

1 The difference according to Johnson is that universals of law apply over a wider range than do universals of fact, i.e. over a wider range than everything, which is impossible (range of law vs. range of everything)

2 The difference according to Braithwaite many is that ~~where~~ when ~~proposition~~ all A are B is a universal of fact it is short for this A is B, that A is B - - - , this is not true; the ~~fact~~ universal may in the 1st instance be discovered in this ^{sense} ~~way~~, but as soon as it is told to someone else it ceases to have this sense, because the hearer does not know how many ^{what} A's there are, but merely that all that there are are B. But this does not mean that to the hearer the universal is one of law

3 The difference according to Braithwaite is that universals of law are believed for on grounds which are not demonstrative. This will not do because

- (a) some universals of law are not believed at all
- (b) some universals of fact are believed on ~~non-~~ demonstrative grounds
- (c) some universals of law are believed on grounds which in his sense are demonstrative

If anyone of these contentions is enough to upset his ^{definition} ~~construction~~ let us take them in turn

4 (a) so many of us think many characteristics of ^{organisms} animals are caused by ^(unknown) characteristics of the ~~parent~~ chromosomes of the uniting cells; but on Braithwaite's view to think this is to think that we know what characteristics of the chromosomes they are; it is not enough to say ($\exists \varphi$: φ chromosomes ^{all} φ (offspring)); if we say the ~~universal~~ is causal we mean ($\exists \varphi$: φ chromosomes ^{all} φ (offspring) is believed which is patently false until φ has been discovered.

It might be replied that what we want is not "is believed" but either "will be believed", "would be believed", or "could be believed".

5 of these amended versions "will" clearly will not do; the causes of hereditary characteristics are not altered, if a new barbarian invasion checks the progress of science; "would" would be circular as it means ^{that} certain circumstances would cause it to be believed; "could" be believed would either mean this too or else ^{something} subsequently, radically different to be considered later.

6 (b) What is clearly only a universal of fact, e.g. 'enzyme ^{there} was asleep' may easily not be believed on demonstrative grounds; or it may be believed on testimony; or because I said something which anyone who was awake would probably have answered.

7. (c) This point is not so clear as the others, owing to an ambiguity as to what "universal of law" is supposed to include; if it means a universal whose ~~application~~ ^{application} is not explicitly subject term does not ^{mention} contain any ~~explicit or implicit~~ ^{particularization of space/time} spatio-temporal limitation, it would be better to make this clearly part of the definition; otherwise take

'Whenever this balloon was filled with hydrogen and let go, it rose'; this ^{is simply like it on some completely level} is surely a universal of law and yet might be believed as a result of observing all its instances

8 In order to get nearer a correct solution let us classify universals a little more precisely; we have the following classes

- (1) the ultimate laws of nature
- (2) derivative laws of nature i.e. general propositions deducible from the ultimate laws
- (3) what are called laws in a loose sense; i.e. general propositions deducible from the ultimate laws together with various facts of existence assumed to be known by everyone e.g. bodies fall.
- (4) universals of fact; but these cannot be sharply distinguished from (3); on a determinist view all of them could be deducible from the ultimate laws together with enough facts of existence.

9 This table of classes might perhaps suggest the following solution; the fundamental distinction is between (1) and (2) ~~on the one hand~~ on the one hand, and (3) and (4) on the other, and it is that universals in classes (1) and (2) mention no particular portion of space time whereas those in (3) and (4) do; (hence the need for facts of existence to deduce them). Between (1) and (2), and between (3) and (4) the distinction is a vague one, in the first case of artificial unassumed, in the second of ~~assumed~~ of fact required for their deduction

This solution would not, however, do; because these are universals belonging to (3) and (4), which mention no particular nation or space time but still do not follow from the ultimate laws; thus all conservative prime ministers of England between 1903 and 1928 have names beginning with B; and so probably all conservative prime ministers of a country with 40,000,000 - 50,000,000 inhabitants, whose capital is called "London" and has 7,000,000 inhabitants ... at a time when that country has between 2 - 27 years previously lost a queen who has ruled for 64 years ... and have their names beginning with B. If we put in enough detail we shall (unless the world repeats itself exactly with just ^{a few} details different each time) get a true generalisation which mentions no particular portion of space time but this would not be a law of nature:

III ~~Looking at the table again it is clear that if we can define class (1), the definition of (2) follows at once, and the difference between (3) and (4) could easily be explained as follows offers no further difficulty.~~

II

^{is it then that is true of}
 What ~~then~~ is the difference between universals of classes (1) and (2) and ^{not of} those of classes (3) and (4)? We have seen that it is not their spatio-temporal indifferene, nor that they are believed; nor we may remark ^{is it any} combination of these characters, for ~~what is~~ ^{is the} fact that ^{is the} ~~it is~~ ^{one} believed or might be believed is quite unrelavant; any thing ^{is} whatever can be believed on authority or testimony. Also the difference would still persist if we knew everything.

12 This last point gives us the clue ~~to the matter~~; even if we knew everything, we should still want to systematise our knowledge as a deductive system, and the general axioms in that system would be the fundamental laws of nature. The choice of axioms is bound to some extent to be arbitrary, but what is ^{most} likely to be arbitrary ^{if any simplicity is to be used} is a ^{body} of fundamental generalisations some to be taken as axioms and others deduced. ^{Some} Other true generalisations will then only be able to be deduced from these by the help of particular facts of existence. These fundamental generalisations will then be our universals of classes (1) and (2) the axioms forming class (1).

13 As it is, we do not know everything; but what we do know we tend to organise as a deductive system and call its axioms laws, and we consider how that system ~~could~~ ^{could have} ^{gone} if we knew a little more and call its ^{or deductions} the further axioms. These would then be laws (we think these would be one of a certain kind but not know exactly what). We also think how ^{all truth} everything could be organised as a deductive system and call its axioms ultimate laws.

14 The property of a universal ^{that it would} to be an axiom in a deductive system covering everything is not really hypothetical; the concealed if is only a spurious one; what is asserted is simply something about the whole ^{world} ~~truth~~ ^{namely that the} that true general propositions are of such forms ~~as they would have to be to make the system~~ ^{as they would have to be to make the system}; the form ~~is known~~ ^{is not} ^{the facts} that they form a system of the required sort; ^{it's the facts that form it} ^{through} not people's beliefs in them ^{in virtue of substantial ones.} ^{with the given} ^{with one in the required place}

Of course the system is required to be as simple as possible; but this is another ^{practical} ^{property} of a camel one.

15

It will be objected that when we use the notion of a law as in a statement of causal implication, we do not ~~know~~ say anything about a grand deductive system. The answer is that we do do this so soon as we pass ~~through~~ beyond ^{the mere} material ^{or formal} implication. But that the important part of statements of causal implication is always just the material or formal implication which has no reference to system. It is only the philosopher or ^{systematist} ~~metaphysician~~ or emotionalist who is interested in the rest. All the ^{practical man} ~~scientist~~ wants to know is that all people who take arsenic die, and that this is a causal implication, for a universal of fact is worth to seek just as good a guide to conduct as a universal of law.

16

A danger always to be thought of, is that belief being a causal fact we must not involve it in the analysis of cause. The above theory avoids that see §14. ^{An alternative} Another way of avoiding it is to say that the belief, if any, that occurs in the analysis of cause is belief shown of its causality is with the causal implications reduced to material ones.

17

The laws involved in causal implications in classes (1), (2) above. Not class (3); in the cases in which we should naturally appeal to a universal of class (2), we can by extending our re make (1) of an instance of one of class (2) instead; and it is the possibility of doing this which in effect distinguishes class (3) from class (2), ^{within the implied limitations of}