Explanation Explained

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1. What explanation is and is not

In recent years the received view on explanation seems to be coming to an end. The much coveted model of scientific explanation that seemed to spring from Hempel and Oppenheim's original schema has thus met with important challenges. Roughly speaking, Hempel and Oppenheim saw explanation in science as a formal response to a why-question. They claimed that scientific explanation is an argument in which some law statement and some statement of inertial conditions form the premisses and a statement about the phenomenon to be explained forms the conclusion. Thus explanation is a question of logic - not of facts.

The most important reason why the covering law model fails is that it relies on a very narrow definition of explanation. By bringing in nomological laws as an essential element of that definition, scientific explanation automatically becomes associated with especially natural sciences. But in my opinion a theory of explanation which cannot account for the research practices taking place in the social sciences and the humanities is entirely inadequate. Even in the realm of the natural sciences it is wrong to think of explanation as merely subsumption under a law if we want a correct characterization of the explanatory practice. It is a natural demand that a theory of explanation should give us an account of our explanatory practices in the sciences and in the arts as well as outside the field of research, since no argument has ever proved that the logic of explanation in everyday life differs from that of explanation in science.

In my opinion explanation should be understood in the general context of interpersonal communication. Thus I disagree with those who, like Alexander Bird, believe that facts explain facts.[1] Literally speaking, such a view entails the claim that the world explains itself. It is, however, people who craft the explanation, facts do not explain anything themselves. Explanation is not an ontic category but an epistemic one. We may talk about facts explaining facts but this is really an elliptical way of expressing that explanations are concerned with facts, and that we want explanations to be truth-tracking. Indeed we should not blur the distinction between the particular act of explanation and the explanatory force of that action. What counts as an explanation is nevertheless not a question of facts but a question of pragmatic communicative strategies.

Explanation is a response to a question posed within a community by somebody asking himself or somebody else about certain information which would, if it comes available, fulfill certain cognitive goals of the questioner. Thus, explanation has its root in the rhetorical practice of raising questions and giving answers, where questions are raised by an interlocutor with the intention of their being correctly answered in one way or the other by himself or the respondent. A study of this rhetorical practice within a broader scientific practice and everyday life practice reveals, I think, all sorts of explanations, - and any reasonable theory of explanation should be judged against its ability to handle those different kinds of questions which are raised in the sciences as well as in the humanities. I shall argue that explanation, by and large, can be regarded as a narrative paradigm, i.e., a story containing relevant information to a certain question, and that what counts as relevant is measured with respect to our background knowledge.

Explanation as a rhetorical means of communication

Explanation is a rhetorical practice in the sense that explanation is an intentional act of communication. Rhetoric, as it is used here, has to do with expedient communication that is context-bound, directed and intentional, potentially persuasive, etc. An explanation is a response to a question by an interlocutor, and the explanation is meant by the respondent to inform him about what he does not understand by providing some missing information, by making something probable, or by making abstract issues concrete. The respondent's answer brings insight to the questioner by placing the information he asks about into a broader context of what he already knows or what he is willing to accept. Philosophers working on

explanation usually focus on the single scientist who himself may raise a question and then explain it by making experiments and, based on the results, provide us with a causal story of what causes the phenomenon. But by posing such a focus they take no account of the fact that the scientist is capable of raising such questions and answering them only because he is already a member of a linguistic community which gives him an understanding of what he is doing; what it means to raise a question and to give an answer. As being an appropriate answer to a information seeking question explanation is determined by the public rules of speach acts between more than one person. Therefore explanation should be seen as part of a more general communicative practice.

Thus, for a fuller picture of what a reasonable account of explanation looks like, we should address the rhetorical features of this explanatory practice. We should acknowledge that explanation is a recognizable speech act which is successfully accomplished when it follows the unwritten rules of raising an information seeking question and giving an appropriate answer to it. Explanation is, in other words, a matter of far more diverse communicative rules and cognitive processes than merely logic.

First, explanation provides *understanding*. Making sense is what explanation is meant to do. It gives us a psychological feeling of knowing - just like it very often puts us in a state of actually knowing something. Again, philosophers discussing explanation tend not to touch upon understanding. This neglect basically led to the attempts to see all explanation as having the logical structure of a formal argument. But facts of the world are not structured or arranged like presmisses and conclusions, so what good reasons do we have to claim that understanding, and thereby explanation, comes in terms of arguments? None! Rather explanation yields information that somehow increases our grasp of the matter in question. If we know what is the case we don't need explanation; the response does not add anything new to what we already know. If the interlocutor does not experience that he learns something new, the respondent does, in the eyes of the interlocutor, not provide an explanation. The respondent must, indeed, realize what she thinks is an appropriate response before she can offer an explanation. In other words, what counts as an explanation for her is perhaps not an explanation for him. Only in the situation where her response fits into his background knowledge will it provide him with an insight, and their understanding would be the same as long as they share a common epistemic background - something they to a very large extent do if they belong to the same linguistic community.

Second, explanation is *fact-oriented*. It refers to facts, or what is at least taken to be facts. Information being offered as an explanatory account is concerned with what is the case. But not all information about facts seem to count as an explanation. Factual information is necessary but not sufficient for explanation. If somebody asks a question like: ‘ Did Peter go to school today?’ - and you inform me that he did by saying ‘ Yes’ - could this response be an explanation? It seems not. An explanation does not merely consist of a citation of a fact; rather it tells us something about a fact by informing about other facts. An explanation takes the form of a story which puts the requested information into a wider context.

Third, explanation is not *truth-tracking*: We presuppose that the epistemic value of explanation is not merely that it yields information about facts but hopefully information that is true. It is a cognitive goal of the questioner that what is offered as an explanation is true and that the respondent provides him with such information. This does not indicate, however, that the force of explanation has anything to do with truth. We must, I believe, make a distinction between *force* and *value*. Many explanations are false though they still act as explanations. Aristotle’s accounts of the movement of an arrow and his account of the fall of a stone are, regardless of being false, nevertheless explanations. If truth were essential for some account to have the force of being an explanation, then much information provided by modern science as explanations would probably not be explanations after all - in spite of the fact that we currently have good reasons to believe in such information. It is too strong a demand that information must be true if it should function as explanation. A *correct* explanation is true, whereas an *incorrect* explanation is false .

Fourth, the explanans must be *relevant* for the explanandum: we must have good reasons to believe that the story being told is somehow connected to the fact being explained. Thus, a reference to the increased scarcity of storks in Denmark after the Second World War is not an appropriate response to the question why there is a strong decline in the birth rate of babies in the same period - these facts are simply not relevant for each other.

Fifth, explanations seems to be *asymmetrical* in the sense that the information explaining a fact is not also explained by this very fact. The height of the flag pole together with the sun’s position on the sky explains the length of the shadow, whereas the length of the shadow does not explain the sun’s position on the sky or the height of the flag pole.

The ultimate test of any account of explanation will be its capacity to incorporate these requirements into a satisfactory theory of the explanatory practice.

3. Why not causal explanations?

Scientific explanation is often associated with answering why-questions. For instance, van Fraassen explicitly claims: "An explanation is an answer to a why-question. So, a theory of explanation must be a theory of why-questions."[2] It is, indeed, correct that many scientific explanations are answers to why-questions, and we often see that such questions are requests for causal understanding of the phenomena involved. Nevertheless, I think that there are many different types of answers to why-questions which do not make any references to causes.

Consider the following cases of explanations, listed by Alexander Bird, of which only one refers to a causal fact:

(a) The window broke because the stone was thrown at it.
(b) The lump of potassium dissolved because it is a law of nature that potassium reacts with water to form a soluble hydroxide.
(c) Cheetahs can run at high speeds because of the selective advantage this gives them to catching their pray.
(d) Blood circulates in order to supply the various parts of the body with oxygen and nutrients
(e) He stayed in the café all day in the hope of seeing her again.
(d) His dislike of gerbils stemmed from a repression of his childhood fear of his father.

All these types of explanations are answers to why-questions. But it is merely the first of them which gives us a satisfactory answer by pointing to the cause of the phenomenon that is being asked for in the question. Each of the other examples illustrates a different kind of explanation which involves a reference to other than causal facts. We may classify them accordingly

(A) *Causal explanation* appeals to the *actual* cause of a certain phenomenon.
(B) *Nomic explanation* refers to a law of a certain phenomenon.
(C) *Functionalistic explanation* refers to the *actual* effect of a certain phenomenon, *in the sense that* a certain phenomenon is favorable or appropriate for the reproduction or succession of an individual or a society.
(D) *Functional explanation* appeals to the *actual* effect of a certain phenomenon, *but in the sense that* a certain phenomenon is favorable or appropriate for the survival or

cohesion of an individual or a society.

(E) *Intentional explanation* appeals to the *intended* effect of a certain phenomenon by referring to the literal meaning of a certain human action.

(F) *Interpretative explanation* appeals to the *consciously or unconsciously intended* effect of a certain phenomenon by referring to a certain metaphoric meaning of an action, a text, or a symbol.

What determines the use of each of these particular explanations in response to an appropriate why-question is the cognitive goal we have within a certain domain, and what we take to be our cognitive goal is indeed determined by what we take to be true about the domain in question. If we think that the basic feature of nature is that phenomena are causally connected, it will of course be our cognitive goal for the natural sciences to answer why-questions with a reference to causes since the purpose of such an explanation is to be true. Similarly, if we think that the basic feature of human beings is their intentionality, then it would be a cognitive goal for the social sciences and the humanities to answer why-questions with a reference to intentions, motives, wishes or meanings behind the behavior of human beings and their linguistic actions, simply because we take intentions, motives, wishes and meanings to be the fact of the matter. And finally, if we think that the essential feature of some of the products of human actions consists of symbolic meaning, it is our cognitive goal to answer why-questions about, say, a work of art by a reference to an interpretation which explains its symbolic meaning, because we want the interpretation to say something true about this artifact. In each case the sort of why-explanation we choose to ask depends on what we want to know; similarly, this depends on what we actually hold to be the truth and therefore on what kind of question we want answered.

. In each of these cases we explain a fact by relating this fact to another fact which we take to be relevant for an understanding of what we do not initially understand about it. If such a relation were arbitrary or accidental such an account would not work as explanation. In the case of causation we point to the causal nexus because we take causes to be relevant as explanation of their effects. In the example (a) above, the interlocutor accepts a reference to a stone as the cause, because it is part of his background knowledge that a stone can break a window pane. So the respondent gives an explanation just by relating the effect to its cause. But if the knowledge of causal connection alluded to by the respondent is not part of the

questioner's background knowledge, the respondent must offer an extended story narrative about the circumstances before she has successfully given an explanation.

Imagine that the pane broke because a fly hit it. However true the response that the window broke because a fly bumped into it might be, it would usually not count as an explanation until more information had been added. Before it is explained, the fact mentioned must, so to speak, be put into a broader factual context in order to bring it in accordance with the questioner's background knowledge. Such a broader context is produced whenever the respondent provides a story which brings to the interlocutor an understanding of how these facts can be causally connected in the given circumstances. It is the narrative discourse which transforms the response into an explanation such as telling that the window pane was so fragile that the momentum of *this* fly was enough to break the window, or that the window already had some cracks, or that the glass was frozen, etc.

We can say that causal explanations are typical responses to why-questions where the respondent refers to the actual cause as being relevant to a certain fact as the effect of the cause. Such a causal explanation tells us why the fact in question appeared in the first place (and not some other fact) because the stated cause produced the actual fact.

What we have said about causal explanations holds for the other sorts of responses to why-questions, too. Such answers first become explanations in virtue of being embedded in a narrative discourse; either implicitly - in case it already fits a common background knowledge mutually shared by the interlocutor and respondent, or explicitly in terms of a whole story - in case the interlocutor and respondent are not cognitively on par. Intentional explanations, for instance, are answers to why-question where the respondent points to the intended effect in order to explain a certain action. Unless the interlocutor already has the appropriate back-ground knowledge, the intentional explanation would account for the reason why a person engaged in a certain action (rather than another action) by pointing to the fact that this action was chosen because the actor believed the action to be perhaps the most effective means to reach his or her wishes. Similarly, interpretative explanations are responses to why-questions, where the respondent gives an account of a certain text with respect to its symbolic content by relating her response to some other symbolic facts or a theory of symbols. The respondent may explain the choice of, say, a metaphor with a certain symbolic meaning instead of another one by pointing to the connection with certain figures, symbols, stories, etc. which the text produces. She then explains why the text is as it is by saying that it presents an effective

means to express the symbolic and metaphoric meaning.

4. Why not just why-questions?

Any explanatory practice should be understood within a question-answer discourse. Now, why-questions are not the only kind of questions being posed in science. I agree with van Fraassen when he stresses that an explanation is not identical to a proposition, or an argument, or a list of propositions, but the same as an *answer*. Nevertheless, I take explanation to be whatever answer that yields relevant information as a response to whatever kind of question except whether-questions. To reserve explanation to answers that can only be associated with why-questions is, in my opinion, relics of the received view which cannot be left untouchable if we, as we must do, consider explanation as part of a communicative practice.

One may insist, however, that although the above forms of explanations are not reducible to causal explanation, every one of them nonetheless contains a causal element - as Davidson argues with respect to intentional explanation. Moreover, this element is implied in the understanding yielded by the explanation. Therefore why-questions are the only explanation seeking questions since these can ask for causal information. But even this is not true. We can either ask why an event occurs as it does, or ask how it is actually connected to other events. The fact is that whenever the occurrence of an event is considered as a tensed happening, one would pose a why-question to have its existence explained; but whenever the occurrence of an event is taken to be a tenseless happening, one would put forward a how-question to get to understand its relation with other events. Consequently, it is not only why-questions that can be answered properly within a causal scheme. The use of why-questions to request causal information seems to reflect our special temporal perspective on the world, where events are taken to come into existence over and above being caused, more than it reflects the actual causal structure itself.

In ordinary life we pose questions like: ‘ When will the next meeting take place?,’ ‘ What kind of dress did she wear?,’ ‘ How did he manage to break into the house?’ Similar questions are being raised in science too. Questions like: ‘ When did life begin?,’ ‘ Where did the embryo form of life develop?’ represent serious scientific inquiries for knowledge. Likewise, questions like ‘ What is the habitat of reindeers?’, ‘ What is the chemical composition of water?’, ‘ What is spin if it is not a classical angular momentum?,’ ‘ What is the significance of Planck's constant?,’ and ‘ What is the difference between a W^- boson and a

neutral *Z* meson?' are also genuine information seeking inquiries. The same thing can be said about questions like: ' How did the universe come into existence?,' ' How far away are the quasars?,' and ' How rapidly is AIDS spreading in the United States?' Perhaps these other sorts of questions should also be considered as serious requests for explanations?

There is good evidence that we are not only associating explanation with informative answers which are responses to why-questions. Commonly spoken sentences like ' Could you please explain how I find my way to Florence?'; ' Can you explain how this computer works?'; or ' Explain to me what this means' apparently show that the explanation requested is whatever information is relevant to a how- or a what-question. Taking this suggestion as a serious indication of what can count as an explanation also in the physical sciences we have: a scientific explanation is whatever response to the requests of knowledge that is posed within an appropriate scientific context, and which therefore is suspected to provide an appropriate scientific answer.

Van Fraassen is not alone in equating scientific explanation with a response to a why-question. For a long time it has been argued by philosophers of science that a request for scientific explanation can only be put in the form of a why-question, and that requests originally formulated in terms of other sorts of questions can be restated as why-questions without distortion of meaning.[3] In other words, any request for genuinely scientific explanation is believed to be confined to posing a why-question. Such an assumption usually focuses on features presumably characterizing the different kinds of responses rather than on features of the various requests themselves. The idea is that descriptions cannot operate as explanations, and most information seeking questions can be addressed satisfactorily by giving a descriptive response. An appropriate response to a what-question, for instance, often requires only a descriptive answer, but if it requires more, then the element required can be expressed in terms of an answer to a why-question. I am going to challenge this view.

My argument is that scientific responses to various types of questions are not essentially different from various types of scientific explanations.

In fact, the issue of whether or not all explanation seeking questions can be reformulated as why-questions easily becomes tautological: a question is a request for scientific explanation if, and only if, it can be posed as a why-question. Moreover, whether or not a what- or a how-question can be restated as a why-question should depend on the intention of the question, and not on the kinds of response possible. A question like 'How did the Universe begin?' is not

the same question as ‘Why did the Universe begin?’, and the former cannot be reformulated in terms of the latter. In the first case one asks about the way the Universe started out, and in the second case one inquires into what caused this development.

Admittedly, there are both what-questions and how-questions which can also be put as why-questions. Nevertheless, as long as what- and how-questions can be rephrased in terms of why-questions, we can also reformulate the why-questions in terms of the what- and how-questions. No direct translation from a what- or how-question to a why-question is possible by just changing ‘what’ or ‘how’ into ‘why’. A question as ‘How do birds migrate over huge distances?’ does not mean the same as ‘Why do birds migrate over huge distances?’. But when one asks ‘How do birds navigate when migrating over huge distances?’, one could instead have phrased the question as ‘Why can birds find their way over long distances?’ Whether such a possibility is open or not all depends on the intended meaning behind the question. If someone in a certain context asks ‘What is the spider's web used for?’, the same question could be properly posed in the same context as ‘Why does the spider make a web?’. In other contexts, however, the intended meaning of the two questions might be different. In the first case one would be asking for the function of the web, and in the second case one might wonder why the spider does not chase its prey (which in fact some species do).

Some what- and how-questions are not translatable into a why-question because each of these kinds of questions does communicate an intention which cannot be conveyed by any other kind of question. Therefore it is reasonable to think that there are situations where the request for an answer cannot always be propagated by a why-question. When somebody asks ‘ What is the chemical composition of water?’, he is asking for the chemists' knowledge of water's compounds, namely that water molecules consist of two hydrogen atoms and one oxygen atom. The answer expressing this piece of knowledge is formulated as an identity description. But does the answer not act as a genuine scientific explanation on the question? I think the description is quite informative. No question other than a what-question could in this case have communicated the person's request for knowledge. If he *had* known the answer to the question ‘ What is the chemical composition of water?’, he *could have* asked a silly question as ‘ Why does water consist of hydrogen and oxygen?’ - a question the chemist is in no position to be able to answer. Similarly, a question like ‘ How do hydrogen and oxygen combine?’ may ask for something which cannot be reworded as ‘ Why do hydrogen and oxygen combine?’. The purpose of posing the first question is to be informed about the

structure of the molecule, and the latter is a matter of which forces make hydrogen and oxygen combine into a molecule. In science we use distinct types of questions depending on what kind of information we are looking for, and consequently science offers different kinds of answers and hence different kinds of explanations. So, apparently, we ask how- and what-questions whenever we want to be informed about facts about concepts, theories, relations, logic, mathematics, structures, fundamental laws, rules, etc.

In light of this discussion, I submit that questions are being asked whenever we seek information about something of which we have insufficient knowledge, or when we do not know what to believe. We may be interested to know *where* something takes place, *when* it takes place, *what* is the case, *how* something is as it is, and *why* something happened as it did. Answers are being stated as a response to the request of various forms of explanations. They are meant to supply us with the proper information of the missing parts of what we believe. And they do so by filling in the lacunae in our knowledge. Thus the answer to a when-, where, what-, how- or why-question becomes equivalent with the ability to give an appropriate explanation of when, where, what, how or why.

Here we should, indeed, hesitate a little because it is not every kind of information which counts as an explanation. Stating a fact is not the same as explaining a fact. We explain a fact in terms of other facts. But quite often a response to questions like ‘ What time is it?,’ ‘ When did you arrive at work?,’ and ‘ Where do you stand?’ only states a single fact. The answer that the time is 2 o’clock, that I arrived at 9 o’clock in the morning, and that I am at Copenhagen’s International Airport does not work as an explanation. These responses are merely fact-stating answers which inform the interlocutor about a certain state of affairs. An explanation, however, has this further feature that it informs the interlocutor about a fact in relation to at least one other fact. As we said in the beginning, an explanation often provides a narrative context around the fact being questioned. Does this indicate after all that I have exaggerated when claiming that what-, when- and where-questions are explanation-seeking questions?

There is a certain feature of why-questions which may not belong to any other type of question. When someone asks ‘ Why *P*’, the question seems often to be elliptical for ‘ Why *P* rather than *P**, *P***, ...’. We simply explain the fact *P* by excluding the possibility of a class of alternatives which might have been the case, and we do so by relating *P* to other facts which determine *P*. Perhaps, it is this particular feature that endows answers to why-questions with their explanatory force, and which people therefore rely on when claiming that explanations

are answers to why-questions? Certainly there is some truth in the claim that posing a why-question, at least sometimes, implies a desire held by the questioner for an explanatory exclusion of alternatives. But this does not deny proper responses to other forms of information seeking requests their character of explanation. The elliptical nature of why-questions only conceals the fact that by putting forward such a question one must possess some background knowledge of the possible alternatives *P**, *P***, etc. The contrast to these alternatives is the reason why answers to why-questions are considered to be rich on information, and the reason why we regard such explanations of great value in science.

An answer offers information as an explanation whenever it gives us a story in which a certain fact is made consistent with our background knowledge, and therefore whenever this fact becomes more likely, significant, less surprising in the light of some other known facts. Imagine a question like ‘ When did the Big Bang take place?’ Putting such a question certainly requires that the interlocutor knows something about the Big Bang. Now, if the response prompted by this request of information is ‘ 15 billions years ago,’ then the answer may not be seen to constitute any explanation. It does not yield much understanding that the time is 15 billions years and not, say, 10 billions years. The interlocutor may indeed be completely satisfied by just being told this fact, if it is a fact, but he may also expect to hear an explanation of the fact. The fact to be explained then is the time of the origin of the universe. So if the answer says 15 billions years by telling a story about the red shift of the distant galaxies, the Hubble constant, the deceleration parameter, the temperature of the background radiation, etc, and about the uncertainty of some of these numbers, the interlocutor receives an explanation to his inquiry. And hereby the respondent excludes other alternative times. Yet the details of the explanation given depends on how much knowledge the listener already has about cosmology, that is, whether the interlocutor is a cosmologist himself, a physics student, or a bus driver. The story being told is presumably the same: the one to a colleague is not more correct than the one to the bus driver - it only contains information of a different order.

In principle, the manner in which we address such when-questions in science does not differ from the way we address similar everyday when-questions like ‘ When shall we meet tomorrow?’ Again, the respondent could just say 6 o’clock, but most people would not state such an answer as flatly. The respondent may therefore try to explain her choice by saying that 6 o’clock suits her best since she is going to have tea with a friend at 5 o’clock, and it will only take her ten minutes to walk from the cafe to the restaurant. She tells a story to explain

her selection of the most convenient time for her.

Asymmetry and relevance

The two main issues in the philosophy of explanation have been (i) the asymmetry between what explains and what has to be explained and (ii) the relevance of the particular explanation to the particular inquiry. It seems to me that the question of asymmetry very much depends on the question of relevance. For if some piece of information is relevant as an answer to a certain question, it stands by the rules of discourse in an asymmetric relation to the question. It is, in other words, the relevance relation that is primary in the understanding of what explanation is. So the real question is: how does the characterization of explanations as information-providing responses make sure that this information is relevant?

What exactly is it that ties an appropriate question together with the appropriate answer? What makes us pick up one answer among a whole range of possible but arbitrary ones as the appropriate response to a certain question? Is it a matter of pragmatics, as van Fraassen wants us to believe; is it a matter of logic, as the received view advocates; or has it something to do with nature herself, as defenders of the factual view argue? If I am correct in assuming that explanation is nothing but understanding conducive answers neither logic nor causation can be decisive for whether an answer is relevant or not. A phenomenon may be deductively subsumed under a law without the law providing an adequate explanation for the phenomenon in question, and a causal answer is relevant only in so far as we want to be informed about why a certain event occurred as it did, or how it is causally connected with other known events. Other kinds of explanation cannot invoke the causal nexus as what makes the answer citing the cause relevant to the question citing the effect. Here we must seek other criteria of relevance.

The relevance of the available information as explanation depends, I would say, on our background knowledge. The kind of answers that can function as a genuine scientific explanation depends partly on the kind of knowledge we are interested in, and partly on the accepted background assumptions and the factual information forming the context in which the question is stated. A person who believes that aliens are visiting our planet would find it quite informative and a good explanation to be told that some strange geometrical patterns observed in barley fields in England are due to space-invaders - in spite of the fact that it isn't true. What he accepts as explanatory relevant depends on his knowledge and general beliefs about

the world. The same holds for scientists. If they want to know something about the more permanent state of affairs of the world, the attribute of various entities, the constituents of materials, physical constants, etc., they will request an answer relevant to a what-question. Whether a particular answer is the proper response to that particular question *is* only a question of whether it provides them with some information in the light of their theories and cognitive interests. Since background knowledge and interests change, so will the answer taken to be relevant to a certain question. Even the answer to the same causal request may differ from person to person according to what the person regards as the salient feature among the causally relevant circumstances. But this contextual element of explanation does not entail explanatory relativism as long as the various explanations do not logically exclude one another. It does, however, point out the rhetorical nature of explanation.

Whenever someone asks a question like 'How do I get to the airport?', 'How do I design the drug insulin?' or 'How do I get the crop of wheat to grow faster?,' the relevance of the information that forms the appropriate response will be measured against his background knowledge concerning the possibility of taking action based on this information. If the answer provides the person with information upon which he can act, create, construct, take precaution, intervene, move around, etc. it will be considered relevant. Such information need not lead to successful action in order to be relevant as explanation. A true explanation will, indeed, allow for a successful action under practically realizable circumstances, whereas a false explanation will result in an unsuccessful one. In both cases, however, the information has established the possibility of some action. One can say that the response to such a how-question has narrowed down a potentially infinite set of possible actions to a particular one, or only a few of them, very similar to the appropriate response to a why-question. But, again, these alternative responses may be implicitly or explicitly formulated by the interlocutor or by the respondent. In most cases the questioner's background knowledge will contain no information, or very little, which allows him to explicitly state any of the alternative possibilities, but it is part of his knowledge that there may be many alternatives. If I am a tourist in Italy, asking my way to Rome, I am usually not able to know anything about which alternatives a certain response is excluding. But, as we know, many roads lead to Rome.

Conclusion

In the present paper I have defended the idea *that understanding explanation is a matter of*

understanding its rhetorical functions: all serious requests of knowledge are information-seeking questions whose answers may provide us with explanations. We have explanation whenever the information given by such an answer is put into a broader narrative discourse by bringing in a shared background knowledge. Thus, the distinction between description and explanation is one of pragmatics and not one of logic or semantics. The explanatory force has little to do with truth but a lot to do with making sense to the questioner. A theory of explanation should be capable of pointing to an explanation regardless of whether the answer is true or false. The asymmetry between what explains and what has to be explained depends on the rules of discourse and the relevance of the available information which, again, depends on our background knowledge. Explanation is rhetorical to the extent that we regard only explanation that makes sense to the questioner as a successful one. Explanation is, as we can see, contigent on the concrete elements in the communicative situation. In sum, I hold that information is relevant with respect to certain background knowledge if it fills out certain blanks in the questioner's knowledge, but is otherwise coherent with this knowledge, and if it provides him with the possibility of description or taking action based on the content of the information.[4]

References:

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2. Bas van Fraassen, *The Scientific Image*, Oxford: Claredon Press, 1980, p. 134.

3. See, for instance, Wesley Salmon, *Scientific Explanation and the Causal Structure of the World*, Princeton: Princeton University Press, 1984, p.10. However, he has later changed his mind; now he is denying that all requests for scientific explanations can be formulated as why-questions. See his ' Four Decades of Scientific Explanation', *Minnesota Studies in the Philosophy of Science*, Vol. XIII. Minneapolis: University of Minnesota Press, 1989, pp. 137-38.

4. I wish to thank Lisa Storm Villadsen for her instructive comments and criticism.