I have many ideas about explanations, and I have difficulties in bringing them all together under a sufficiently catching key-word. I have tried a nuanced, many-faceted and in-depth argued approach elsewhere, and I will now try the opposite. By varying a trivial example along a single dimension I will put forward my main thesis: that an explanation is not a logical structure, that it cannot be characterised in syntactic terms, but it is rather an epistemological structure, and, more specifically, a structure organising conceptual content.

Let us start with a trivial example and assume, without presupposing any particular theory of explanation and perhaps for no other reason than wishing to disprove it by a reductio argument, that the general (law-like) fact that specimens of table salt dissolve when put into water and the singular fact that this pinch of crystals is a specimen of table salt constitute an explanation of the fact that this pinch of crystals dissolved, and, furthermore, that the explanatory power lies essentially in the deductive relation, even if many theories of explanation also state additional requirements.

The following puzzlement about such explanations has been repeated ad nauseam in the literature:

(A1) All specimens of table salt dissolve when put into water.
(A2) This salt is table salt.
(A3) This salt has been hexed.
(A4) This salt will dissolve when put into water.

Obviously, if (A3) had not been included, this would have been a paradigmatic example of what I described in the second paragraph. Now the explanation seems somewhat awkward. But does the inclusion of (A3) actually do any harm? And if so, is it because it is silly or because it is superfluous?

Yes, the inclusion of (A3) is harmful, and not because of its silliness. The explanation would still be awkward if we substituted “This salt was once owned by W. Salmon,” although it would then no longer be silly. To realise that superfluous premises do in fact harm an explanation we may exaggerate the situation by adding

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1 Hansson (2006)

lots of irrelevant information, e.g. all of Encyclopaedia Britannica. No matter what theory of explanation you subscribe to, this would not be satisfactory as an explanation in any reasonable sense of the word.

So explanation is not only about having sufficient information; it is also about having the right kind of information. At least, it should be relevant.

So, what is it for information to be relevant? Deductive relevance is not the only kind. Consider the following example:

(B1) Omega-3 fatty acids prevent thrombosis.
(B2) This pill contains an adequate amount of omega-3 fatty acids.
(B3) Omega-3 fatty acids work by way of several parallel mechanisms; they are i.a. highly anti-inflammatory and also prevent blood cells from clumping together.
(B4) Taking this pill will reduce your risk of thrombosis.

The premise (B3) is relevant because it both strengthens our belief that (B1) is correct and explains why it is correct and therefore raises our trust in the conclusion (B4). But it is not necessary; the explanation would still be an explanation without it. We need not, and cannot, bring in all that is relevant.

Perhaps we should require all premises to be indispensable, like we already require the law-like premise to be? That would be a step in the right direction, but still not enough. Consider the two variants of the following example:

(C1) All sodium salts are soluble.
(C2) This salt is sodium chloride.
(C3) This salt will dissolve.

(C'1) All sodium salts are soluble.
(C'2a) This is a sodium salt.
(C'2b) This salt is a chloride.
(C'3) This salt will dissolve.

Both variants contain the same information in the premises. But (C2b) is superfluous in the C'-variant and would have to go if we allow only indispensable premises.

We are now facing the following dilemma: Either C and C' are different explanations. Then we conclude that the identity of an explanation lies not in the information contained in the premises but in something else, and our task is to find what that is. I suggest that this has to do with how the explanation conceptualises the situation and I will say more about that later.

Or else C and C' are the same explanation, only differently phrased. Since C' is defective because of the superfluous premise, C must be defective too, but covertly. I will try to prove that this is not so by casting doubt on the idea that covert superfluity is a fault. My strategy, therefore, is to attempt a reductio. If covert superfluity is to be avoided, how should we go about purging explanation C of it? (C3) is safe, being given as the explanandum, so we have to deal with (C1) and (C2).