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Functional Explanation and Virtual Selection

Philip Pettit

ABSTRACT

Invoking its social function can explain why we find a certain functional trait or institution only if we can identify a mechanism whereby the playing of the function connects with the explanandum. That is the main claim in the missing-mechanism critique of functionalism. Is it correct? Yes, if functional explanation is meant to make sense of the actual presence of the trait or institution. No, if it is meant to make sense of why the trait or institution is resilient: why we can rely on it to survive various contingencies. The lesson? Social functionalism should be taken, and may have been taken by its founders, as a programme for explaining resilience.

1 Introduction

Some time in the 1970s social scientists and methodologists of social science began to turn against the functionalist research programme that had dominated social theorizing, at least outside economics, for the previous half century and more (Turner and Maryanski [1979]). The most destructive argument that emerged in the course of this assault, and the argument that was taken by many to do the programme to death, is best known in the formulation that it received in Elster's [1979] work (see also Macdonald and Pettit [1981], Ch. 3). The argument was that functionalism in social science could work only if it was supported by a history of institutional selection, or by something of the kind, but that no such mechanism was in evidence for most of the functionalist accounts on offer. Call this the missing-mechanism argument.

I think that this argument holds good against many attempts at functionalist explanation. But I have come to believe that it misses one explanatory programme of a functionalist cast and that the programme in question is of some importance for social science. Indeed I think that this programme may

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have been of considerable significance in the development of anthropology and sociology in the traditions influenced by Durkheim.

In this paper I first look at how the missing-mechanism argument undermines a certain sort of functional explanation in social science. Next, I consider a sort of functional explanation which it would not touch. And then in the final section I comment on the importance of this explanation for social science.

2 Functionalism and the missing-mechanism argument

Functional explanation in biological science offers the obvious model on which to think about such explanation in social science. Why do we find such and such a trait in this or that sort of organism? Why do we find beating hearts, or echolocating devices, or tit-for-tat patterns of behaviour, in this or that species or population? The answer given is that the trait serves a certain function: it circulates blood, or makes it easy to find food, or it helps individuals to achieve mutually beneficial cooperation. The very fact of serving such a function, the very fact of conferring the sort of benefit in question on its bearers, is meant to explain why the trait is found in individuals of the relevant type.[1]

Such functional explanation is tolerated in biological science, because it connects fairly obviously with the theory of natural selection. Suppose that a trait, T, is held to be functional in producing an effect, F, and that the disposition to produce F is regarded as offering an explanation as to why we find that T is in relevant organisms. That picture of things becomes a plausible hypothesis under a paraphrase in terms of the mechanics of natural selection. The paraphrase, roughly cast, goes like this. The accidentally induced mutation whereby the gene for T appeared in the ancestors of the organisms in question gave those creatures an advantage over competitors in producing offspring, and in increasing the frequency of T in the population; it did this, in particular, so far as T-bearers manifested the effect, F. Why then do we find T in the population or the species or whatever? Well, because T produces F and because that gave T-bearers an advantage in the natural selection stakes: in short, because T is functional, so far as it produces F, because T has the function of producing F (Neander [1991a, b]).

[1] This reading of functional explanation in biology is not endorsed by everyone, of course (Cummins [1975]). But it is the majority construal and it is the construal that is assumed in the missing-explanation argument. Nor is our reading of functional explanation entirely unambiguous: to explain why a trait is found in a certain sort of organism, to use my terminology, may be to explain why that sort of organism has it or why the sort of organism in existence is one with that trait (Sober [1984], pp. 147–8). I try to abstract here from that issue.

The biological model of functional explanation suggests that the aim of functional explanation in social science is to explain why certain social traits are to be found in this or that society or institution, as the biological analogue explains why certain traits are to be found in this or that species or population or whatever. And the availability of a natural selection mechanism to make sense of functional explanation in biology raises the question as to what sort of mechanism underlies functional explanation in social science. The missing-mechanism argument holds that for most functional explanations in social science there is no obvious mechanism to cite and that the explanations, therefore, are baseless.

Why do we find religious rituals in various societies? Because they have the function of promoting social solidarity (Durkheim [1948]). Why do we find common ideas of time and space, cause and number (Durkheim [1948]; see Lukes [1973], p. 442)? Because they serve to make mental contact and social life possible. Why do we find certain peacemaking ceremonies in this or that culture? Because they serve to change the feelings of the hostile parties to one another (Radcliffe-Brown [1948], pp. 238–9). Why do we find social stratification—the unequal distribution of rights and privileges—in modern societies? Because it makes it possible to fill socially indispensable but individually unattractive positions (Davis and Moore [1945]).

The problem with all of these bread-and-butter examples of functional explanation is that it is not clear why the fact that the trait in question has the functional effect cited explains why the trait is found there: explains why we find the relevant religious rituals or peacemaking ceremonies or structures of social stratification. Perhaps people in the past recognized the functionality of the trait and designed their institutions to manifest it. That would certainly vindicate the explanation that refers to their functionality. But no one seriously entertains a scenario of intentional institutional design. It appears, then, that the only mechanism available to underpin the functional account given in each case is a mechanism of selection akin to that which is invoked in biology; there may be other mechanisms possible in the abstract but they would not seem to fit these standard sorts of cases (Van Parijs [1981]). And that raises the question as to whether there is any evidence of an institutional sort of selection that would play the same role as natural selection: specifically, the same role in supporting functional explanation.

The answer to that question, in turn, is that there is little of the required evidence available. There may be some cases where functional explanation in social science can be backed up by a selectional story. Some economists say that the presence of certain decision-making procedures in various firms can be explained by their being functional in promoting profits and

they back up that explanation with a scenario under which the firms with such procedures, being the firms which do best in profits, are the ones that survive and prosper: they are selected for the presence and effects of those procedures in a competitive market (Alchian [1950]; Nelson and Winter [1982]). But it is very implausible to think that such selectional mechanisms are available for social-functional explanation in general (Pettit [1993], pp. 155–63).[2]

3 Functional explanations that avoid the argument

The feature of social–functional explanation that exposes it to the missing-mechanism argument is that it is conceived of as an explanation of why the trait to be explained is present in the society or culture where it appears. How can the functionality of a trait explain its presence if not on the grounds that it led to the trait being designed for, or selected for? We have ruled out the possibility that the sorts of traits we are discussing were purposively instituted. And now it seems that they cannot have been selected either. So how can functional accounts constitute forms of genuine explanation?

My answer begins from the thought that perhaps social–functional explanation does not have to be construed as the explanation of the presence of a trait. Perhaps it should be construed, at least in the first place, as a style of explanation that makes it immune to the missing-mechanism complaint. In order to introduce the idea, it will be useful to consider an analogue that I have used elsewhere (Pettit [1993], Ch. 5).

Imagine a set-up in which a ball rolls along a straight line—this, say, under Newton's laws of motion—but where there are little posts on either side that are designed to protect it from the influence of various possible but non-actualized forces that might cause it to change course; they are able to damp incoming forces and if such forces still have an effect they are capable of restoring the ball to its original path. The posts on either side are standby causes of the ball's rolling on the straight line; they are virtual causes of the straight rolling, not factors that have any actual effect. But they can still be of explanatory relevance.

They cannot explain the emergence or the continuation of the straight course of the rolling ball, of course. We are supposing that no incoming influences needed to be damped or corrected and that the full explanation of the actual rolling is in terms of Newton's laws. But the posts can still

[2] There may be selection for what Dawkins [1976] calls 'memes' but that sort of selection is not associated with independently recognizable functional explanations, certainly not with functional explanations of the kind that have been traditionally envisaged by functionalists in social science.

explain the fact—and it is a fact—that not only does the ball roll on a straight line in the actual set-up; it would stick to more or less that straight line under the various possible contingencies where perturbing forces appear and even have a temporary effect. They explain the fact, in other words, that the straight rolling is not something fragile, not something vulnerable to every turn of the wind, but rather a resilient pattern: a pattern that is robust under various contingencies and that can be relied upon to persist.

We may discover this resilience by direct induction: we may find, perhaps without understanding why, that the ball does keep returning to the straight line. But equally the resilience may only become salient when we recognize the explanatory power of the posts: this in the way in which the laws that a theory explains may only become salient in the light of the explanatory theory itself. It does not matter which scenario obtains. In either case the simple fact is that, despite their mere standby status, the posts serve to resolve an important matter of explanation. They explain, not why the pattern emerged at a certain time, nor why it persists over a certain range of times, but why it persists across a certain range of contingencies: why it is modally as distinct from temporally persistent. Notice that resilience, as presented here, is defined without reference to the probability of the contingencies against which the sources of resilience—the posts—protect. We might make the notion more sophisticated by letting resilience reflect probability, so that the more probable a perturbance against which the relevant factors protect, the more resilience they confer. I shall ignore that possibility in what follows, but only for simplicity's sake.

Back now to functional explanation. I have argued elsewhere that rational-choice explanation in social science should often be taken as an attempt to explain the resilience rather than the emergence or presence of a phenomenon (Pettit [1993, 1995]). I now wish to suggest that equally functional explanation in social science should often be taken in the same way. In earlier work (Pettit [1993], p. 278) I had mentioned this possibility in passing, but John Bigelow (forthcoming) led me to think of exploring it further; the position he defends is close to that which I develop here (see too Bigelow and Pargetter [1987]). My argument in the rational-choice case was that if rational-choice explanation can be explanatory just in virtue of directing us to standby factors, then it is not subject to the objection that people don't calculate in a rational-choice manner. My argument in this case is that if functional explanation can be explanatory on a similar, standby basis, then it is not subject to an analogous objection: namely, the missing-mechanism complaint.

Suppose that certain institutions or institutional traits are resilient or robust: suppose they are features which we may expect to withstand

various contingencies and to remain characteristic of the society with which we are dealing. How might we explain the resilience of such an institution or trait? Well, one way is by appeal to the fact that the feature serves an important function. For it might be that the fact of serving that function would become evident to relevant agents in the event of the feature beginning to decline—say, in the event of certain individuals beginning to peel away from the associated pattern of behaviour—and that a recognition of this fact would tend to restore the feature to its former prominence; and this might be so, even if the functionality had never played such a role in the past. The evidence of the functionality might be such as to trigger individuals separately to return to the required behaviour, or it might be such as to catalyse a collective response, whether on the part of people in general or on the part of an agency like the government.

An example will help to communicate the idea. Suppose that golf clubs are functional in enabling business people, bankers, and various professionals like lawyers and accountants to get to know one another, establish networks, and reinforce their mutual confidence. The functionality of such clubs in this respect might make them very resilient features of our sort of society: and this, even if the resilience had never actually been put to the test. For it is transparent that were such clubs to come under various pressures—were the cost of maintaining them and the cost of membership to rise, for example—still they might be expected to survive; we might not find people leaving the clubs in the numbers that such pressures would normally predict. The members of the clubs would be forced to reconsider their membership in the event of this sort of pressure but that very act of reconsideration would make the functionality of the club visible to them and would reinforce their loyalty, not undermine it.

The idea can also be illustrated with some of the more traditional examples mentioned in the last section. Perhaps rituals emerged and survive in certain societies, or common ideas materialized and established themselves, for the most contingent of reasons. Still it may be that they are resilient by virtue of serving social solidarity or communication, since anyone inclined to give up on them would suffer an associated loss and would be drawn back in. And so it may be possible to save the Durkheimian stories in question. A similar analysis goes for the claim by Radcliffe-Brown, for it may well be that peacemaking ceremonies are resilient to the extent that they mend the feelings of hostile parties for one another and that their resilience can be explained by how they function in that respect. Perhaps individuals in conflict would miss the ceremonies in the event of their having gone into decline and would seek recourse to them afresh. Or perhaps those in power in the society would see the loss associated with the decline and would insist on their restoration.

But what of the example from sociology in which stratification is explained by its effect in securing high rewards for socially important but otherwise unattractive positions? This is more problematic, since everyone might notice the loss under widespread defection from stratification—assuming there is a loss—but there would seem to be a collective action predicament blocking them from individually doing anything about it. Even assuming the functionality of stratification, then, invoking that functionality will work as an explanation of the resilience of stratification only if there is some centralized agency like the government which we can expect to restore stratification under any pressures that lead to its temporary decline. Is it plausible to think that government will be disposed to do this? We need not offer a firm judgement. If it is plausible, then the functional explanation offered is a plausible account of the resilience of stratification; if it is not plausible, then the account fails.

I said in the case of our toy example that we might know of the resilience of the ball's straight rolling independently of the explanation, or only come to learn of it through seeing the explanation. A similar point holds for these examples. We might or might not have recognized the resilience of golf clubs prior to seeing the function they serve in enabling business people, bankers, and professionals to make and stabilize contacts. That does not matter. Under the hypothesis envisaged, the functionality of the golf clubs explains the resilience they enjoy and does so whether or not it is also instrumental in making that resilience visible to us.

The idea of explaining the resilience of a trait or institution, as distinct from explaining its presence, or indeed its emergence, may look suspiciously novel. But I should stress that the explanation of resilience, as I conceive of it, connects closely with more familiar styles of explanation. One is equilibrium explanation: the explanation of a fact or pattern which does not show how it emerged or why it is present, but which demonstrates that the pattern is more or less inevitable, at least in a certain context, by pointing out that any ways in which it is liable to be disturbed would lead to correction. Sober [1983] offers as a nice example R.A. Fisher's explanation of the 1 : 1 sex ratio in many species. The idea is that if a population ever departs from equal numbers of males and females, then there will be a reproductive advantage favouring parents who overproduce the minority sex and the 1 : 1 ratio will tend to be restored. Such an equilibrium explanation can be seen, in our terms, not as a distinctive way of explaining things—not as a distinctive *explanans*—but rather as a way of explaining a distinctive *explanandum*. That the sex ratio is in equilibrium, or that any pattern represents an equilibrium, is a way of saying that it enjoys a particularly high degree of resilience. Being in equilibrium, at least for a given context, is a limit case of being resilient.

Another sort of explanation that illustrates what it means to explain the resilience of something is the explanation of the fitness conferred by a certain genetic change: the explanation that consists in showing why the change is adaptive. That a gene enjoys a certain degree of fitness means that in the relevant environment it has a certain propensity to survive—a certain propensity to be replicated in—a variety of contingencies; specifically, it has a propensity to survive the more probable of those contingencies. Fitness is a special case of resilience, in particular of the probabilized version of resilience that I said we would ignore for simplicity's sake. Where we spoke above of explaining the resilience of golf clubs in our society, we might well have extended this language and spoken of explaining their fitness to survive in our society.

What we have seen so far should make it clear that functional explanations in social science may serve to explain not the emergence or presence of a certain institution or trait, but rather its resilience, and that in serving to explain resilience such explanations are not particularly out of the ordinary. The importance of the possibility is that if functional explanations serve just to explain resilience then they are not exposed to the missing-mechanism argument.

The functional explanation of why a trait is present in a society requires a history of actual selection and such histories are not much in evidence; the required mechanism is often missing. But the functional explanation of why a trait is a resilient feature in a society does not need such a history; it requires only that the trait be virtually selected, as we might put it, not actually selected. It requires only that were the trait to be subjected to a certain crisis, then a mechanism would operate to ensure that it was selected in that crisis and so that it would survive. The theoretical apparatus required to back up regular functional explanation is actual selectionism: a story of past selection in the actual world. The apparatus required to back up the functional explanation in which we are interested is virtual selectionism: a story of selection that would occur under this or that counterfactual circumstance.[3]

The virtual selection mechanism that would serve functional explanation parallels exactly the virtual mechanism of rational choice that would serve rational choice explanation, under my earlier argument (Pettit [1993], Ch. 5, [1995]). Phenomena may be resilient so far as departures would activate rational choice calculations and tend to inhibit or reverse those initiatives. And equally phenomena may be resilient so far as departures would activate a concern for certain functional effects and would tend in

[3] Notice, more generally, that virtual selectionism is all that may be required to support the 'consequence laws' postulated by Cohen [1977].

a similar fashion—perhaps even in an identical fashion, since the modes of explanation need not be independent—to lead to inhibition or reversal.

But where there is a mechanism that shows how functionality makes a feature resilient, of course, there is also a mechanism that may have served in the actual world to preserve the feature under pressure and that may explain its presence as well as its resilience: it may explain not its day-to-day survival, but its survival in such crises. For all we know, for example, it may be that golf clubs experienced various crises in the past and that they survived only because of their functionality; it may be that the virtual selection mechanism on which we rely was actually called into operation at one or another crucial juncture. We can be open-minded, even optimistic, about the prospect.

The important point is that while we can entertain that possibility, we do not have to do so in order to think that the functionality serves an explanatory role. Even if the possibility is not realized, even if the presence of the institution or trait is not illuminated by the function it serves, still the functionality will explain the resilience of the phenomenon in question.[4]

4 A significant research programme

It is one thing to illustrate the possibility of a sort of social–functional explanation that would avoid the missing-mechanism argument. It is another to establish that the possibility has some significance. I turn to that topic in this last section. Imagine that an anthropologist from some distant culture were to study the world of a contemporary advanced democracy like Australia or Britain or the United States. Would they learn anything of significance, learn anything that might answer to a general research programme, in recognizing the resilience of golf clubs and in tracing that resilience to the function served by such clubs?

Arguably, they would. For any society is going to present an outsider, or indeed an insider, with a great variety of phenomena and one question that may be reasonably posed about those phenomena is this. Which are the more or less passing ephemera and which the phenomena that are deeply embedded in the society? Which are more or less incidental or contingent features and which are features apt to last? There is an interesting research programme suggested by such questions. It would take any society or culture or institution and, reviewing the data on various traits displayed by the entity in question, would seek to separate out the dross from the gold. It would try to identify and put aside the features that may be expected to

[4] The observation will also justify biological theorists in pointing out functionalities in cases where there is no evidence of an actual history of selection. It may be worthwhile arguing that a trait is adaptive, and therefore resilient, even if it has not actually been selected.

come and go. And it would seek to catalogue the more or less necessary features that the society or culture or institution displays. It would give us a usefully predictive stance on the society, providing us with grounds for thinking that such and such features are likely to stay, such and such other features likely to disappear.

The insight into the resilience of golf clubs, assuming they are resilient, would represent a breakthrough in the development of such a research programme for a society like ours. We can see how a social scientist might well wish to pursue that sort of programme further, looking at the kaleidoscope of life in an advanced democracy and trying to make some sense of it: trying to identify which of the points in the kaleidoscope are fixed, which movable. It might be an insight of some importance to recognize that golf clubs play the function described and are more or less uniquely suited to playing that function: golf is an expensive sport, given the time and space required, and only the wealthy can afford it; golf enables those who take part to talk to one another in the course of a game and build up a relationship; golf does not require an exotic location, unlike mountaineering or deep-sea diving, and can be played near any centre of population; and so on.

What, finally, of the tradition of functionalism in anthropology and sociology? Does the programme just described fit well with that tradition? Does it fit as well as the programme that falls foul of the missing-mechanism argument?

The programme that falls foul of the missing-mechanism argument does not fit well with the tradition for one obvious reason. We would expect those who have aligned themselves with the tradition to be sensitive to questions of mechanism, and to be alert to the need to tell a story of design or selection in order to substantiate their functional claims. But one of the most striking facts about the tradition is the general if not complete lack of interest in issues of design and selection. If we say that traditional functionalists were espousing the sort of programme that the missing-mechanism argument undermines, then we have to say that they were not a very insightful lot.

By contrast, I believe that the programme of research which we have been discussing fits much better with the functionalist way of thinking. The tradition of thinking associated with the likes of Durkheim in the last century and Parsons in this is shot through with the desire to separate out the necessary and the reliable from the contingent and the ephemeral. The idea in every case is to look for the core features of a society and to distinguish them from the marginal and peripheral. Functionalist method is cast throughout the tradition as a means of providing 'a basis—albeit an assumptive basis—for sorting out "important" from unimportant social processes' (Turner and Maryanski [1979], p. 135).

This idea is often put into operation in two stages. First, we are offered an overall set of schemas—sometimes misdescribed as a theory—that identify the sorts of functions that ought to confer resilience. And then we are invited to conduct an empirical investigation of the particular features in our society that fulfil those functions and that are alleged to enjoy a consequent degree of resilience. It is fair to say that the first stage of thinking dominates the second in the work of someone like Parsons and that, despite this concentration, it is not pursued in a very compelling way: the stories told of what we would describe as virtual selection mechanisms are often far from convincing. But such faults are not beyond remedy; and certainly they are no reason to spurn the tradition as a whole.

I conclude that the programme of functional explanation that would avoid the missing-mechanism argument is significant in itself and is in the spirit of the functionalist tradition. There have recently been signs of a renewal of functionalist thought and the argument of this essay suggests that this may be something to celebrate (Colomy [1987]). If neofunctionalism develops accounts that can be persuasively grounded in virtual selection mechanisms then it will be serving well the resilience-centred programme of functional explanation.

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