

Content, explanation and intention

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1. Reasons and Causes

Fred Dretske, in *Explaining Behavior*, offers an ingenious and sophisticated account of how inner states of an organism can acquire intentional content and of how the contents acquired in this way can play a causal role in explaining the organism's behavior. If this account is successful, it will help still the unease felt by the many philosophers who believe that reasons are causes (or at least causally relevant to action) but who also pine for a naturalistic and scientifically respectable account of how inner states (presumably states of the brain) acquire their contents. The prospects for a naturalistic reduction of content — one that meshes with a causal story of how intentional states like belief are relevant to action — have looked anything but rosy recently due to a number of widely discussed difficulties with all the obvious candidates for such an account of content. One of the appeals of Dretske's influential book is that it appears to evade some of these well-known difficulties without giving up anything that naturalists have any deep attachment to. Dretske's theory is also nearly unique in that the connection between content and action arises naturally out of the theory of content and so helps to remove any doubts that contents so defined are causally relevant to the actions they are cited to help explain.

It is not my concern here to evaluate whether Dretske has successfully avoided the many well-known difficulties that face his enterprise. Instead I would like to focus on the generality of the theory he offers. Dretske's theory of content, like its close relatives, is offered in the first place as an account of the

content of states that are closely tied to perceptual stimuli. As a result, the kinds of behavior that the theory is designed to explain are primarily behaviors that are triggered by some feature of the immediate perceptual environment. Not all human behavior, however, is tied to perceptual stimuli in any very direct way. One way in which human beings differ from other kinds of animals is in how much of our behavior is not under immediate stimulus control. This aspect of human behavior is clearly displayed in those sequences of behavior whose characteristics we would ordinarily explain by appeal to the possession of a plan or future-directed intention. What I will try to argue below is that there is no way to generalize Dretske's theory to take into account behaviors that are not stimulus-bound in any straightforward sense.

2. Dretske's Theory

The aim of Dretske's theory is to show that belief-desire explanations of behavior are causal explanations and that beliefs and desires are causally relevant to behavior in virtue of their contents. Dretske conceives behavior as a causal process connecting an internal state to a bodily movement. On this conception neither the internal state nor the external movement themselves count as behavior; rather they are components of the process that is the behavior. A behavior can be represented schematically as $(C \rightarrow M)$, where C is some internal state and M some external movement and the arrow represents the causal connection between the two. Dretske distinguishes two different sorts of causal explanations of behavior. A triggering cause of a behavior is a cause of C and explains why this particular behavior is produced now, as opposed to some other behavior or no behavior at all. A structuring cause of a behavior is a causal factor that helps explain why C causes M as opposed to some other external movement. As Dretske sometimes puts it, a structuring cause is a cause of C's

causing M. As we will see below, Dretske argues that the contents of beliefs are structuring causes of the behaviors they help explain.

The causal role of beliefs in structuring behavior derives, according to Dretske's theory, from the process by which beliefs acquire their content. According to Dretske, beliefs are internal representations. Representations are structures whose function is to indicate some state of affairs or event distinct from the representational structure itself. A state indicates another state or event if and only if the two states are (perfectly) lawfully correlated.¹ A system of representation can acquire its indicator function either conventionally or naturally. Beliefs are a kind of natural representational system, one in which the indicator function is acquired through a process of individual learning. This distinguishes beliefs from conventional systems of representation, such as language, and from natural systems in which the internal states acquire their indicator function via natural selection. It is the learning process that both gives a belief state its meaning and its role in explaining behavior.

The kind of learning relevant to the meaning of belief states, according to Dretske, involves the recruitment of internal states as causes of bodily movements because what the state indicates is relevant to whether or not the movement is rewarded. If a given movement (M) is rewarded only when an environmental condition (F) is present, then any available internal indicators (C) of F will be recruited as causes of M. As a result of the learning process, C (which indicates F) will come to be a cause of M. C has been recruited as a cause of M because of what it indicates about F. In this way, individual learning helps to ensure that the organism's movements are such that in the conditions that prevail those movements will be rewarded. As a result of this process, the

¹ This is just the notion of carrying information that Dretske uses in *Knowledge and the Flow of Information*.

internal state C has come to have the function of indicating F. That is to say, C has come to represent (mean, have the content that) F.

The content of a particular internal state C is, according to Dretske, determined by historical facts about the learning history of the organism. But the very same sets of historical facts are also what structures the system to make it the case that C is a cause of M. In other words, the fact that C has the function of indicating F gives both the meaning of C and a (causal) explanation of the behavior (C → M). To ascribe a content to a particular state of the organism is to ascribe it an indicator function, but to ascribe an indicator function is to say something about how the system's causal structure came to be what it is. Beliefs, understood as internal representational states that acquire their content through a process of individual learning, are causes of behavior because the very same process that gives a belief its meaning gives that state its causal role in producing movements.

3. Plans and Coherent Action

3.1. An example

Consider the following common type of situation. I want to go to New York during the Christmas break but I would also like to go to Chicago during the same time period. Perhaps there is a meeting in New York I would like to attend but my family lives in Chicago. In any event, I cannot fulfill both these desires and must settle for one or the other or neither. Suppose I decide that I will go to Chicago. I will then predictably engage in various actions that will make it more likely that I will get to Chicago successfully and make various other plans on the presupposition that I will be in Chicago during the vacation. I may make airline reservations on flights from Los Angeles to Chicago, I may call my parents to tell

them to expect me, and I may make arrangements to meet friends who live in the area. This set of actions displays a kind of coherence. They are all sensible things to do given that I am planning to go to Chicago. Some of them are means to that end, and some of them are components of other plans that only make sense on the supposition that I will be in Chicago for the vacation.

To get a clearer sense of the kind of coherence involved, consider some of the actions I will not undertake in this situation. I will not make airline reservations to Chicago and dinner engagements in New York. I will not agree to dress as Santa Claus for the Christmas party at my daughter's school. I may want to do these things and may want to do them as much as or more than I want to do the various things I have arranged to do in Chicago, but once I have settled on going to Chicago I will not perform actions and undertake commitments that are obviously incompatible with that plan. My commitment to a particular future goal seems to constrain, given what I believe, which of my desires I take steps to fulfill and which of them I do not.

3.2. Coherence and triggers

The kind of coherence and incoherence exhibited in sequences of actions, is not on the face of it easily explainable by Dretske's theory. Dretske's theory, if it works at all, shows how content is relevant to the causal explanation of individual pieces of behavior. The content of a belief state is causally relevant to why internal states of that type help cause the movements they do. The contents of beliefs and desires are structuring causes of individual pieces of behavior. To explain the coherence of a sequence of behavior it would seem necessary to refer to the triggering causes of behaviors. Coherence of the type discussed above is, after all, a matter of which behaviors are exhibited and which are not. Each individual behavior in the sequence may be susceptible to a structuring cause

explanation of the type Dretske advocates, but this does not help explain the coherence. Even if the sequence were incoherent it could still be the case that each individual behavior possessed an explanation of this type.

Any complex organism is going to possess more behaviors than it displays in any given circumstance. In Dretske's schematism suppose that there are representational states $C_1 \dots C_n$ which cause movements $M_1 \dots M_n$. The relevant behaviors are thus $(C_1 \ M_1) \dots (C_n \ M_n)$. But if we are to think of the C_i 's as beliefs, it will often be the case that an organism occupies more than one of these states at a time but only displays one of the relevant bodily movements. Part of the explanation here is that belief is only half the story and the relevant desires must also be present if the belief is to play its causal role. But there will still be more behaviors whose belief and desire components are instantiated than there are behaviors exhibited by the organism. This by itself is not a problem for Dretske's theory. What the contents of beliefs and desires are supposed to explain is why those beliefs and desires produce that movement rather than some other one. They do not explain, and Dretske does not claim they explain, why one belief-desire pair is causally efficacious and some other is not. Whatever behavior is produced will be capable of an appropriate structuring cause explanation, but why that behavior rather than some other one was produced is a question about triggering causes not structuring causes.

In the kinds of simple learning situations Dretske often discusses triggering causes do not present any difficulty. For example, pigeons can learn to peck on a target in response to visual stimuli. During the learning process some internal state acquires the function of indicating the presence of the stimulus and of producing the pecking motion. During learning the pigeon acquires a new behavior, a behavior which is explained by reference to the content of the internal state that is a component of the behavior. Questions about triggering

causes in these kinds of cases seem to admit of rather simple answers. The pigeon's pecking behavior is triggered by appropriate sensory stimulation. Whatever stimulus the pigeon has been trained to respond to is applied, and the internal state of the pigeon whose function is to indicate that stimulus is activated. If the pigeon is in the appropriate motivational state (it is hungry) it will produce movements that result in the target's being pecked. The meaning of the stimulus (if it has one) is irrelevant to its ability to trigger the pigeon's behavior. There is no need to appeal to reasons or contents or any other semantic property to explain why the pigeon displayed this behavior at this time. The semantic properties of the pigeon's internal states are relevant to explain why it produced movements that resulted in the target's being pecked, but not to why it produced those movements now. The question that remains open is whether this sort of account is capable of explaining the coherence of extended sequences of actions.

3.3. Coherence without triggers

One possible way to account for coherence in terms of structuring causes would be to appeal to a rich and structured system of cognitive and motivational states. What causal effects the triggering of a particular state has and consequently what behaviors it is a component of depends on the total motivational and cognitive state of the organism. I may believe that my daughter wants me to appear as Santa Claus at her Christmas party, but this belief does not cause me to start phoning costume rental stores, because I also believe that I will not be able to attend the party. Instead this belief may cause me to explain to my daughter why I cannot fulfill her desire. There have been influences on the causal structure of the system other than the original learning situation which gave this particular state its indicator function. Subsequent

learning situations change what behaviors this state is a component of. If these changes work out in the right sort of way the result is a system that is such that the sequence of behavior it displays is coherent.

If the system of beliefs and desires is rich enough and itself coherent then it may be possible to explain the apparent coherence of sequences of behavior without having to appeal to triggering causes. This picture of how coherent behavior is generated is one that is familiar from work in decision theory. Nothing I will say here is intended as an attack on the adequacy of this influential theory of the nature of rational action. I will, however, argue that these are resources that are not available to Dretske for two related reasons. First, there is no account in the theory itself as to how to generate a sufficiently rich and structured system of propositional attitudes. Second, even if it is possible to generate a sufficiently complex motivational and doxastic structure, there are serious difficulties in the way of getting the right kind of causal efficacy for the elements of the structure. I will postpone discussion of these difficulties for now, however, and turn instead to another strategy for explaining coherence that does not require resources beyond those Dretske has already introduced.

4. Two Kinds of Coherence

4.1. Chaining

There is one kind of coherence a sequence of behavior can display that is clearly unproblematic. Even relatively simple organisms can display patterns of behavior that are admirably coherent. But the explanation of this coherence need not involve any resources that are not already present in Dretske's theory. The simplest cases of this kind need not even involve representational states, merely stimulus response mechanisms. The steady stream of ants marching through my

kitchen twists and turns, taking advantage of the cover provided by the dirty dishes on the counter and ends up at the glob of jelly left from breakfast. An individual ant following this trail engages in a sequence of behaviors that seem to fulfill the joint goals of reaching the food source with minimum exposure from above. But there is no need to introduce sophisticated cognitive processes and internal representations of the cluttered terrain to explain the ant's ability to follow such a complicated path. All the ant needs to do is follow the scent trail laid down by its predecessors. Environmental cues (scents) trigger movements of the ant's legs that advance it towards its goals. In this case the environment is structured in such a way (albeit by the activities of other ants) that, given the ants own dispositions to respond to stimuli, it follows a sensible although complicated path to its goal.²

This kind of interaction between the environment and the internal states of an organism often provides an adequate explanation of the apparent coherence that is a prominent feature of animal behavior. Honeybees in constructing their comb engage in sequences of behavior that appear remarkably coherent and result in a structure of surprising geometric regularity. Again, we need not attribute any knowledge of geometry, nor even the goal of constructing a structure composed of hexagonal cells. Each movement by the bee alters its environment and its situation within its environment in such a way that the next perceptual stimulus triggers a behavior whose movement component advances the bee towards the apparent goal. It is the interaction between the structure of the environment and the behavioral repertoire of the bee that produces the apparent coherence of the bee's sequence of behavior and underlies the temptation to attribute to the bee

²I do not mean to deny that ants may have internal representations of their environment. They may have such representations, and these representations may play a role in guiding their behavior. The point here is that such complications are not necessary to explain the coherence exhibited in this kind of sequence of behavior.

some type of plan or intention.

I will call this stimulus-driven form of coherence, *chaining*, to emphasize that it is brought about by one behavior's altering an organism's environment or situation within its environment in such a way that the next behavior triggered is appropriate to some goal. In cases of chaining, the triggering of each individual behavior can be attributed to some immediate stimulus. The coherence of the sequence of behaviors is explained in terms of the interaction between the internal structure of the organism in question and the environment in which it is located. If it is appropriate at all to talk of plans in the context of chained sequences of behavior it is only if it is acknowledged that a major component of the plan is stored, as it were, in the environment and not in any internal structure that the organism possesses.

4.2. Chaining and human beings

It is not just insects for whom chaining can in many cases provide an adequate account of coherent sequences of action. There are many instances of extended sequences of human behavior that display coherence that can be explained in terms of environmental structure. From my home in Pasadena I know how drive to various locations within the adjacent city of San Marino. In particular, I know how to drive to Lacey Park and have done so on numerous occasions. When I set off for Lacey Park I embark on a complicated sequence of behaviors that involves not only controlling the motion of my car but controlling it in such way that my passengers and I arrive at the park in a moderate amount of time. My behavior exhibits coherence with respect to my goal of arriving at the park in time to have a picnic.

This example displays one important difference from the earlier examples involving ants and bees and an even more important similarity. The behaviors I

display as I drive are for the most part learned. I have had to learn that when I see my car drifting to the right, I need to produce movements that result in the steering wheel being turned slightly counterclockwise. I have also had to learn that if I wish to arrive at the park, I need to perform movements that will accomplish a left turn when the entrance to the Huntington Library is before me. Because these behaviors are the result of a process of individual learning, they may be (and almost certainly are) capable of being given an explanation in terms of reasons. The ants and the bees of the earlier examples, on the other hand, are almost certainly not engaging in behaviors that they possess as a result of having undergone a process of individual learning, and consequently their behaviors are not explainable by appeal to these kinds of structuring causes.

What is similar in the two cases is that the explanation of the coherence of the sequence of behaviors may be very similar. When I want to go to the park, I engage in a sequence of behaviors each of which is triggered by some perceptual stimulus. If I have the appropriate desire and perceive that I am at the corner with the mailbox on the left, I produce movements that result in a left turn. If I am at a stoplight I go straight. The learning process has recruited certain representational states which in conjunction with a particular motivational state cause me at each point in my journey to produce movements that advance me on my journey towards the park. The only sophistication that my sequence of behavior involves over and above that of the ants and bees is that the connections between my internal states and my movements are established by learning and not by natural selection.³

³ In some cases my behavior may depend on more sophisticated kinds of internal processes. I may possess some kind of internal map of the network of streets near where I live. I may even possess a map with a scale and the cardinal directions. I may, however, simply have learned to turn left, right, or go straight when confronted with certain landmarks. If this is the case I may be unable to answer questions about which direction the park is from here or how far it is. I may not even be able to give anyone else directions on how to find the park, especially if they are

In all cases of chaining the coherence of a pattern of behavior is the result of relatively simple stimulus response connections in conjunction with a stable and structured environment. Each of my movements changes the environment, or my situation in the environment, in such a way that the new stimulus triggers a behavior that coheres with my past behavior. I need not have a plan and I need not have any knowledge of the goal state except what is required to recognize that I have attained it. Chaining is as much a feature of coherent sequences of human behavior as it is of insect behavior. In these cases the chief difference between human beings and organisms with less complicated behavioral repertoires is the role learning plays in structuring the responses of the organism. In the human cases Dretske's theory would allow an explanation in terms of reasons for each behavior in the sequence and the overall coherence of the sequence would be explained by the kinds of stimuli that trigger each of these behaviors.

4.3. Chaining and plans

Chaining is not an adequate account, however, of all cases of coherent sequences of behavior. Consider again the actions centering on my plan to go to Chicago over Christmas break. As we saw earlier, this set of actions displays a kind of coherence that is similar in some respects to the coherence displayed by the sequences of behavior we have just been discussing. There is, however, one important difference. Environmental stimuli cannot be relied on to trigger the relevant behaviors. In cases of chaining, perceptual stimuli are what trigger one behavior rather than another. We can give my reasons for turning left in terms of what I believe and desire, and we can explain why I turn left *now* in terms of

starting from somewhere other than my home. It is this latter kind of case that I have in mind in this example.

features of the environment. If my internal structures and my environment are coordinated in the right way the result will be coherent patterns of behavior. In more complicated cases like the arranging of travel plans, however, we cannot rely on the environment to trigger behaviors in a coherent fashion.

As in the simpler cases just discussed, each of my behaviors will be susceptible to an explanation in terms of structuring causes. But when we turn to the question of what triggers the individual behaviors in this collection the answer is much less obvious. A phone call to a friend in Chicago may be explained by my desire to spend time with this friend in conjunction with my belief that calling him in advance is a means to this end. Such an explanation, however, is of no help in understanding why I engage in this behavior rather than the behavior that results in my calling a friend in New York instead. That behavior is equally well explained by my reasons, and we may suppose that if anything I would rather spend time with my friend in New York than with my friend in Chicago. In cases of chaining one behavior produces a change in my perceptual environment that triggers the next behavior in the sequence. The behaviors that are triggered in the course of arranging my trip to Chicago, however, produce no obvious changes in my perceptual environment of an appropriate kind. Making airline reservations does not alter my perceptual environment in ways that make it obvious why I should next call Chicago rather than New York. One way of expressing the difference between coherence derived from chaining and the current case is that the examples of chaining we have looked at are all stimulus bound in a way that my behavior in making travel plans is not. To explain coherence in non-stimulus bound patterns of behavior we cannot look to the external environment to help us.

5. Intentions and Coherence

Dretske's project is to show how common-sense explanations of behavior in terms of reasons can be cashed out in a naturalistic way that ensures that reasons are among the causes of behavior and that reasons possess their causal powers by virtue of their content. What the discussion of coherence suggests is that the account he offers for individual behaviors may not generalize to an explanation of an important feature of some complicated patterns of behavior. Even if Dretske's account is incapable of explaining all cases of coherence, this will only constitute an obstacle to Dretske's project if coherence is the kind of thing which is explained by appeal to reasons. If reasons are not cited in the explanation of coherence then we have not uncovered any inadequacy in the account of how reasons can be causes.

In the case of my trip to Chicago, however, it is clear that the coherence of my behavior is one of the things that I will appeal to reasons in order to explain and justify. If I announce to my wife that I have just arranged to have dinner with Grayson on December 26 she very well may ask why I have made such a commitment. I will not respond to her query by reminding her that I enjoy Grayson's company very much. Instead I will tell her that I intend to go to Chicago after Christmas, and as evidence that I really possess this intention, I may tell her that I have also made airline reservations and that I have also called my parents and told them to expect me. The explanation of the coherence of my actions is my possession of an intention or plan with a particular content. In this explanation the content of the plan plays a crucial role in showing why I engaged in these behaviors rather than some other behaviors that are consistent with what I believe and desire. Coherence is a feature of behavior that is in many cases explained by appeal to contentful states that appear to be distinct from beliefs

and desires.

6. Dretske and Intention

We are now in a position to pose a dilemma for Dretske (and I think any other defender of a more or less causal theory of content). He must either acknowledge that intention is relevant to explaining behavior and consequently some story about the content of intentions and the explanatory relevance of this content must be forthcoming; or he must put forward some other alternative for explaining the coherence of non-stimulus bound sequences of behavior. To ignore coherence altogether is to leave one of the most interesting and most distinctive aspects of human behavior without explanation. In fact, it is the independence of some human behavior from direct stimulus control that seems to legitimize talk of reasons and mental representation in the first place. If we are to talk seriously of the causal relevance of content, we should be able to offer an account of its relevance to those aspects of behavior that in which talk of representation seems to come closest to being ineliminable

6.1. The contents of intentions

My discussion here can be brief. There is virtually no discussion of intention or planning to be found in Dretske and very little that I am aware elsewhere in the literature on causal theories of content. In Dretske's publications his past strategy has been to either ignore intention altogether or to play down its significance as an element in the explanation of behavior. In *Explaining Behavior* Dretske does not mention intentions at all. In his fullest discussion of intention he claims that, "Intentions...are bit players in this explanatory game," and

consequently drops the subject.⁴ It is clear, moreover, that the resources already in the theory are not suitable for giving an account of the content of intentions or plans.

There are two ways an internal state can acquire content in Dretske's framework. Desires derive their content by connecting environmental contingencies with increased probabilities of particular behaviors: desires are what make some stimuli rewarding. That is past tokens of that state made it that case that some environmental effect increased the likelihood that the organism will repeat the behavior that resulted in the effect. The content of the desire just is whatever stimulus type past tokens of the desire made rewarding. But this kind of analysis is clearly insufficient to account for intention. I may intend to go to Chicago even if I have never been there before, and there may be no past tokens of this intention to appeal to. It is also somewhat strained to talk of intentions as making environmental contingencies rewarding. Being in Chicago may not be a state of affairs with any intrinsic value to me and the mere fact of my presence in Chicago may not make me any more likely to perform any movement at all.

Beliefs as we have seen, are states whose content is characterized in terms of what it is their function to indicate. Indication in this case consists in a lawful relationship between internal states of the organism and external contingencies. This may be adequate as an account of belief (although see below), but it seems the wrong way round for intention. The function of intentions is not to tell us how the world is but rather to represent what we are trying to make it like. If we are to talk of function here, it is the function of intention to provide us with action-guiding goals, not with representations of the way things are. It is strange to suppose that the content of an intention is given by what it is the function of

⁴PPR Symposium, p. 832.

that state to indicate, given that intentions are important in just those cases in which there are no apparent lawful connections between the state of the organism and the current and future state of the world. There does not look to be any hope for telling an appropriate story about the content of intention that does not involve reducing intentions to some appropriate combination of belief and desire.

6.2. Coherence without irreducible intention

The other horn of the dilemma may seem more appealing to Dretske and fellow travelers. There are two possibilities here. Either intentions always work through their effects through the structure of beliefs and desires possessed by the agent, or intentions are reducible to some special combination of beliefs and desires. Either way we will require some explanation of coherence that appeals only to beliefs and desires. I will confine my discussion to the second possibility although the reasons offered for its rejection as a solution to Dretske's difficulties will apply equally to both.

It may seem that some kind of reductionist account of intention is the way to solve these difficulties. There is, after all, a respectable philosophical tradition that attempts to reduce intention to some special kind of belief or desire or some special combination of the two. Even if this is correct, however, it is an interesting result that Dretske is committed to the reducibility of intention to belief and desire and that the tenability of his theory depends on the tenability of some such reductive hypothesis. As I read the literature, there is no current philosophical consensus on the correct analysis of intention, and there are plausible arguments against the reduction of intention to belief and desire.

A reductionist account of intention must show to how to reduce intentions to some appropriate combination of belief and desire. The simplest possible such

account would claim that an intention to A is just the desire to A combined with the belief that one will A. For example, one might argue that for me to intend to go to Chicago is to want to go to Chicago and to believe that I will do so. This combination of belief and desire in conjunction with ordinary means-ends reasoning may offer an adequate account of the ability of intention to explain the more puzzling cases of coherent behavior (or it may not). There is still a mystery here, however, for Dretske.

The problem is generated by the fact that Dretske's account of the content of beliefs appears to require that there have been prior tokenings of that state which indicated the situation that is the content. But I may intend things of which I have no prior experience. This problem is a special case of a more general problem about the contents of beliefs that Dretske's theory faces. Even if intentions are reducible to appropriate belief-desire combinations, the question still remains as to how are we to understand the contents of beliefs about novel situations in his terms. I may intend to go to Australia and I may believe that I will go to Australia but I have never been there. There is no state of mine that has in the past indicated that I am in Australia and because of its causal effects on my movements been recruited to have the function of indicating that I am in Australia.

The answer here is presumably some kind of empiricist-style analysis and recombination. Some states are recruited to have control functions because of what they indicate. Once we have a set of representations like this, their parts can be recombined in various ways to generate new states whose content is determined by what it was their function to indicate in their original context. Representations of a wide range of previously unexperienced situations could, presumably, be formed in this way. Adding this kind of combinatorial process to the basic process of recruitment through individual learning would, if

successful, provide a sufficiently rich structure of representations to solve the problems facing Dretske's theory.

There are two kinds of difficulties that Dretske faces in pursuing this traditional line of attack on this problem. The first is that there is nothing in the theory that supports the claim that the parts of a representation themselves have content. What states indicate are whole propositions, and it is not at all obvious how to impose the kind of structure on the indicator states that such a combinatorial process requires. Even if this problem can be solved, however, there is a further difficulty. Dretske gets the right kind of causal efficacy for representational states by tying their content to the learning process. Learning both gives content to a representational state and restructures the system so that the movements produced by that state are appropriate when what it indicates is present. Nothing here tells us how the system's causal structure will be changed by combining elements from two different representational states. The price to be paid in obtaining a sufficiently rich structure of representational states is the abandonment of the justification for claiming that those states are causally efficacious in the production of behavior.

7. Conclusion

The moral I would like to draw from this excessively detailed discussion of Dretske is that there is a general problem in accounting for the stimulus independence of much human behavior within the confines of any theory of content that draws its resources from notions like information or causation. I have not provided the more general argument here but its outlines should be clear enough. When we look at behavior that involves planning in order to achieve set goals, and when the contents of the goals play a role in structuring the sequence of behavior itself, we cannot rely on the causal origins of those

states nor on their lawful connections to environmental states to account for either the contents of these states or for how these contents are causally relevant to the behavior that is in fact produced.

Even if Dretske's theory is successful in accounting for some kinds of behavior, it leaves unexplained (and, I have argued, unexplainable) the most distinctive characteristic of human behavior. It is just when the environment stops being much help in guiding behavior that talk of representations becomes most salient and it is in exactly these cases that Dretske's theory falters. I suspect that this is not because Dretske is not sufficiently clever or that there is some yet unknown explanatory resource waiting to be discovered that will fill the gap. Rather, I suspect that the entire project is misguided and that some other story about folk-psychological explanations of behavior altogether is what we should be looking for.