1. FOUR PUZZLES OF MATERIAL CONSTITUTION

(1) The Debtor's Paradox
(2) Tibbles and Tib
(3) The Ship of Theseus
(4) The Statue and The Clay

2. FIVE INCOMPATIBLE ASSUMPTIONS

FROM 'MATERIAL CONSTITUTION: A READER' BY MICHAEL REA, INTRO.

The Existence Assumption: There is an F and there are ps that compose an F.

Essentialist Assumption: For any ps, if the ps compose an F, then the ps compose some object A such that A essentially is composed of the ps...
if A is essentially composed of the ps then the ps compose A at every time that A exists.

Principle of Alternative Combinatorial Possibilities (PACP): For any ps, if the ps compose an F, then the ps compose some object B such that B is not essentially composed of the ps...
if B is not essentially composed of the ps then B can be composed of the ps at some times it exisst but not at others.

The Identity Assumption: For any objects x and y , if x and y share all the same parts at the same time, then x is identical with y.

The Necessity Assumption: For any objects x and y , if x is identical with y, then it is necessary that x is identical with y...
if it is necessary that x is identical with y, then x is identical with y at every moment it exists.

Q What does the conjunction of the identity assumption and the necessity assumption entail?

3. WHY ARE THESE ASSUMPTIONS INCOMPATIBLE?

We show that the five assumptions lead to a contradiction. Consider this easy argument that also leads to a contradiction.

P1 All triangles have only three sides.
P2 All isosceles triangles are triangles.
P3 All squares have only four sides.
P4 All isosceles triangles are squares.
P5 If a shape has only four sides, then it cannot have only three sides.
P6 All triangles and squares are shapes.
C1 From P1 and P2 it follows that isosceles triangles have only three sides.
C2 From P2-P6 it follows that isosceles triangles do not have only three sides.

Q.Is the argument valid? Is the argument sound?

Our Strategy: We assign the names 'A' and 'B' to arbitrary objects. We assume that 'A' and 'B' are composed of the same parts. We then show that under some of these assumptions 'A' and 'B' are identical but under other assumptions 'A' and 'B' are not identical. Rea explains:

> "The problem is that for any composite object a we can (generally) identify an object b that constitutes it and ***b* is essentially related to its parts in a way that *a* is not.** [However] the Identity Assumption tells us that a is identical with b, the Necessity Assumption tells us that a and b could not have been distinct; hence, ***a* and *b* *are not* essentially related to their parts in different ways.**" (Rea, pxxviii, emphasis mine.)

NB: When we speak of the parts that compose an object we mean all the part of that object. We are not speaking about some parts that only partially compose an object.

(1) By the existence assumption, there exists an object that is an F and there exists parts (*p*s) that compose this object.
(2) By the essentialist assumption, since the *p*s compose something, then there exists an object A that is essentially composed by the *p*s.
(3) By PACP, since the *p*s compose something, then there exists an object B that is **not** essentially composed of the *p*s.
(4) By the Identity Assumption, A and B are identical. Proof:
    (a) By the identity assumption, if A and B have the same parts then A and B are identical.
    (b) By essentialist and PACP, A and B have the same parts.
    (c) C: A and B are identical
(5) By the necessity assumption, A and B are not identical. Proof:
    (a) By the necessity assumption, if A and B are identical then at every time that A and B exist, A and B must have the same relationship to the same *p*s.
    (b) By the essentialist assumption, A is essentially composed of the *p*s.
    (c) By PACP, B is not essentially composed of the *p*s.
    (d) C: A and B are not numerically identical

4. Application to a specific example - Lumpl/Goliath or Lump/David

(1) By existence assumption, there exists a statue and there exists parts of that statue (the*p*s).
(2) By the essentialist assumption, since the *p*s compose the statue, then there exists an object A such that the parts of A essentially compose a statue.
(3) Assume that A is David.
(4) By PACP, since the *p*s, compose the statue, then there exists an object B such that the parts of B do not essentially compose a statue.
(5) Assume that B is Lump.
(6) By the identity assumption, David and Lump are identical.
(7) By the necessity assumption, David and Lump are not identical.

5. Responses

Five assumptions cannot all be true together. At least one assumption must be false. If we can identify which assumption or assumptions are false, then we can identify how to solve the puzzles.

Deny Existence Assumption: This solution is called 'eliminativism'. Eliminativists deny the existence of either composite objects like David or they deny the existence of the parts like Lump.

Deny the Essentialist Assumption: Peter Van Inwagen

Deny PACP: Peter Van Inwagen and Roderick Chisholm

Deny the identity assumption: David Wiggins

Deny the necessity assumption: Peter Geach