Paradoxes of Growth and Diminution
January 24, 2001

1. **Paradoxes**

2. **A paradox: Descartes' amputation**

At *t*, Descartes' undergoes the destruction of his left leg.

9a. There is something—Descartes—that occupies the same space as Descartes after *t* and includes a left leg before *t*
9b. There is something—D-minus—that occupies all the space that Descartes occupies before *t*, except for the subregion occupied by his left leg
9c. If there is anything that occupies that region of space before *t*, it occupies exactly the same space as Descartes after *t*
9d. There is at most one thing that occupies the same space as Descartes after *t*

These four sentences can't all be true. Why? Well, from 9b and 9c it follows that there is something (namely, D-minus) that occupies the same space as Descartes after *t* and doesn't include a left leg before *t*. But this claim, together with 9a, entails that there are at least two things that occupy the same space as Descartes after *t*. Here we are relying on the following inference rule:

Some F is G
Some F is not G
Therefore, there are at least two Fs

Van Inwagen argues from 9a, 9c and 9d to the denial of 9b. He claims that he simply does not understand how 9c or 9d could be false. And he thinks it is evident that Descartes and other people sometimes gain and lose parts.

3. **Temporary identity**

A few philosophers have attempted to embrace all four of the sentences by making the following claim: Descartes and D-minus both exist; they are *distinct before t* but *identical after t*. They are *two before t* and *one after t*.

Other philosophers respond: 'We don't know what you mean by tacking on 'at such-and-such time' to the words 'identical' and 'distinct' (and number words). The best hypothesis we can come up with is that your phrase 'identical at *t*' means the same as something along the lines of 'occupying the same space at *t*'. But it seems a poor choice of words, according to you, Descartes and D-minus are "identical at *t*" despite the fact that one does, and the other does not, have the property of *having once had a leg*. This obviously makes no sense at all for *identity*: how could something have different properties from itself? So your relation "identical at *t*" seems to be nothing like the relation of *identity* that we were discussing.'

To which the proponents of temporary identity generally reply: 'We don't know what you mean by using the word "identical" without explicit or

implicit reference to a time ("identical *simpliciter*"). And we don't find the name "identity at *t*' in the least misleading. Yes, it happens frequently that *a* is identical to *b* at *t* despite the fact that *a* and *b* have different properties—though the properties in question are always *historical* properties like *having once had a leg*. Your demand that "identity" should require sharing *all* properties strikes us as most peculiar.'

Van Inwagen seems to want to argue against the "temporary identity" solution by appealing to the transitivity of identity (p. 81). But this argument wouldn't have any impact on someone who claims not to understand the notion of *identity simpliciter*.

4. DAUP and MNE

The Doctrine of Arbitrary Undetached Parts is stated on p.191. Van Inwagen's conclusion that DAUP is false follows from his conclusion that 9b is false. He also gives a more abstract argument against DAUP.

10a. O includes P at t and does not include P or any replacement part at t'. (Assumption)
10b. There is an object (O-minus) that at t occupies all the space occupied by O, except for the subregion occupied by P (from DAUP).
10c. If there is an object that occupies that region of space at t, then it occupies the same region as O at t′.
10d. Two objects never occupy the same region of space at the same time.

Since these four sentences are inconsistent, and since 10c and 10d are true, DAUP and 10a cannot both be true. Hence if DAUP is true, it never happens that an object O has a part at one time that it doesn't have—or have any replacement for—at another time. In other words, the doctrine of Mereological Near-Essentialism (stated on p.192) is true.

Van Inwagen then argues that Mereological Near-Essentialism is false, on the grounds that there are certain things that do sometimes survive the loss of parts, namely people.

5. Chisholm's and Lewis's objections