, i.e., some abstract singular description of the *eidos* in terms of the parts of some suitably broad *genos*. The method requires the following procedures:

- (1) *Selection*: An original dividend *genos* is selected which has the *eidos* to be explicated as a part.
- (2) *Division*: Two or more parts of a *genos* are ascertained.
- (3) *Collection*: Two or more parts of a *genos* are examined to see whether they are parts of some *eidos* of that *genos*.
- (4) *Location*: The *eidos* to be explicated is found to be a part of

one (or more) of the parts reached by previous steps of division or collection.

- (5) *Closure*: The *eidos* to be explicated is found to be an *immediate* part of a part reached by a previous step, where 'immediate part of' is defined as follows:

$A$  is an immediate part of  $B =_{\text{df}}$   $A$  is a part of  $B$  and there is no  $C$  such that:  $A$  is a part of  $C$  and  $C$  is a part of  $B$ .

The method of division does not, of course, constitute a decision procedure for giving *logoi* since it provides no rules for carrying out the steps of selecting, dividing, locating, etc. Selection, division, etc., must be un-tuitive. Schematically, the method proceeds as follows:

- (1) Suppose  $S$  is to be defined, and  $A$  is the selected *genos*.
- (2)  $A$  is divided into parts  $B_1, \dots, B_n$ .
- (3)  $S$  is located in one (or more) of  $B_1, \dots, B_n$ .
- (4) Select one of the  $B$ 's in which  $S$  is located and determine whether it is a Form.
  - (a) If it is, divide it.
  - (b) If it is not, collect it along with other parts of  $A$  to see whether a  $C$  can be found such that:
    - (i)  $C$  is a part of  $A$
    - (ii)  $C$  is a Form
    - (iii) All the collected parts of  $A$  are parts of  $C$ ; If such a  $C$  can be found, divide it. Otherwise, the (non-Form)  $B$  in which  $S$  has been located can be divided.
- (5) Step (4) yields a set of parts. Repeated applications of location, division, and (where necessary) collection will yield a part  $R$  of which  $S$  is an immediate part.
- (6) At this point a closure of the division has been achieved. Tracing back through the steps of the division from  $S$  to  $A$  will yield an entailment chain (i.e., a set of intensions  $\{A, B, \dots, R, S\}$  such that  $S \rightarrow R, R \rightarrow Q, \dots, B \rightarrow A$ ). An enumeration of all the intensions (save  $S$ ) in the chain yields a *logos* of  $S$ .

#### X. CONSIDERATIONS IN FAVOR OF THE NEW I.M. MODEL

- (1) It makes sense of the notion that Forms are divided into parts.



*Man* is a part of *Animal* because being a man entails being an animal.

(2) It provides an *eidōs/meros* distinction while allowing that some *merē* can be *eidē*. *Man* is a part of *Animal* and is an *eidōs* of *Animal* since *Man* is a Form: *Barbarian* is a part of *Man* (being a barbarian entails being a man) but not an *eidōs* of *Man*, since *Barbarian* is not a Form.

(3) It allows division into non-*eidōs* parts (e.g., using short arguments) even though division into *eidē* is preferable (cf. *Pol.* 262E).

(4) It treats the *part of* relation as irreflexive and asymmetric while avoiding the difficulties in the *part' of* relation pointed out above. Thus, *Large* is not a part of *Rest* since being large does not entail being at rest (even though, of course, *Large* has the property of being at rest). On the other hand, *Not-Beautiful* (whether or not it is a Form) is a part of *Difference*, since not being beautiful entails being different. (Cf. Plato's analysis of 'not beautiful' as 'different from the nature of the Beautiful' – *Soph.* 257D.)

(5) It allows for the multiplicity of correct characterizations by division. Characterization by division consists of giving an entailment chain linking the Form to be characterized with the selected *genos*. It is clear that there can be more than one correct entailment-chain, since the parts produced by division need not be exclusive or exhaustive.

#### XI. SOME RESERVATIONS AND LIMITATIONS

(1) The basic notions of the New I.M. model can be expressed in terms of set-theory and modal logic. Or, at least, a model isomorphic to the New I.M. model can be produced using only the notions of class inclusion and necessity. Thus, the New I.M. model may be very close to the superclean model, little more than notationally different. (But in my heart I favor the superclean model anyway, so I'm not sure this is a disadvantage.)

(2) The model gives us no help with the question of which intensions are Forms, but assumes we have some independent way of determining this. But perhaps it would be requiring too much of the model to suppose it could provide an answer to this question. (The question is still an interesting one. *Pol.* 262 suggests that the intension of a predicate is a Form only if the members of the extension of that predicate have something in common other than just the predicate. But this is not much help, since barbarians have *not being Greek* in common. We might try to define the

notion of 'non-negative intension' and say that the intension of a predicate is a Form only if the members of the extension of that predicate have some *non-negative intension* in common. Thus, *not being Greek* is a negative intension, so the fact that barbarians have it in common will not make *Barbarian* a Form. But now there can be no *syntactic* test for whether an intension is non-negative, since *Barbarian* is a negative intension but is not explicitly negative. Nor will it help to say that *Barbarian* is negative since *Barbarian = non-Greek*, for by the same token *Greek* would be negative since *Greek = non-Barbarian*.

Alternatively, we might say that Socrates is an animal *by virtue of* being a man, whereas it is not the case that Socrates is an animal by virtue of being a non-reptile. This suggests the following schema for isolating intensions which are Forms:

$$A \text{ is a Form iff } (B)(x)(A \text{ is a part of } B \ \& \ x \in E(A) \supset \\ Bx \text{ by virtue of the fact that } Ax).$$

Unfortunately, giving the truth conditions for '*Bx* by virtue of the fact that *Ax*' seems no easier than giving those for '*A* is a Form'. And if the intensional notion *by virtue of* used here is the one Plato habitually uses, then the procedure of applying this schema will be circular. For '*by virtue of the fact that Ax*' will have to be understood as '*by virtue of x's participating in A*', and this will be true only if *A* is a Form. So it seems that in order to know that Socrates is an animal by virtue of being a man we have already to know that *Man* is a Form.)

But the fact that the New I.M. model doesn't tell us which intensions are Forms leaves it no worse off than any of its rivals, for analogous problems will crop up with them. Thus, on the superclean model we know that a *meros* which is an *eidōs* is the extension of a Form, and a *meros* which is not an *eidōs* is a subclass of the extension of a Form but not itself the extension of a Form. But what a Form is the model doesn't tell us.

(3) My final worry about the New I.M. model, indeed about all intensional models, is that they do not mesh very nicely with an intuitive understanding of the *part of* relation. One would have thought that while the class of men is a part of the class of animals, the intension *Animal* is part of the intension *Man*, and not the other way around. For 'animal' is part of the definition of 'man', while 'man' is not part of the definition of

'animal'. If we want a model which makes good *literal* sense of the *part of* relation, we may have to go back to a model which gives us classes to divide and is hence at least partly extensional. Here the clean and super-clean models recommend themselves; of the two, I prefer the latter.

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#### NOTES

<sup>1</sup> I will adopt the practice of writing the names of Forms in italics, capitalizing the initial letters.

<sup>2</sup> At *Soph.* 257C–258C, the Stranger offers the *Not-Beautiful* and the *Not-Tall* as examples of the parts of *Difference*. If these are Forms (which is controversial) they might be thought of as Forms which specify ways of being different (e.g., being 'different from the nature of the Beautiful' (257D) is a way of being different). In this case, these 'negative' Forms would be parts' (in the intended sense) of *Difference*.