If functionalism is true, then many if not all mental state types can be defined in terms of their functional relations with sensory “inputs,” motor “outputs,” and one another; and a notion of functional continuity can be defined as a relation among mental state tokens. I have argued elsewhere (1998) and will assume here that what I call

(1) Non-branching functional continuity is a sufficient condition for personal identity.

It is important to realize that (1) holds for all subjects of mental states, not just persons. But the phrase ‘personal identity’ is more familiar than the likes of ‘subject-of-mental-states identity’, and our initial concern is with persons. If a person, Jones, is mentally reciting the words to “Mary had a little lamb...” at t2 because at t1, a person, Smith, was trying to recall how “that nursery rhyme about Mary” went, it may be that the recitation and attempt to recall are functionally continuous, and that Smith = Jones.

But what if Jones is the only person surviving an operation in which something unusual was done to Smith’s brain? I have in mind four cases:

A. Smith’s brain was transplanted to another (conveniently brainless) body.
B. Only Smith’s cerebrum was so transplanted (and the body already had other needed brain-parts).
C. One of Smith’s cerebral hemispheres was removed and then destroyed.
D. Smith’s brain was gradually replaced by an inorganic substitute.
(The “operation” in case D may instead have been a process over a long period of time and not involving doctors at all.) One might expect a functionalist to affirm the identity of Smith and Jones in each of these cases. But in the first two and in some variants of the last two, there are strong arguments against doing so on the basis of (1), given the present state of our knowledge. Showing this is my main aim in this paper. One further implication is that functionalism is distinguished from other accounts taking what Eric T. Olson (1997) calls the “Psychological Approach” to personal identity, sparing it from some of his objections to them. But I shall not explore this here.

(1) reflects functionalism and the view (itself, I believe, implied by functionalism) that a continuing mental life can be what determines a person’s identity over time. Accordingly, the “functional continuity” mentioned in (1) may be a species of what others have called “psychological” continuity; but it must be understood in terms of a functionalist analysis of the mental. As indicated above, I take this to imply the existence of “functional definitions” of all relevant mental state types (and relevant event- and process-types; but I will ignore distinctions between events, states, and processes). We do not actually have any such definitions of any mental states, any more than behaviorists or phenomenalists actually had any definitions of the kinds they sought. And there may be good reasons for thinking we cannot ever have any. It may nonetheless be appropriate to conceive of the mental as so definable. At any rate, that is the approach taken here. I will refer freely to “the functional definitions” and to features we can be confident they have, and I will speculate freely (but, I trust, plausibly) regarding other features which they may have.

“Functional continuity” is then the paradigmatic kind of continuity in a person’s mental life, given the truth of functionalism. Like other conceptions of psychological continuity, it draws our attention to causal relations among mental phenomena. In our example, an attempt to recall a poem causes subsequent mental recitation of the poem. Other familiar examples include motivational states and beliefs jointly causing intentional action; and sense experiences causing perceptual beliefs and memories of the things experienced. A sequence of mental states including all these types