Theseus, Imparting and Exparting

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1. The puzzle

Here's a well-known puzzle (the puzzle of the ship of Theseus). We start with a ship at location A. We replace each of its planks one-by-one, moving the old planks to location B as we proceed. Eventually we replace all of the planks, so that the ship has been totally refurbished. But then we assemble the planks at location B into a ship, so that there are two ships – the ship that we started with, at location A, and the ship that we have just built, at location B. But why not think that the ship that we started with is now at location B, having been dismantled and moved, and that the ship at location A is a new ship, one that we have built where the original ship used to be? These seem to be two equally good ways to think about what we have done. So which of the two ships (if any) is the original ship, and why? That's the puzzle.

2. A new solution

In describing the puzzle in this way I am assuming various things: that there is a ship at the start of the process; that the ship has planks as parts; that the ship can lose these planks; that the ship can gain new planks; that the ship can have a plank detached, moved and re-attached, all the while staying part of the ship; that the ship can be totally refurbished (i.e. have all of its planks replaced); and that the ship can be disassembled and relocated. Various attempts have been made to solve or dissolve the puzzle by arguing that one or more of these assumptions is false. I want to propose a new solution, one that allows each of these assumptions to be true. I'm not sure whether it is the right solution, but I'm pretty sure that it's worth taking seriously.

3. Changing the question

Our aim is to answer the following question: At the end of the process, which of the two ships (if any) is the original ship?

I suggest that we switch to a slightly different question: At the end of the process, where (if anywhere) is the original ship?

If we can answer this second question then we can answer the first. If, at the end of the process, the original ship is at location A then, at the end of the process, the ship at location A is the original ship. If, at the end of the process, the original ship is at location B then, at the end of the process, the ship at location B is the original ship. If, at the end of the process, the original ship is somewhere other than at location A or B (or is nowhere) then, at the end of the process, neither the ship at location A nor the ship at location B is the original ship.

There is an easy answer to this second question: At the end of the process the original ship is wherever its planks are then. If its planks are all at location A then the original ship is at location A. If its planks are all at location B then the original ship is at location B. If some of its planks are at location A and some of its planks are at location B then

the original ship is partly at location A and partly at location B. If it has no planks then the original ship is nowhere (it might not even exist).

But this answer raises another question: At the end of the process, *which* planks are the original ship's planks? This is not so easy to answer. It's clear where all the planks are then, but it's not clear which of them belong to the original ship. At the start of the process it is all and only the planks at location A that belong to the original ship. But at the end of the process it might not be these planks – we are allowing that the original ship can gain and lose planks. Things might change during each step of the process, in which a plank at location A is moved to location B, or in which a new plank is moved to location A.

So what we need to know is this: When a plank is moved from location A to location B is it still a part of the original ship? And when a new plank is moved to location A does it become a part of the original ship? If we know the answers to these questions then we know which planks belong to the original ship at the end of the process, and thereby know where the original ship is at the end of the process, and thereby know which of the two ships at the end of the process is the original ship.

These questions are just as hard to answer as our original question. Consider when a plank gets moved from location A to location B. There are two equally good ways of thinking about what happens. Either: the plank is removed from the original ship (i.e. stops from being a part of it) and is discarded to location B. Or: the plank is still a part of the original ship but is detached and moved. Similarly for when a new plank is moved to location A – there are two equally good ways of thinking about what happens. Either: the plank is added to the original ship (i.e. starts being a part of it). Or: the plank is still not a part of the original ship.

What determines which it is? Unfortunately it is not the position and movement of the planks. That would be nice and simple, and also clear: we know the position and movement of the planks at all times. But when a plank gets moved from location A to location B whether or not it is still a part of the original ship is not determined by its position and movement – its position and movement are compatible with both (a) the plank being removed as a part and discarded to location B, and (b) the plank remaining a part and being moved to location B. And when a new plank is moved to location A whether or not it becomes a part of the original ship is not determined by its position and movement – its position and movement are compatible with both (a) the plank becoming a part of the original ship, and (b) the plank not becoming a part of the original ship.

So what does? I'll now propose an answer.

4. Imparting and exparting

We are allowing that things can gain parts: it is possible for there to be x and y such that at some time x is not a part of y but at some later time x is a part of y. When this happens let's say that there has been an *imparting*. So an imparting occurs when something x which is not a part of something y becomes a part of y. We might also say

that x is *imparted to* y. So for x to be imparted to y is for x to change from not being a part of y to being a part of y (this is not especially a change to x).

We are also allowing that things can lose parts: it is possible for there to be x and y such that at some time x is a part of y but at some later time x is not a part of y. When this happens let's say that there has been an *exparting*. So an exparting occurs when something x which is a part of something y becomes not a part of y. We might also say that x is *exparted from* y. So for x to exparted from y is for x to change from being a part of y to not being a part of y (again, this is not especially a change to y).

I've introduced two new terms: 'imparting' and 'exparting'. As far as I can see we don't already have words for imparting and exparting. We have phrases such as 'x becomes a part of y', and 'x stops being a part of y' (these are the best natural phrases that I can some up with). But I'd rather not use such long-winded phrases, especially when they are cumbersome (as the second one is). It will be better to have a new term for each.

The question I want to answer is this: What does it take for an imparting or an exparting to come about?

Note that I am not looking for an account of what parthood is – of what it is for something x to be a part of something y. Nor am I looking for an account of what imparting and exparting are (I have defined them above). I am looking for an account of what it takes for an imparting or exparting to come about.

My key proposal is that impartings and expartings are mind-dependent, in the following sense:

> Impartings and expartings require someone to be in an appropriate mental state

(I'll make this more precise below.)

At least, I make this proposal for impartings to and expartings from things such as ships, bicycles, cars, chairs, buildings, bridges, and so on. I do not make it for animals, trees, planets, and so on (at least not in this paper). I'm not sure how to draw a sharp line between the things to which it applies and the things to which it doesn't. Person-made doesn't work – babies are person made. But I'll stick to discussing things on the list above. I'll just call them *artifacts* (this might not be the right word to use).

I can be more precise. For definiteness I will take the appropriate mental state to be a *decision*. Perhaps it should be an intention – I'm not entirely sure. But that wouldn't make any significant difference to what I am going to say, so I'll just proceed on the assumption that it is a decision. In the case of imparting it is the decision that x is part of y; in the case of exparting it is the decision that x is not part of y. I propose the following pair of necessary conditions:

> Necessarily: for all x and y: x is imparted to y only if there is a z such that z decides that x is part of y
> Necessarily: for all x and y: x is exparted from y only if there is a z such that z decides that x is not part of y

Note that these are conditions are not circular: they give necessary conditions for x to *become* a part of y and for x to *stop being* a part of y by appealing to the parthood relation, but there is nothing circular about that (as there might be if they were giving necessary conditions for x to *be* a part of y and for x to *not be* a part of y by appealing to the parthood relation).

Note also that these are just *necessary* conditions – they are not sufficient. Other things are required for something to become a part of something, or for something to stop being a part of something. I'll mention a couple.

First, the person who decides must have the *appropriate authority* over both x and y. I can't decide that your bell is part of my bicycle, because I don't have the appropriate authority over your bell (unless you give me the appropriate authority). Nor can I decide that my bell is part of your bicycle, because I don't have the appropriate authority over your bicycle (unless you give me the appropriate authority). It is an interesting question what it takes to have the appropriate authority over something, but a difficult one and not one that I will try to answer here (and I won't need to).

Second, there must not be a *trumping decision*. Suppose that you and I both have the appropriate authority over a certain bell and a certain bicycle. Suppose that I decide that the bell is part of the bicycle, but you decide that it is not, and your decision trumps mine. Then the bell is not imparted to the bicycle, even though someone (i.e. me) with the appropriate authority has decided that it is part of the bicycle. Again, it is an interesting question what it takes for one decision to trump another, but a difficult one, and luckily not one that I need to try to answer here.

There may be other necessary conditions. Perhaps some kind of performance is needed – in the case of imparting perhaps attaching x to y, or saying "x is part of y"; in the case of exparting perhaps detaching x from y, or saying "x is no longer part of y". I'm not sure whether such a performance is required – I'm not asserting that it is, I'm just suggesting that it might be.

It will help to introduce some more terminology. Let CI(x, y, z) be the rest of the conditions that are required for x to be imparted to y by z ('CI' for 'conditions on imparting'), and let CE(x, y, z) be the rest of the conditions that are required for x to be exparted from y by z ('CE' for 'conditions on exparting').

Then we have the following necessary *and sufficient* conditions for an imparting or exporting to occur:

> Necessarily: for all x and y: x is imparted to y iff there is a z such that z decides that x is part of y and CI(x, y, z)
> Necessarily: for all x and y: x is exparted from y iff there is a z such that z decides that x is not part of y and CE(x, y, z)

This doesn't add all that much. It just makes it clear that if conditions CI(x, y, z) are satisfied then whether or a thing x is imparted to a thing y comes down to whether or

not a certain decision is made. Similarly for exparting. I will use this later when I return to solving the puzzle.

5. A general phenomenon

I have proposed that impartings and expartings are mind-dependent changes. This doesn't make them particularly special – there are many kinds of mind-dependent change. Here are a few examples:

Becoming a member of a club
Becoming married
Becoming named
Becoming promised to do something

Each of these changes also requires someone to be in an appropriate mental state, which we can take to be a decision (or perhaps it should be an intention). For someone x to become a member of a club y requires that someone z decides that x is a member of y. There are other conditions as well: z must have the appropriate authority; there must not be a trumping decision; perhaps there needs to be some kind of performance; and so on. Similarly for the other things on the list.

There is a general phenomenon here, and we can think of my proposal about imparting and exparting as just assimilating them to this more general phenomenon.

There are many interesting and difficult questions that we might ask about this phenomenon: What does it take to have the appropriate authority? What happens when there is a clash of decisions, with none trumping the rest? Is some kind of performance actually required? Does the change require, for its persistence, the persistence of the mental state that brought it about? Are these changes actually brought about, or is it just community *belief* that they have been brought about that is brought about? (If the latter then this might explain why a performance is required, if it is). These are difficult questions, and they might raise deep problems. But any such problems are not particular to imparting and exparting – they are problems for all of these kinds of changes. Imparting and exparting, as my proposals have them, are no more weird or problematic than the many other mind-dependent changes that there are.

6. Obvious counterexamples

I have made the following two proposals:

Necessarily: for all x and y: x is imparted to y only if there is a z such that z decides that x is part of y
Necessarily: for all x and y: x is exparted from y only if there is a z such that z decides that x is not part of y

A counterexample to the first is a possible situation in which there is an x and a y such that x is imparted to y but no one decides that x is a part of y. A counterexample to the

second is a possible situation in which there is an x and a y such that x is exparted from y but no one decides that x is not a part of y.

It seems easy to think of counterexamples. Suppose the bell on my bicycle rattles loose and falls down a long cliff, never to be seen again. Then the bell has been exparted from my bicycle, but no one decided that the bell is not part of my bicycle. This is a counterexample to the second proposal.

Well, perhaps not. Is the bell really no longer part of my bicycle? Why not think that it is still part of my bicycle, albeit a very remote one? It is no good to appeal to the movement and position of the bell to argue that it is no longer part of my bicycle. Remember that we are proceeding on the assumption that movement and position do not determine whether something x is exparted from something y, and we are looking for something else that determines it. So, to appeal to the movement and position of the bell to argue that it is no longer part of my bicycle just begs the question against my proposal. Without some independent reason to think that the bell is no longer part of my bicycle we should not accept this as a counterexample.

There is something else to be careful of. When you think about the situation that I have described you might be adding some features that would very naturally be part of such a situation but that I haven't actually specified. If such a thing actually did happen to my bell, I might well decide that it is no longer part of my bicycle, albeit subconsciously and very quickly. After all, what would be the point of maintaining that it is still part of my bicycle, given that it's never to be seen again? You might be imagining that to be part of the situation, because it would be a very natural thing to happen in such a situation. If so then you are right to think that the bell is no longer part of my bicycle. But such a situation is not a counterexample to the second proposal, because it's one in which the relevant decision has been made.

7. Two other objections

Objection. If my proposals about imparting and exparting are right, then we can change the mass of some objects just by thinking. For the mass of a complex object is determined by the mass of its parts. According to my proposals, we can change the parts of an object just by thinking (by making appropriate decisions). And that means that we can change its mass just by thinking. But we can't change the mass of an object just by thinking. So my proposals are not right.

Reply. It depends on what extra conditions are required for imparting and exparting. If imparting x to y also requires attaching x to y, and exparting x from y also requires detaching x from y, then we cannot change the parts of something just by thinking, and so we cannot change the mass of something just by thinking. But I'm skeptical whether attaching and detaching are required. I'm inclined to think that a decision can be sufficient. If so, then I bite the bullet on this objection. But then I would think of it as an interesting consequence. (Keep in mind: we're not just deciding what the object's mass is – we're deciding what things are parts of it, which then determines what its mass is.)

Objection. If my proposals about imparting and exparting are right, then ordinary objects such as ships, bicycles, cars, and so on, can travel faster than light. For consider my bicycle in my garage. I have a complete set of spares in my back shed. I might decide, in an instant, that all of the bicycle's current parts are no longer parts, and that all of the spare parts in the back shed are now parts. In doing so I have, in an instant, moved my bicycle from my garage to my back shed – faster than the speed of light. But it can't travel faster than the speed of light (as physics tells us). So my proposals are not right.

Reply. Again, it depends on what extra conditions are required for imparting and exparting. If imparting x to y also requires attaching x to y, and exparting x from y also requires detaching x from y, then we cannot change the parts of something just by thinking, and so we cannot change the location of something just by thinking. But if a decision can be sufficient then I bite the bullet on this objection too, and take it to be an interesting consequence.

8. Application to the puzzle

Now back to the puzzle. Recall that to figure out which ship, at the end of the process, is the original ship we just need to figure out, each time a plank gets moved from location A to location B, whether it is still a part of the original ship and, each time a new plank gets moved to location A, whether it becomes a part of the original ship. That is, we just need to figure out, each time a plank gets moved from location A to location B, whether it is exparted from the original ship and to figure out, each time a new plank gets moved to location A, whether it is imparted to the original ship.

I have proposed necessary and sufficient conditions for an imparting or exparting to occur. According to this proposal:

> When a plank is moved from location A to location B it is exparted from the original ship if and only if there is a z such that z decides that the plank is not part of the original ship and CE(the plank, the original ship, z)
>
> When a new plank is moved to location A it is imparted to the original ship if and only if there is a z such that z decides that the plank is part of the original ship and CI(the plank, the original ship, z)

Recall that CE(the plank, the original ship, z) are whatever conditions are required, in addition to the appropriate decision, for an exparting to occur. These include: z having the appropriate authority over both the plank and the original ship, there not being a trumping decision, and perhaps other things. And CI(the plank, the original ship, z) are whatever conditions are required, in addition to the appropriate decision, for an imparting to occur, which include similar things.

Whether these conditions are satisfied is what determines what expartings and impartings take place, and thus which planks belong to the original ship at the end of the process, and thus where the original ship is at the end of the process.

Suppose that the process is undertaken by a single person, the custodian of the original ship, who has the appropriate authority over the original ship and over all of the planks to perform whatever expartings and impartings she pleases. Suppose that there is no one else involved who might make trumping decisions. And suppose that any other conditions in CE and CI are satisfied. Then what expartings and impartings occur comes down to what decisions the custodian makes during the process.

Suppose that she decides, each time she moves a plank from location A to location B, that it is not a part of the original ship, and that she decides, each time she moves a new plank to location A, that it is a part of the original ship. Then, at the end of the process, it is all and only the planks at location A that belong to the original ship, and the original ship is at location A. The original ship has been fully refurbished.

Suppose that she does *not* decide, each time she moves a plank from location A to location B, that it is not a part of the original ship, and that she does *not* decide, each time she moves a new plank to location A, that it is a part of the original ship. Then no expartings or impartings occur during the process, and so, at the end of the process, the original ship has exactly the same planks as it started with, which are now all at location B, and so the original ship is at location B. The original ship has been disassembled, moved, and reassembled at location B.

Suppose that she decides, each time she moves a plank from location A to location B, that it is not a part of the original ship, and that she does *not* decide, each time she moves a new plank to location A, that it is a part of the original ship. Then the original ship has all of its planks exparted but has no new planks imparted, so at the end of the process it has no planks at all, so at the end of the process it is nowhere (perhaps it no longer exists).

Suppose that she does not decide, each time she moves a plank from location A to location B, that it is not a part of the original ship, and that she decides, each time she moves a new plank to location A, that it is part of the original ship. Then no planks are exparted from the original ship but all of the new planks are imparted to it. So, at the end of the process, all of the planks are a part of the original ship, and the original ship is partly at location A and partly at location B. This case is a bit weird – what seems to be two distinct ships, one at location A and one at location B, is actually just a single ship partly at each location. Weird, but not impossible. (To help see that this is possible, consider the following variant case. Consider a car that has a spare wheel. The spare wheel is part of the car, and is carried around with it. Now add a spare muffler, which is now part of the car and also carried around with it. Now add a spare seat, a spare brake, a spare engine, and so on, until we have a complete set of spares, which, to make it easy to carry all of these spares, we assemble and tow along. What looks like two cars, one towing the other, is just a single car, part of which is a complete set of spares.)

Other combinations of decisions are possible, but it should be clear enough by now what the result is in each case.

So that's my proposed new solution to the puzzle.

9. Two final thoughts

A couple of final thoughts.

At the moment I only intend my proposals about imparting and exparting to apply to *artifacts* – they give necessary and sufficient conditions for something to be imparted to an artifact, and necessary and sufficient conditions for something to be exparted from an artifact. What about non-artifacts? Consider a tree. What does it take for a leaf, say, to be imparted to a tree? And what does it take for a leaf to be exparted from a tree? Are the conditions the same as the ones that I have proposed for artifacts? That doesn't seem right – trees had leaves as parts long before anyone was around to make any decisions about parthood. But if imparting a leaf to a tree required a decision then those leaves could never have become parts of those trees. But maybe it is right? Maybe trees did not have leaves as parts until we came along and decided them to be parts. I'm a little nervous about this idea, but it strikes me as worth considering. Perhaps my proposals apply to everything, artifact or not.

Confining our attention to artifacts, there is an interesting question of when some things compose an artifact (often called the 'special composition question'). On my desk right now there is a mug and a plate. Is there also a thing that they compose? This would require the mug to be a part of it and the plate to be a part of it, which would require the mug to have been imparted to it and the plate to have been imparted to it, which would require, according to my proposals, someone to have decided that the mug is part of it and that the plate is part of it. If no such decisions have been made then neither the mug nor plate are part of it, which means that the mug and plate do not compose it, so there is no thing that the mug and plate compose. But if such decisions have been made then there might be. Note that it would be very easy for me to make these decisions, thereby making it the case that the mug and the plate compose something, which is perhaps why we are so puzzled about whether there is something that they compose.